

Primary Clinical Care Manual



9th edition 2016



Royal Flying Doctor Service
QUEENSLAND SECTION



The *Primary Clinical Care Manual* 9th edition 2016

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Comments and feedback

Comments and contributions to this 9th edition are welcome. Please write or email

Executive Director
Rural and Remote Clinical Support Unit
Torres and Cape Hospital and Health Service
PO Box 7193
Cairns, Queensland 4870
pccm@health.qld.gov.au

General Manager - Health Services
Royal Flying Doctor Service (Queensland Section)
Terrace Office Park, Ground floor
527 Gregory Terrace
Bowen Hills, Queensland 4006
rfdsbne@rfdsqld.com.au

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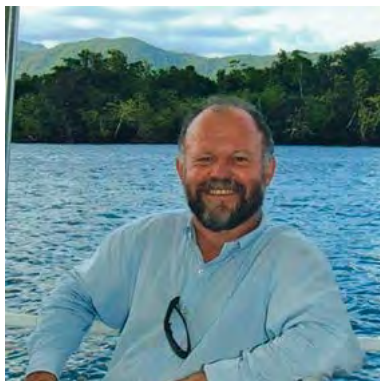
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In fond memory of Dr Geoff King

Director, Pre Hospital Emergency Care Council, Ireland 2001 - 2014

Medical Superintendent RFDS (Qld) 1991 - 2001

Medical Superintendent Mossman Hospital 1986 - 1991



This edition of the *Primary Clinical Care Manual* is dedicated to the memory of Dr Geoff King, who was a co-author of the first edition of the PCCM together with Lyn Overton.

Dr King was passionate and purposeful in improving the health of people in rural and remote areas and believed that:

“the best health outcomes are achieved when well prepared health professionals work in collaboration and partnership in both practise and educational settings.”

It was out of this belief that the *Primary Clinical Care Manual* was founded with the first edition published in 1998

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Queensland Health

The *Primary Clinical Care Manual* (PCCM) 9th edition provides Clinical Care Guidelines and Health Management Protocols, especially for Scheduled Medicines Rural and Isolated Practice Registered Nurses and authorised Aboriginal and Torres Strait Islander Health Workers to administer and supply medications. The interventions recommended in the PCCM 9th edition are evidence based and are in accordance with the *Health (Drugs and Poisons) Regulation 1996*

The PCCM 9th edition is the result of a successful partnership between Department of Health staff and the staff of the Royal Flying Doctor Service (Queensland Section)

The PCCM 9th edition is the principal clinical reference and policy document for health professionals working in rural and remote Queensland. It contains Health Management Protocols that support the advanced practice of authorised Aboriginal and Torres Strait Islander Health Workers, Scheduled Medicines Rural and Isolated Practice Registered Nurses, Authorised Sexual and Reproductive Health Registered Nurses and Immunisation Program Authorised Registered Nurses. These Health Management Protocols set out the circumstances, conditions and restrictions under which medicines listed in the Drug Therapy Protocols can be used

The Department of Health staff working in rural and remote ambulatory care settings use the clinical care guidelines and Health Management Protocols contained in the PCCM 9th edition as their guide to practice. I commend the PCCM 9th edition as the principal clinical reference and policy document to the Department of Health's rural and remote practitioners



Michael Walsh
Director - General, Queensland Health

Royal Flying Doctor Service (Queensland Section)

The Royal Flying Doctor Service (Queensland Section) (RFDS) acknowledges the support and assistance of the clinical staff from both Queensland Health and the RFDS who have willingly given of their time and expertise in revising this edition of the *Primary Clinical Care Manual* (PCCM)

The RFDS fully appreciates the difficulties encountered when providing high quality health care in rural and remote locations, where the clinician so often provides services with limited access to support or relies on assistance provided by remote consultation. In these circumstances, the PCCM provides a readily available, concise reference text which the treating clinician can consult, knowing that the advice contained in this manual is current, evidence based, and reflective of the best clinical practice in rural and remote Australia. In emergency situations, the manual provides support for appropriately authorised clinicians to initiate treatment prior to consultation with a Medical Officer, thus ensuring better health outcomes for those living and working in rural and remote Australia.

Through its support of the treating clinician, the PCCM will also help to overcome the 'tyranny of distance' for rural and remote Australians, and ensure they receive the same standard of care available in metropolitan areas of Australia



Anita Hansen
General Manager, Health Services.
Royal Flying Doctor Service (Queensland Section)

Queensland Ambulance Service

Queensland's vast size and its diversity in geography and demographics present a unique challenge for all health care professionals in this State. We must continue to develop innovative methods of service delivery to cater for the specific needs of our rural and remote communities. The lack of a centralised population in this state and the increasingly complex health care needs of our rural and remote communities will ensure that Queensland remains at the forefront of healthcare innovation. The use of Registered Nurses, Paramedics and other Health Care Workers in meeting this challenge is a great example of one such model

As Medical Director of the Queensland Ambulance Service, I commend this 9th edition of the *Primary Clinical Care Manual* and am confident that it will continue to be of great benefit to our communities



Professor Stephen Rashford ASM MBBS FACEM
Medical Director
Queensland Ambulance Service

Australian Defence Force

As the provider of primary health care to the men and women of the Australian Defence Force, one of the key provisions of the Defence Health Services is the delivery of the highest quality health care, both on our bases and when we deploy on military and humanitarian operations. This directly enables the Australian Defence Force to carry out its role of protecting Australia's interests locally and abroad

As Surgeon General of the Australian Defence Force I fully support the evidence-based approach of the *Primary Clinical Care Manual* (PCCM) and its alignment to National Health and Medical Research Council Guidelines on Clinical Protocols. These two factors, together with the PCCM's particular focus on the delivery of health care by a range of practitioners in isolated and regional areas make the PCCM a valuable resource for the Defence Health Service

I recognise the extensive knowledge and experience of those individuals who have revised the content for this edition, building on an excellent foundation. My intent is that the ADF will remain a significant contributor to this high quality publication through representation on the Editorial Committee to work in collaboration with the Royal Flying Doctor Service (Queensland Section) and Queensland Health

I have endorsed the PCCM for use by authorised health personnel across the Australian Defence Force for practice when deployed in the field, at sea and overseas, within the ADF guidance I set

It is with great pleasure that I commend to you this 9th edition of the *Primary Clinical Care Manual* (PCCM)



Tracy Smart AM
Air Vice-Marshal
Surgeon General, Australian Defence Force

New South Wales - Hunter New England Local Health District

The *Primary Clinical Care Manual* (PCCM) 9th edition supports the development of a diverse range of skills that are needed and gives confidence to those who are in isolation. Higher level clinical support may only be available by technology or from a significant distance

The ongoing process of updating the manual and ensuring that the information in it is based on the best evidence available gives an assurance that each clinician on the front line has a reliable tool to work with

Each State has different legislation that governs the access to medications by different groups of clinicians. Registered Nurses in NSW must ensure that they follow the requirements of State policy. While this may limit administration of many medications, the other information contained in this volume will prove to be of significant benefit

Hunter New England Health is thankful to the Rural and Remote Clinical Support Unit - Queensland Health for the production of this clinical reference guide for use in rural and remote areas and for allowing our Local Health District access to the information for our facilities and staff

I look forward to the benefits that this reference will bring and the ongoing collaboration that supports the health of rural people



Michael DiRienzo
Chief Executive

Acknowledgements

Primary Clinical Care Manual 9th edition, editorial committee

- Dr Dean Taylor, Chair, Director of Medical Services; Medical Education Officer/Medical Officer, Royal Flying Doctor Service (Queensland Section)
- Paul Baker, Director of Nursing/Facility Manager, Wandoan Primary Health Care Centre, Darling Downs Hospital and Health Service
- Fiona Bittlestone, Outreach Pharmacist, Torres and Cape Hospital and Health Service
- Maree Cummins, Nurse Manager - Aeromedical Training and Clinical Resources, Royal Flying Doctor Service (Queensland Section)
- Teresa Hazel, Clinical Nurse Consultant, Clinical Manuals, Rural and Remote Clinical Support Unit, Torres and Cape Hospital and Health Service
- Shona Lynch, Clinical Nurse Consultant, Clinical Manuals, Rural and Remote Clinical Support Unit, Torres and Cape Hospital and Health Service
- Jo Mahony, Nurse Manager, Royal Flying Doctor Service (Queensland Section), Charleville
- Michael Maw, Nurse Practitioner (Emergency), Executive Director: The MORDUN Group. Director: Institute of Education and Training
- Peter McCormack, Executive Director, Rural and Remote Clinical Support Unit, Torres and Cape Hospital and Health Service
- Susan Muirhead, Nurse Educator, Rural and Isolated Practice, Cunningham Centre, Cairns, Darling Downs Hospital and Health Service
- Dr Tim Wellingham, Senior Medical Officer Obstetrics/Anaesthetics, Dalby Hospital, Darling Downs Hospital and Health Service

Editorial and production support

- Debbie Jolley, Quality and Innovation Manager, Rural and Remote Clinical Support Unit, Torres and Cape Hospital and Health Service

The *Primary Clinical Care Manual* editorial committee gratefully acknowledges the contribution of clinicians and other stakeholders who participated in the review, development and endorsement of the 9th edition

Section 1. Patient assessment and transport

- Dr Amanda Roberts, Medical Officer, RFDS (Queensland Section)
- Dr Kerry Jones, Medical Officer, RFDS (Queensland Section)
- Dr Mark Elcock, State Medical Director, Retrieval Services Queensland

Section 2. Emergency

- Dr Richard Mulcahy, Emergency Physician, Cairns Hospital, Cairns and Hinterland Hospital and Health Service
- Deborah Stiles, Resuscitation Clinical Nurse Consultant, Gold Coast University Hospital, Gold Coast Hospital and Health Service
- Lisa Tewhatu, Resuscitation Clinical Nurse Consultant, Princess Alexandra Hospital, Metro South Hospital and Health Service
- Queensland Emergency Department Strategic Advisory Panel, Healthcare Improvement Unit, Clinical Excellence Division, Department of Health
- Dr Trent Lipp, Staff Specialist, Emergency Medicine, Royal Brisbane and Women's Hospital, Metro North Hospital and Health Service

- Dr Adam Michael, Senior Medical Officer, Department of Emergency, Bundaberg Hospital, Wide Bay Hospital and Health Service
- Dr Chukwuemeka Nwufoh, Clinical Director for Emergency Medicine, Co-Director for Emergency Medicine Training, Senior Clinical Lecturer, The University of Queensland
- Dr Kunwarjit Sangla, Medical Director of Rural Hospitals Service Group/Director of Endocrinology, The Townsville Hospital, Townsville Hospital and Health Service
- Statewide Diabetes Clinical Network, Healthcare Improvement Unit, Clinical Excellence Division
- Statewide Respiratory Clinical Network, Healthcare Improvement Unit, Clinical Excellence Division
 - Steering Committee members and contributing respiratory network members
- Statewide Cardiac Clinical Network, Healthcare Improvement Unit, Clinical Excellence Division
- Statewide Stroke Clinical Network, Healthcare Improvement Unit, Clinical Excellence Division
- Siobhan Connolly, Burn Education & Prevention Officer, NSW Agency for Clinical Innovation Statewide Burn Injury Service
- Professor Michael Muller, The University of Queensland, General Surgeon, Burns and Trauma, Royal Brisbane and Women's Hospital, Metro North Hospital and Health Service
- Carol Wylie, Manager, Queensland Poisons Information Centre, Lady Cilento Children's Hospital
- Dr Colin Page, Emergency Physician and Clinical Toxicologist, Department of Emergency Medicine, Princess Alexandra Hospital, Metro South Hospital and Health Service
- Professor, John McBride, Infectious Diseases Physician and Clinical Microbiologist, James Cook University, Cairns

Section 3. General

- Royal Flying Doctor Service (Queensland Section), Medical Officers
 - Dr Shaun Parish
 - Dr Dean Murray
 - Dr Minh Le Cong
- Statewide Respiratory Clinical Network
 - Steering Committee members and contributing respiratory network members
- Office of the Chief Dental Officer
 - Linda Bertram, Consultant Oral Health Therapist, Office of the Chief Dental Officer, Department of Health, Queensland
 - Dr Peter Osborne, Director of Oral Health Services, Office of the Chief Dental Officer, Clinical Excellence Division
- Scott Jen, Director of Podiatry, West Moreton Hospital and Health Service
- Statewide Diabetes Clinical Network - Statewide Diabetic Foot Working Group
- Sharon O'Rourke, Public Health Physician, Diabetes, Cairns Diabetes Centre, Cairns and Hinterland Hospital and Health Service
- Ewan Kinnear, District Director of Podiatry, The Prince Charles Hospital, Metro North Hospital and Health Service
- Dr Richard Gair, Director Tropical Public Health Services (Cairns), Cairns and Hinterland Hospital and Health Service
- Francesca Bennetts, Outreach Pharmacist, Cairns Hospital, Cairns and Hinterland Hospital and Health Service
- Dr Scott McKenzie, Staff Specialist Cardiologist, The Prince Charles Hospital, Metro North Hospital and Health Service

Section 4. Mental health and substance misuse

- Statewide Dementia Clinical Network
- Statewide Mental Health Alcohol and Other Drugs Clinical Network
- Dr Karin Obrecht, Consultant Psychiatrist, Remote Area Mental Health Service, Cairns and Hinterland Hospital and Health Service
- Dr Mark Daglish, Director of Addiction Psychiatry, Alcohol and Drug Service, Royal Brisbane and Women's Hospital, Metro North Hospital and Health Service
- Anthony Weller, Clinical Nurse Consultant, Mental Health and Alcohol, Tobacco and Other Drugs Service, Torres and Cape Hospital and Health Service
- Sam Schefe, Director, Mental Health and Alcohol, Tobacco and Other Drugs Service, Torres and Cape Hospital and Health Services

Section 5. Sexual and reproductive health

- Dr Carol Breeze, Staff Specialist, Obstetrics and Gynaecology, Cairns Hospital, Cairns and Hinterland Hospital and Health Service
- Lisa Wallace, Clinical Midwifery Consultant, Outreach Midwife, Torres and Cape Hospital and Health Service
- Rita Ball, Nurse/Midwife Educator, Maternity, Cairns Hospital, Cairns and Hinterland Hospital and Health Service
- Kym Boyes, Nurse Practitioner Women's Health, Cooktown Multi-Purpose Health Service, Torres and Cape Hospital and Health Service
- Dr Kay Haig, Sexual Health Physician, Visiting Medical Officer, Cairns Sexual Health Service, Cairns and Hinterland Hospital and Health Service
- Dr Darren Russell, Director, Cairns Sexual Health Service, Cairns and Hinterland Hospital and Health Service
- Joanne Leamy, Clinical Nurse Consultant, Contact Tracing Support Officer, Sexual Health Service, Cairns and Hinterland Hospital and Health Service
- Margot Kingston, Nurse Practitioner, Sexual Health and HIV Services, Primary and Community Health Services, Metro North Hospital and Health Service
- Dr Annie Preston-Thomas, Public Health Medical Officer, Sexual Health, Tropical Public Health Services (Cairns), Cairns and Hinterland Hospital and Health Service
- Therese Howard, North Queensland Syphilis Surveillance, Tropical Public Health Services (Cairns), Cairns and Hinterland Hospital and Health Service
- Rosemary Cummings, Public Health Nurse; Indigenous Sexual Health, Sexual Health Team, Tropical Public Health Service (Cairns), Cairns and Hinterland Hospital and Health Service
- Dr Les Griffiths, Forensic Medical Officer, Clinical Forensic Medicine Unit, Cairns and Hinterland Hospital and Health Service
- Statewide Diabetes Clinical Network - Diabetes in Pregnancy Working Group
 - Professor David McIntyre, Director of Obstetric Medicine, Head of Mothers & Babies Research Team, Head of Mater Clinical School, Mater Health Services
 - Alison Barry, Clinical Nurse Consultant, Queensland Clinical Guidelines

Section 6. Paediatrics

- Statewide Child and Youth Clinical Network
- Staff Deadly Ears Program, Children's Health Queensland Hospital and Health Service
- Wendy Cannon, Nurse Educator, Rural and Remote Tablelands, Cairns and Hinterland Hospital and Health Service

- Dr Michael Williams, Consultant Paediatrician, Child and Adolescent Health, Mackay; Medical Lead, Children's Advice and Transport Coordination Hub (CATCH), Lady Cilento Children's Hospital, Children's Health Queensland Hospital and Health Service
- Dr Benjamin Reeves, Paediatric Cardiologist, Cairns Hospital, Cairns and Hinterland Hospital and Health Service
- Erin Howell, Clinical Nurse Consultant, QLD Rheumatic Heart Disease Register & Control Program, Tropical Public Health Services (Cairns)
- Dr Alan Ruben, Paediatrician and Public Health Physician. Senior Staff Specialist, Torres and Cape Hospital and Health Service; Community Paediatrician, Apunipima Cape York Health Council
- Devendar Polapelli, Senior Social Worker – Child Protection Liaison Officer, Torres and Cape Hospital and Health Service
- Louise Prince, Child Protection Liaison Officer, Torres and Cape Hospital and Health Service

Section 7. Immunisation

- Cindy Fiske, Immunisation, Public Health Nurse, Tropical Public Health Services (Cairns)
- Ann Richards, Public Health Manager, (South) Torres and Cape Hospital and Health Service
- Sandyl Kyriazis, Nurse Educator, Cunningham Centre, Darling Downs Hospital and Health Service

Section 8: Appendices

- Fiona McIver, Advanced Medication Safety Officer, Medicines Regulation and Quality, Chief Medical Officer and Healthcare Regulation Branch, Prevention Division, Queensland Department of Health
- Erin Finn, Assistant Director, Patient Safety Unit, Healthcare Innovation and Research Branch, Queensland Department of Health

Endorsements

- Burns and Trauma, Royal Brisbane and Women's Hospital Professor Michael Muller, The University of Queensland, General Surgeon
- Statewide Cardiac Clinical Network Dr Paul Garrahy - Chair, Statewide Cardiac Clinical Network
- Statewide Child and Youth Clinical Network Dr Kerri-Lyn Webb and Dr Robyn Littlewood, Co-Chairs Statewide Child and Youth Clinical Network
- Statewide Dementia Clinical Network A/Prof Eddy Strivens and Ms Denise Craig, Co-Clinical Chairs, Statewide Dementia Clinical Network
- Statewide Diabetes Clinical Network Associate Professor Anthony Russell and Dr Trisha O'Moore-Sullivan, Co-Chairs Statewide Diabetes Clinical Network
- Office of the Chief Dental Officer Dr Mark Brown, Chief Dental Officer
- Deadly Ears Program, Children's Health Queensland Hospital and Health Service Matthew Brown, Director
- Queensland Emergency Department Strategic Advisory Panel (QEDSAP), Dr Anthony Bell and Dr Niall Small, Co-Chairs QEDSAP
- Emergency Physician and Clinical Toxicologist, Department of Emergency, Princess Alexandra Hospital, Metro South Hospital and Health Service, Dr Colin Page
- Statewide Maternity and Neonatal Clinical Network Associate Professor Rebecca Kimble, Chair, Statewide Maternity and Neonatal Clinical Network
- Mental Health Alcohol and Other Drugs Branch Associate Professor John Allan, Chief Psychiatrist
- Queensland Poisons Information Centre, Lady Cilento Children's Hospital Carol Wylie, Manager
- Tropical Public Health Services (Cairns) Dr Richard Gair, Director/Public Health Medical Officer

- Statewide Respiratory Clinical Network Associate Professor Stephen Morrison, A/Chair Statewide Respiratory Clinical Network
- Cairns Sexual Health Unit Joanne Leamy, Contact Tracing Officer Cairns Sexual Health Unit
- Statewide Stroke Clinical Network, Dr Rohan Grimley, Chair, Statewide Stroke Clinical Network
- Statewide Trauma Clinical Network, Associate Professor Daryl Wall, Co-Chair Statewide Trauma Clinical Network, Director of Trauma, RBWH
- NSW Agency for Clinical Innovation Statewide Burn Injury Service, Siobhan Connolly, Burn Education & Prevention Officer

Graphic design

- Emma Broe, Rural and Remote Clinical Support Unit, Torres and Cape Hospital and Health Service

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Introduction

The *Primary Clinical Care Manual* 9th edition (PCCM) has been developed and reviewed according to the principles set out by the National Health and Medical Research Council¹. The Clinical Care Guidelines (CCG) and Health Management Protocols (HMP) contained in the PCCM are based on the current evidence as applied to rural and isolated practice settings

The PCCM promotes and supports compliance with the Queensland *Health (Drugs and Poisons) Regulation 1996* for Registered Nurses, Indigenous Health Workers, Midwives and Paramedics who have the authority to practise under a Drug Therapy Protocol (DTP), whilst working in rural hospitals, isolated practice areas, Sexual Health or Immunisation Programs as defined in Appendices 5, 8a and 9 of the *Health (Drugs and Poisons) Regulation 1996*. The PCCM incorporates Health Management Protocols (HMP) for responding to patients health needs, which are an essential requirement of each DTP

All clinicians are expected to work within their scope of practice

Scope of practice when administering and/or supplying medicines

The following outlines the scope of practice for clinicians in Queensland under the *Health (Drugs and Poisons) Regulation 1996*. Clinicians are advised to check local policy regarding the administration and supply of medicines and State and Territory legislation as relevant

Administer means to 'give a single treatment dose of the drug or poison, to be taken by the patient immediately'

Supply means to 'give, or offer to give, a patient 1 or more treatment dose(s) of the drug or poison, to be taken by the patient during a certain period'

- **Registered Nurse (RN)**
 - may **administer** an S2 or S3 poison to a patient without a Medical Officer (MO) or Nurse Practitioner (NP) instruction
 - must have an MO or NP instruction to administer an S8 or S4 medicine
 - in order to **supply** a scheduled medicine or poison (S2, S3, S4 or S8) to a patient being discharged, or an outpatient in an **isolated practice area**, the RN must have MO or NP instruction
 - in order to **supply** a scheduled medicine or poison (S2, S3, S4 or S8) in a **rural hospital** to a patient being discharged or an outpatient of the hospital the following applies:
 - the Director of Nursing (DON) of a rural hospital, or an RN nominated by the DON, may **supply** on the instruction of MO or NP. However, **supply** of scheduled medicines can only occur in instances where the rural hospital does not employ a Pharmacist or if the Pharmacist is absent from the hospital
- **Scheduled Medicines Rural and Isolated Practice Registered Nurse (SM R&IP)**, while practising in defined isolated practice areas or rural hospitals, may as part of the person's nursing duties, **administer** and/or **supply** an S8 and/or S4 medicine listed in Appendix 1 of the *Drug Therapy Protocol - Rural and Isolated Practice Area Endorsed Nurse* under the conditions of the DTP. An SM R&IP may also **supply** an S2 or S3 poison for a patient requiring treatment at the rural hospital or isolated practice area without an MO or NP instruction
- **Sexual and Reproductive Health Program Authorised Registered Nurse (SRH)**, employed in a Sexual or Reproductive Health Program may, as part of their nursing duties, **administer** or **supply** the S4 medicines and S2 or S3 poisons listed in Appendix 1 of the *Drug Therapy Protocol - Sexual and Reproductive Health Program* under the conditions of the DTP
- **Immunisation Program Authorised Registered Nurse (IPN)**, practising in an approved Immunisation Program may, as part of their nursing duties, **administer** the S4 medicines listed in Appendix 1

of the *Drug Therapy Protocol - Immunisation Program Nurse* under the conditions of the DTP

- **Nurse Practitioner (NP)**, may prescribe, give a written or oral instruction, **supply** and **administer** the S8 and S4 medicines or S2 and S3 poisons that are necessary to practise nursing, within the approved practice scope of the position in which the Nurse Practitioner is engaged
- **Midwife (Mid)**, may as part of their midwifery duties, **administer** or **supply** the S4 or S8 medicines listed in Appendix 1 of *Drug Therapy Protocol - Midwives* under the conditions of the DTP
- **Queensland Ambulance Service Isolated Practice Area Paramedic (IPAP)** working in a defined isolated practice area may, as part of the paramedic's ambulance duties **administer** or **supply** S4, S8 medicines and S2 and S3 poisons listed in Appendix 1 of the *Drug Therapy Protocol - Queensland Ambulance Service Isolated Practice Area Paramedic* under the conditions of the DTP
- **Authorised Indigenous Health Worker(s) (IHW)**, practising in an Aboriginal and Torres Strait Islander community, in an isolated practice area, in a specified health service district, as part of the Indigenous Health Workers duties, may **administer** S8 medicines, **administer** or **supply** S4 medicines or S2 or S3 poisons as listed in Appendix 1 of the *Drug Therapy Protocol - Indigenous Health Worker* isolated practice areas under the conditions of the DTP. IHW who hold the sexual health authorisation can only **administer** or **supply** S4 medicines or S2 or S3 poisons as listed in Appendix 2 under the conditions of the DTP

Drug Therapy Protocol (DTP)

Is a 'certified document published by the department stating circumstances in which, and conditions under which, a person who may act under the protocol can use a stated controlled or restricted drug or poison for stated purposes'

It applies to individual health professionals who have endorsement/authorisation under the *Queensland Health (Drugs and Poisons) Regulation 1996*

The DTP details the requirement of supporting HMPs along with the development, content and conditions, endorsement and renewal of the HMP. The DTP further outlines the responsibilities of the persons practising under that DTP, and lists the medicines approved for use under the DTP

 Health Management Protocol (HMP)

Each HMP details procedures for clinical assessment, management, referral to an MO/NP, and follow up of patients. Detailed information around the administration and, in certain circumstances, supply of medicines from each DTP is provided in drug boxes

Clinical Care Guidelines (CCG) do not contain a medicine authorisation and are different from a HMP

Note: drug boxes that contain medicines **not** covered under a DTP are shaded grey to enable easy differentiation

HMP's contain a drug box that indicate the schedule of the medicine or poison and who is authorised under which DTP to administer or supply the medicine or poison. HMP's are diferentiated from CCG's by the  icon

The following is an example of a drug box:

The top right hand corner of the drug box alerts authorised/endorsed health professionals as to who can practise under the authorisation of their DTP. In this example the following have authority. IHW (Authorised Indigenous Health Worker), SM R&IP (Scheduled Medicines Rural and Isolated Practice Registered Nurse), IPAP (Isolated Practice Area Paramedic), SRH (Sexual and Reproductive Health Program Registered Nurse)

Schedule	4	Ceftriaxone	DTP IHW/SM R&IP/IPAP/SRH	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	1 g	IV/IM/IO	Adult 2 g Child ≥ 2 months 50 mg/kg/dose to a max. of 2 g	Stat
Provide Consumer Medicine Information: may cause diarrhoea, nausea, vomiting, pain and inflammation at the injection site, headache, and dizziness				
Note: give slowly to avoid seizures. If giving IM - reconstitute with lignocaine 1% and give by deep injection into gluteal muscle				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

3,8,17

- Use of interim standing orders in areas designated as rural and isolated practice settings per the *Health (Drugs and Poisons) Regulation 1996* should not conflict with the HMP/CCG contained in the *Primary Clinical Care Manual 9th edition*²

Process for approval of HMP at the Hospital and Health Service level

Distribution of the PCCM to designated rural hospitals and isolated practice areas as set out in *Health (Drugs and Poisons) Regulation 1996*

The use of the HMP must be supported at the Hospital and Health Service (HHS) level by an interdisciplinary health team e.g. District Executive team, consisting of at least an MO, RN and Pharmacist who must recommend use of the PCCM in the HHS

The HHS Executive Officer must endorse the use of all HMP in the HHS

Once endorsed the PCCM applies to all rural hospitals and isolated practice areas within the HHS

Collaborative practice framework

Collaborative practice is the term used to describe the practice relationship between RN, MO, NP, IHW and other health professionals who will use the PCCM as a guide to practice. The collaborative practice relationship incorporates the dual notions of collaboration and delegation. The defining characteristics of the collaborative practice relationship are:

- mutual respect and acknowledgement of each profession's role, scope of practice and unique contribution to health outcomes
- clearly stated protocols and guidelines for clinical decision-making which comply with relevant legislation and are supported by the health facility and the health organisation
- clearly defined levels of accountability with an acceptance that joint clinical decision making is an integral component of collaborative practice
- a belief that the best health outcomes are achieved when well prepared health professionals work in collaboration and partnership in both practice and educational settings

What's new in the 9th edition

This is a new look, easier to use edition

- Content changes (see also detailed content changes below)
 - there has been substantial review of much of the content due to improved engagement with the Statewide Clinical Networks and expert reviewers who have provided final endorsement
 - the reference lists are now more extensive, reflecting the amount of research and the need for a robust, contemporary evidence base for the manual
- Layout changes
 - fully colour coded manual: side bar colour coded to respective section/topic
 - interactive table of contents and index in the electronic version
 - in text cross references are interactive with page numbers
 - references do not appear in the hard copy version but are available at: <https://publications.qld.gov.au/dataset/primary-clinical-care-manual-9th-edition>
 - a new symbol for notifiable conditions under follow up in relevant topics as a reminder to notify Public Health Unit ①
 - NON-DTP boxes are a guide for prescribing only. They are shaded grey and contain a watermark

Section 1: Patient assessment and transport

History and physical examination	Check for Medic alert jewellery*
Standard Clinical Observations	The standard clinical observation values for an adult have been changed to align with a 'o' score on the Queensland Adult Deterioration Detection System (QADDs forms)
Retrieval Services Queensland (RSQ)	QEMS Coordination Centre (QCC) is now called Retrieval Services Queensland (RSQ). It's role remains unchanged
Pain management for interfacility transfer	Isolated Practice Area Paramedics (IPAPs) are now included in the drug boxes for paracetamol + codeine, ibuprofen, metoclopramide, morphine, and fentanyl Consistent with the <i>eTherapeutic Guidelines Acute pain: a general approach/stepwise approach to acute pain management</i> further doses of IV opioids are withheld until the sedation score is < 2 and the respiratory rate is > 8 breaths/minute Throughout the manual the dose for morphine has been standardised for cardiac and non-cardiac causes of pain There is additional information provided in the drug boxes throughout the manual for CMI, notes, contraindications etc

Section 2: Emergency

Advanced life support	Aligned to the 2016 Australian Resuscitation Council Guidelines
Oxygen delivery systems	Change in advice regarding pre-oxygenation of patients prior to insertion of LMA
Unconscious/altered level of consciousness	Removal of 'fainting' as a cause of loss of consciousness and additional advice that patients with altered level of consciousness should be assumed to have a serious cause until proven otherwise Removal of recommendation to consider intubation if GCS < 9
Sepsis	New Health Management Protocol (HMP) added for Sepsis
Acute upper airway obstruction and choking	Recommendation for transfer to facility with advanced airway management capability if risk of laryngeal and upper airway oedema developing over time*
Anaphylaxis and severe allergic reaction	Promethazine IM removed from the management of anaphylaxis Updated adrenaline dose table for anaphylaxis
Hypoglycaemia	Do not give glucagon to a patient who is malnourished and/or suffering alcohol induced hypoglycaemia Thiamine NON DTP drug box added to management of hypoglycaemia to be given before IV glucose in patients with malnutrition and/or alcohol induced hypoglycaemia
Acute asthma	Systemic corticosteroids to be given to adults and children ≥ 6 years for all categories of severity of acute asthma (mild/moderate; severe; life-threatening); and for children 0 - 5 years only if they don't respond to initial bronchodilators Drug boxes for hydrocortisone, prednisolone and methylprednisolone have been added

continued

Section 2: Emergency continued

Acute hypertensive crisis	The dose of glyceryl trinitrate spray has been reduced to one spray only and staff (including SM R&IP) must consult MO/NP before administering the drug despite the fact that it is a Schedule 3 medicine
Trauma and injuries	A drug box for ondansetron has been added for children > 6 months - 18 years The drug box for methoxyflurane has been changed to include children ≥ 6 years IV fluid bags have been specifically removed as a mechanism for cervical spine immobilisation. The recommendation to apply a rigid collar has been removed and replaced with maintain cervical spine in-line immobilisation For head injuries towel rolls or sandbags can be used to assist in cervical spine immobilisation. For spinal injuries a cervical spine immobilisation device or method should be used There has been a change to the criteria for escalation and CT scanning in head injuries to align with the QH head injury clinical pathways for adults and children A drug box for lignocaine + adrenaline has been included to the repair of acute wounds When cutting a fish hook the advice to protect the eyes of patient, self and others has been included If there is ocular involvement with an embedded fish hook the MO/NP should be consulted immediately
Acute Gastroenteritis/Dehydration	This is a new Clinical Care Guideline
Button Battery	This is a new Clinical Care Guideline added into the Toxicology/Poisoning/Overdose section
Paracetamol	There have been significant changes to the assessment and management of paracetamol in the Toxicology/Poisoning/Overdose section

Section 3: General

Post extraction haemorrhage	This topic is no longer a Health Management Protocol as the drug box for lignocaine with adrenaline has been removed
Periodontal disease	The children's dosage for metronidazole has been removed from the drug box
Impetigo	There has been a change in the listing of antibiotic treatments; and there are different antibiotic regimes for non-remote and remote settings The recommendation to review skin infection every 3 - 4 days with the view to cease 10 day courses of antibiotics if no longer necessary has been added Mupirocin ointment has been removed as a treatment for impetigo due to concerns regarding improper usage and antibiotic resistance
Cellulitis/erysipelas	The option for MO/NP to order an IV antibiotic option has been included The recommendation to review skin infection every 3 - 4 days with the view to cease 10 day courses of antibiotics if no longer necessary has been added

continued

Section 4: Mental Health

Mental health behavioural emergencies	It is advised that sedation may be required to control severe behavioural disturbance for the safety of others as well as the patient
	Clarification that no intramuscular benzodiazepines should be given within 1 hour of olanzapine IM
	The flumazenil drug box has been added for reversal of benzodiazepines in case of over sedation and respiration rate falls below 10 breaths/minute

Section 5: Sexual and Reproductive Health

Health check - women	The detailed information regarding Pap smears has been removed
Antenatal care	There have been changes to the 'Routine antenatal care' schedule including: • weigh at each visit • inclusion of dTpa and influenza vaccination • additional pathology included for obese women • clearer advice provided for performing OGTT • inclusion of the Non-Invasive Pre-natal screening test (NIPT) • the Obstetric Risk Score has been removed. The recommendation is to refer to the <i>Australian College of Midwives National Guidelines for Consultation and Referral 3rd edition</i> • it is recommended that Queensland Maternity Early Warning Tool (QMEWT) forms are used if available otherwise to use the appropriate ADDS/CEWT form or other local Early Warning and Response Tools
Diabetes in pregnancy	More detail regarding the screening and diagnosis of gestational diabetes mellitus
	Inclusion of the antenatal schedule of care for GDM
	Detail regarding insulin adjustment in pregnancy has been removed
Hypertension in pregnancy	There has been a revision of the management overview chart
Pre-eclampsia	More detail added to the magnesium sulfate NON-DTP box regarding the administration of this medicine
Miscarriage/incidental bleeding in pregnancy	All DTP categories (Midwives, SM R&IP, IHW, and IPAP) must consult a MO to administer ergometrine in the case of miscarriage/incidental bleeding in pregnancy There has been a refinement of the recommendations for administration of Rh D immunoglobulin
Urinary tract infection in pregnancy	Both amoxycillin and amoxicillin + clavulanic acid have been removed as treatment for UTI in pregnancy Antibiotic recommendation and drug box have been included for treatment of pyelonephritis in pregnancy
Preterm prelabour rupture of membranes	Antibiotic recommendations and drug boxes have been included for preterm prelabour rupture of membranes
	A drug box for betamethasone has been included
Birth	Oxytocin + ergometrine is no longer routinely recommended for the active management of the third stage of labour in women with risk factors for post-partum haemorrhage and has been removed from the Birth HMP
Rh D immunoglobulin	Additional information regarding sensitising events and dosage of Rh D immunoglobulin has been included

continued

Section 5: Sexual and Reproductive Health continued

Postpartum haemorrhage	There has been clarification of management according to the cause of the PPH Misoprostol is now a drug box with DTPs for IHWs, SM R&IPs, IPAPs and Midwives
Neonatal resuscitation	Naloxone is not considered a resuscitation drug and the drug box has been removed Changes to the neonatal resuscitation flowchart
STI specimen collection	The chart for Sexually Transmitted Infection (STI) specimen collection has changed and mycoplasma genitalium has been included for patients with symptoms
Chlamydia/gonorrhoea/trichomonas/mycoplasma genitalium	Mycoplasma genitalium has been added to this HMP Ciprofloxacin has been removed as a treatment for gonorrhoea
Rape and sexual assault	There has been a significant revision of the Rape and sexual assault topic

Section 6: Paediatrics

History and physical examination	The standard clinical observation values for a child have been changed to align with a 'o' score on the respective age group Children's Early Warning Tool (CEWT) forms. It is expected that a full CEWT score will be determined for each acute presentation of a child The advice to naked weigh all young children (< 2 years) has been included
Meningitis	More detail has been included in the meningitis topic There has been a change in the antibiotics recommended for meningitis plus the inclusion of dexamethasone
Respiratory problems	The Upper respiratory tract infection (URTI) and Sore throat topics have been split into 2 separate topics to better reflect the different management regimes There has been a change to the antibiotic recommendations for a sore throat
Croup/epiglottitis	Drug boxes have been included for nebulised adrenaline, nebulised budesonide, oral prednisolone, and oral dexamethasone
Acute otitis media	The HMP for acute otitis media with and without perforation have been combined into the one topic. A flowchart has been included to guide management of AOM. There has been a change in the antibiotic treatment for AOM
Chronic suppurative otitis Media	Dexamethasone/framycetin sulphate/gramicidin (Sofradex®) has been removed as a treatment for CSOM. Ciprofloxacin ear drops are the only treatment recommended for CSOM The only two recommended techniques for cleaning the ear canal are dry mopping with tissue spears and suction (only for properly trained staff). Use of a syringe or squirty bottle to irrigate the ear canal is no longer recommended
Poor growth in children	Substantial revision and name changed from Failure to thrive

continued

Section 6: Paediatrics continued

Poor growth in children	Be aware that the WHO growth charts are used for children < 2 years and crossing 1 or more major centile lines is reason for concern and further investigation. The CDC growth charts are used for children 2 - 18 years and crossing of 2 or more major centile lines on these charts is reason for concern and further investigation
Anaemia	There has been a substantial revision of the Anaemia topic including a detailed anaemia management table, and changes to the oral iron and folic acid supplement drug boxes
Child Protection	Substantial revision to reflect recent structural and legislative changes in Queensland regarding child protection, and name changed from Abuse and neglect

Section 8: Appendices

Simple analgesia	There has been significant changes to the drug boxes in the simple analgesia section and the provision for 48 hour supply of simple analgesia has been included safety root cause analysis (RCA), Health Quality and Complaints Commission or Coronial inquiry/reports
Safe use of paracetamol	This new appendix has been included to qualify the paracetamol dose according to weight and risk factors
Administration tips for Benzathine penicillin (Bicillin LA®) and Procaine Penicillin	This new appendix has been included to advise methods of minimising the pain of injection and improve adherence to treatment regimes

* denotes recommendations/additions made in relation to outcomes of patient safety root cause analysis (RCA), Health Quality and Complaints Commission or Coronial inquiry/reports

Section 1

Patient assessment and transport



Contents

- Patient presentation and assessment, page 12
- Recognition and management of the deteriorating patient, page 13
- History and physical examination - adult, page 13
- Consulting the Medical Officer or Nurse Practitioner (MO/NP), page 20
- Retrieval Services Queensland (RSQ) and Royal Flying Doctor Service (RFDS) (Queensland Section), page 20
- What to tell the RFDS MO/NP or RSQ Medical Coordinator, page 22
- How to prepare a patient for transport, page 23
- RFDS Aeromedical Retrieval Checklist, page 27
- Pain management for interfacility transfer, page 28

Patient presentation and assessment - adult

General principles

The first priority is to assess whether the patient is seriously ill and needs immediate management, or is less acutely sick giving time to obtain a full history

Always ask 'open' questions

In children always believe the carer

Rapid assessment

Does the patient look well or sick?

- Airway - compromised?
- Breathing - not breathing, significant respiratory distress?
- Circulation - pulse absent, slow, rapid or profuse bleeding?
- Level of consciousness - impaired? See [Glasgow coma scale \(GCS\)/AVPU, page 766](#)
- Rapid history
- Observations - temperature, HR, BP, respiratory rate and often O₂ saturation

Is the patient immediately compromised?

Yes

Perform immediate stabilising or life saving measures
See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
Consult MO/NP as soon as circumstances allow

No

If this is a trauma presentation e.g. fall/hit by an object/motor vehicle accident, immediately assess patient against [Criteria for early notification of trauma for interfacility transfer, page 120](#) - see [Trauma and injuries, page 118](#)
If meets criteria contact RFDS, RSQ
☎ 1300 799 127 or your local/State escalation

Obtain a history and perform physical examination as relevant

See [History and physical examination - adult, page 13](#) or [History and physical examination - child, page 630](#)

Form a clinical impression

Is there an appropriate Health Management Protocol (HMP) or Clinical Care Guideline (CCG)?

Yes

Initiate appropriate management as per HMP/CCG

No

Contact MO/NP

Recognition and management of the deteriorating patient

Early Warning and Response System (EWARS) tools have been developed to address human factor elements associated with failures to recognise and manage deteriorating patients, and comply with both the National Safety and Quality Health Service Standard, Standard 9 available at: www.safetyandquality.gov.au and the National Consensus Statement available at: www.safetyandquality.gov.au/wp-content/uploads/2012/01/national_consensus_statement.pdf

The Children's Early Warning Tool (CEWT) (in four age ranges) and Queensland - Adult Deterioration Detection System (Q-ADDS) are early warning and response system tools that:

- Enable observations to be recorded graphically and separately
- Provide visual cues when observations are abnormal
- Provide an overall score that corresponds with an action for clinicians to escalate care, increase observations and facilitate early notification to Medical Officer Royal Flying Doctor Service or Retrieval Services Queensland
- In rural and remote facilities use:
 - R&R Emergency CEWT (in four age ranges)
 - Emergency Q-ADDS - R&R facilities
- In Primary Health Care Centres use:
 - PHC Emergency CEWT (in four age ranges)
 - Emergency Q-ADDS - PHC facilities
- Ordering information available at: <http://qheps.health.qld.gov.au/psu/rrcd/docs/ewars-order.pdf>

Note:

The tools require all vital signs to be recorded and graphed (plotted) accurately. Where the patient observations trigger an action or the patient requires ongoing monitoring, the full CEWT and Q-ADDS form is required to be completed. Children under 16 years must have observations documented on the age and context specific CEWT

Clinical incident analysis involving the CEWT and Q-ADDS has demonstrated the following:

- Clinicians failure to use the tools
- Incomplete recording of observations
- Clinicians failure to take the actions indicated by the score

In jurisdictions outside of Queensland Health the use of relevant early warning tools or detecting deteriorating patient observation sheets/strategies is strongly encouraged.

History and physical examination - adult

Recommend

- Use of the Queensland - Adult Deterioration Detection System (Q-ADDS) for rural and remote facilities or Primary Health Care Centres, ordered via FAMMIS through Hospital and Health Service. Samples can be accessed at:
 - <http://qheps.health.qld.gov.au/cqld/clinical-forms/docs/SW371.pdf>
 - <http://qheps.health.qld.gov.au/cqld/clinical-forms/docs/SW356.pdf>
- Always check for medic alert jewellery
 - <http://qheps.health.qld.gov.au/psu/alerts/docs/ps-notice-07-13.pdf>

Related topics

Patient presentation and assessment, page 12
DRS ABCD resuscitation/the collapsed patient, page 36

History and physical examination - child, page 630

Trauma and injuries, page 118

Assessment of the eye, page 326

Ear and hearing assessment, page 676

How to perform a STI check, page 579

Health check - women, page 482

Mental health presentation, history and assessment - managing anger, page 428
Assessment and examination of skin, hair and nails, page 358

Medication reconciliation, page 762

Medication history checklist, page 763

Glasgow coma scale (GCS)/AVPU, page 766

Clinical observation ranges as per QADDS - adult¹

Approximate normal physiological ranges for an adult

Parameter	QADDS range
Temperature (oral)	36.1°C - 37.9°C
Heart rate	50 - 99 beats per minute
Respiration rate	13 - 20 breaths per minute
Blood pressure	Systolic 110 - 159 mmHG
O ₂ saturation (%)	> 95%
Level of consciousness	Alert

For children, see [Standard clinical observations and other vital signs - child, page 631](#)

Presentation

- When a patient presents it is essential to gather an orderly collection of information to establish the patient's health status. The following steps are required to achieve this:
 - taking a patient history
 - performing standard clinical observations and other vital signs
 - performing physical examination
 - using diagnostic and pathology services, and
 - collaboration with other members of the team
- It is a requirement that all clinicians document their findings in a clear and concise way and this section is set out to assist with this. It is recommended that the page number of HMP/CCG referred to is also documented

Types of history taking

There are four types of history taking²

- Complete patient history - comprehensive history of the patient's past and present health status. Usually done at initial visit in a non-emergency situation
- Episodic history - is shorter and specific to the patient's current presenting concern
- Interval or follow up history - builds on a preceding visit. It documents the follow up required from the prior visit
- Emergency patient history - only information required immediately to treat the life threatening condition is gathered from patient or witnesses. A more comprehensive history may be taken once

the patient is stabilised

History taking

- The purpose of a full history is to ascertain the cause of the patient's illness. A careful history will make the cause clear in the vast majority of cases
- The first priority is to assess whether the patient is:
 - seriously ill and needs immediate management or
 - is a non-urgent presentation and there is time for a complete patient history and health education
- Obtaining a full history is done in conjunction with examining the patient
 - in a sick patient this entails a full assessment of all systems
 - in a patient who has a localised problem it is reasonable to examine the relevant system only. However, always be guided by the history and be prepared to examine other systems as necessary. This is particularly important for children who often present with generalised symptoms and signs See [History and physical examination - child, page 630](#)
 - ask open ended questions

History of presenting concern

- Ask the patient what the problem is
- Ask about length of illness and exact details of symptoms and signs. For each symptom the following details are important³:
 - Site** - where is the pain/symptom - does it go anywhere else?
 - Onset** - when did it start - gradual or sudden onset?
 - Character** - e.g. sharp, dull or burning
 - Radiation** - does the pain radiate anywhere else?
 - Alleviating factors** - what makes it better e.g. sitting up, medicine?
 - Timing** - how long did it last, have they had it before?
 - Exacerbating factors** - what makes it worse?
 - Severity** - mild, moderate or severe: pain score 0 - no discomfort to 10 - unbearable
- **Any associated symptoms** e.g. nausea, vomiting, photophobia, headache
 - ask specifically about **fever, pain, shortness of breath, diarrhoea, weight loss**
- **Treatment and/or medicine(s)** taken during this illness
 - what, how much, when, how often, effectiveness?

Past history

Past medical and surgical history	- Significant illnesses in the past? Always ask about diabetes, hypertension, angina and heart attacks, epilepsy, asthma, mental health problems - Previous hospital admissions, operations or injuries: where, when and why?
Family history	Health problems in the family, especially siblings and parents e.g. diabetes, hypertension, ischaemic heart disease, epilepsy, asthma, malignancies, mental health
Social history	- Job, marital status, housing, who else lives at home and what responsibilities do they have in the family? - Smoking - ever smoked, how many a day, ever tried giving up? - Alcohol - how much and how often? Express in standard drinks per day or week - Ask about the use of other 'recreational' drugs - Recent overseas travel? - Diet/exercise
Medicines	- Regular medicines (prescribed, herbal, bush medicines, over the counter) generic name(s) dose, frequency? Are they taken correctly? - Specifically ask females if they are on oral or other contraception - See Medication reconciliation, page 762 and Medication history checklist, page 763 for more details
Allergies and adverse medication reactions	- Check for medic alert jewellery - Allergens e.g. bee stings, sticking plaster, nuts - Specific reaction e.g. skin reaction, bronchospasm - Is an EpiPen[®]/medicine used to treat the allergy? - Adverse reactions/allergies to medicines? - if adverse medication reactions/allergies attach 'adverse medication reaction' sticker to medication chart: http://qheps.health.qld.gov.au/psu/alerts/docs/ps-notice092014.pdf
Immunisations	- Check if up to date. Documented evidence of immunisation status should be obtained, follow up with opportunistic immunisation - See Section 7: Immunisation, page 748

Standard clinical observations

For all patients presenting for acute care	- Heart rate - Blood pressure - Respiratory rate - O₂ saturation - Temperature - If indicated: - blood glucose level - capillary refill time - See Standard clinical observations and other vital signs - child, page 631 - See Glasgow coma scale (GCS)/AVPU, page 766

Physical examination

- In general, examination of a patient is not a good screening test
- Use the history to guide you to areas where you think you will find an abnormality
- Use a systematic approach to physical examination
 - in any sick adult, examine the relevant system first followed by all of the other systems
 - in an adult who is not sick, examine the relevant system first and proceed to further examination as guided by the history and your findings

Physical examination - adult^{2,3}

General appearance	• Do they look well or sick? • What posture are they assuming? • Observe: – mobility – any breathlessness? – conjunctiva and nail beds: are they pale? – lips, tongue and fingers: are they blue? – general skin colour - pale/jaundiced? – agitation, distressed? – body/breath odours? – are they well nourished? • Weight, BMI, waist measurements
Hydration	• Eyes - normal or sunken? • Mouth and tongue - wet or dry? • Skin turgor normal or reduced? Pinch skin: normal skin returns immediately on release (normal to be reduced in elderly) • Dry axillae? • Any recent weight loss?
Skin	• Always check the whole body in a sick patient, or as guided by patient history and presentation • Any rashes? non blanching, petechiae, purpura • Bruising, unexplained or unusual marks? • Look for signs of infection: redness, swelling, tenderness • Are there palpable lymph nodes in the neck, axillae or groin? Tender? • See Assessment and examination of skin, hair and nails, page 358 for detailed assessment
Cardiovascular system	• Any pain/pressure in neck, chest, arms? • Any shortness of breath on exertion? • Skin colour: pink, white, grey, mottling? Compare trunk with limbs • Skin temperature - hot, warm, cool or cold? Compare trunk with limbs • Central perfusion - blanch skin over the sternum with your thumb for 5 seconds. Time how long it takes the colour to return • Peripheral perfusion - blanch the skin on a finger or toe for 5 seconds. Capillary refill is the time taken for the colour to return • Any evidence of oedema, particularly feet, hands or face? • Look for distended neck veins • If skilled, listen to heart sounds

(continued)

Physical examination - adult (continued)^{2,3}

Respiratory system	• Most information is gained from simple observation • Inspect anterior/posterior chest: equal chest expansion, abnormal chest movement, use of accessory muscles of respiration, tracheal tug • Can they talk in full sentences, or only in single words, or unable to talk at all? • Measure the respiratory rate over one minute - note rhythm, depth and effort of breathing • Listen for extra noises - cough (loose, dry, muffled, +/- sputum), wheeze, stridor, hoarseness • Auscultate for air entry into both lung fields: equal, adequate, any wheezes or crackles? Do they occur on inspiration or expiration? • Percuss lung fields - dull, resonant, hyper-resonant? • Can they lie flat without breathlessness?
Gastrointestinal/ reproductive system	• Inspect abdomen for scars, distension, hernias, bruising, striae, masses • Auscultate bowel sounds in all 4 quadrants - present or absent? • Palpate abdomen: – soft or firm? – any obvious masses? – tender to touch? Identify abdominal quadrant and exact area – any guarding or rigidity? Even when the patient is relaxed? – any rebound tenderness? Press down and take your hand away very quickly, is pain greater when you do this? • Question about change of bowel habits • Ask women: – date of last menstrual period – abnormal vaginal bleeding or discharge – do urinary βhCG on all females of childbearing age with abdominal pain • In men: – if relevant check the testes - any redness, swelling or tenderness? – enquire about penile discharge • See Acute abdominal pain, page 200 for detailed assessment
Nervous system	• Assess conscious state. See Glasgow coma scale (GCS)/AVPU, page 766 • Any dizziness, fainting, blackouts, problems with speech, vision, weakness in arm/leg, altered sensation, neck stiffness? • Pupils - size, symmetry, response to light • Assess orientation to time, place and person: – ask the patient their name, date of birth, location – ask them to tell you the time, date and year • Look for inequality between one side of the body and the other. Compare the tone and power of muscles of each side of the face and limbs • Test touch and pain sensation using cotton wool and the sharp end of the percussion hammer • Test finger nose coordination and if possible observe the patient walking

continued

Physical examination - adult^{2,3}

Musculoskeletal system	• Ask if any painful or stiff joints or muscular pain • Observe gait • Inspect joints for redness, swelling and pain
Ears, nose and throat	• Ears – look at the pinna - redness, swelling, nodules? – any obvious swelling or redness of the ear canal? If there is, looking with an otoscope will be painful – look inside with an otoscope and inspect ear canal - any redness, swelling, discharge? – inspect eardrum - normal? or redness, dullness, bulging/retraction, fluid or air bubbles, perforations or discharge? – see Ear and hearing assessment, page 676 for detailed assessment • Nose – feel for facial swelling (sinuses) inflammation, pain – any discharge or obvious foreign body? • Throat – look at the lips, buccal mucosa, gums, palate, tongue, throat for redness/swelling – teeth - condition? – inspect tonsils - redness, enlargement or pus?
Eyes	• Always test the visual acuity of each eye, use a Snellen chart at 6 metres in good light • Look at the eyes and surrounding structures - any redness, discharge or swelling? • Look at the pupils - are they equal in size and regular in shape? Check pupillary reflex to light • Check eye movements • See Assessment of the eye, page 326 for detailed assessment
Urinalysis	• Examine the urine of all sick patients, all patients with abdominal pain or urinary symptoms and all patients with a history of diabetes • Look at the colour - is it normal, dark or blood stained? • Does it smell normal? • Perform urinalysis • Perform 8hCG in all females of childbearing age with abdominal pain

Diagnostic and pathology services

- Point of care testing is available in some facilities e.g. iSTAT®. However, these should not be used as a substitute for formal laboratory testing for snakebites
- Pathology request forms:
 - all pathology requests made by SM R&IP or RN must be compliant with the specific Health Management Protocol
 - if other pathology is required this must be ordered by MO/NP
 - RFDS should be written in the 'Copy report to' section on the pathology form
- Pathology results/follow up:
 - if an SM R&IP or RN has initiated pathology testing according to the Health Management Protocol they are responsible for the follow up of pathology results

- MO/NP should be consulted if results are abnormal
- Refer to the Pathology Queensland specimen collection guidelines available at: <https://health.qld.gov.au/hsq/pathology/testing/home.htm>

Consulting the Medical Officer or Nurse Practitioner (MO/NP)

- If it is necessary to consult with a MO/NP, present your findings in a clear and methodical way
- It is often easier if you write your findings down first (time permitting)
- It is helpful to advise the MO/NP early that you have a patient about whom you want some advice or who you think may need evacuation
- Always begin with the name and age of the patient, then start with the presenting concern and proceed through to the examination. Say what you think is wrong. Your assessment is important, after all, you are actually with the patient
- Always consult with the MO/NP if you are not sure. Discuss difficulties and problems with the MO/NP during routine visits. Take the opportunity to discuss general or specific cases or issues with the MO/NP at the next clinic visit
- See [Retrieval Services Queensland \(RSQ\) and Royal Flying Doctor Service \(RFDS\) \(Queensland Section\)](#), page 20 and [Consulting the MO/NP](#), page 22

Retrieval Services Queensland (RSQ) and Royal Flying Doctor Service (RFDS) (Queensland Section)

- RSQ is part of the Queensland Department of Health and provides clinical and logistic coordination for the aeromedical retrieval and transfer of patients across Queensland, and the road retrieval of neonatal, paediatric and high risk obstetric patients in the South East corner. RSQ utilises the services of multiple government and non-government organisations (RFDS (Queensland Section), Queensland Ambulance Service (QAS), Careflight Retrieval Medicine, community helicopter providers and Queensland Government Air Service) to achieve an integrated aeromedical emergency medical system for all Queensland communities. This reduces the impact of time and distance on the treatment of sick and injured patients living, working or travelling in Queensland
- RFDS (Queensland Section) provides services from its network of strategically located bases in Brisbane, Bundaberg, Cairns, Charleville, Longreach, Mt Isa, Rockhampton and Townsville. All RFDS bases in Queensland, except Longreach, provide aeromedical retrieval and transport services. The RFDS Longreach Base provides mental health services to people living in central western Queensland
- For responses to Primary Health Care facilities fixed-wing RFDS aircraft are based in Cairns, Charleville and Mt Isa. These are coordinated by RFDS Medical Officers. Fixed-wing RFDS aircraft based in Brisbane, Bundaberg, Rockhampton and Townsville are coordinated by RSQ
- RSQ has oversight for all primary (ooo response) and interfacility aeromedical retrievals and transfers of adult, paediatric, neonatal and high risk obstetric patients throughout Queensland. RSQ Medical Coordinators provide clinical guidance in retrieval decisions and clinical support to referring clinicians regarding patients requiring aeromedical and some road transfers

RFDS Mission Statement

The furthest corner: The finest care

Services provided by RFDS (Queensland Section)

Provision of routine and emergency medical advice and clinical support to Registered Nurses, Aboriginal and Torres Strait Islander Health Workers and Isolated Practice Paramedics working in Primary Health Care Facilities

- Routine and emergency medical advice can be obtained 24 hours a day from the nearest RFDS Base with RFDS MO/NP by telephoning one of the contact numbers

RFDS contact numbers

Statewide free RFDS number	1300 697 337 (1300MYRFDS)
Charleville	07 4654 1443
Mt Isa	07 4743 2802
Cairns	07 4040 0500

- Scheduled Medicine Rural & Isolated Practice Registered Nurses, Aboriginal and Torres Strait Islander Health Workers and Isolated Practice Paramedics should consult with the appropriate local MO/NP or nearest RFDS MO/NP as stipulated by Health Management Protocol (HMP) and Clinical Care Guidelines (CCG) detailed in the *Primary Clinical Care Manual* (PCCM)
- Registered Nurses are encouraged to use the PCCM as a guide to their practise and consult as required and in accordance with the *Health (Drugs and Poisons) Regulation 1996*
- All requests for medical advice should be accompanied by clear presentation of an appropriate history and examination, including basic observations as detailed in the patient assessment and history taking section of the PCCM. It is preferable to have the patient present, in case further information is required by the MO/NP
- In rural and remote areas of north and western Queensland the RFDS also provides primary care services through a network of clinic locations. Clinic locations range from Queensland Health facilities with no resident doctor, to small isolated properties and mines

Provision of advice regarding patient retrieval and transport

- Health professionals working in Primary Health Care facilities who are unsure of transport requirements of a patient may seek the advice of an RFDS MO/NP (Cairns, Charleville, Mt Isa). Health professionals working in inpatient facilities should contact the RSQ to discuss patient retrieval/transport with the RSQ Medical Coordinator. In most cases, there are several options for management and several potential methods of transport which can be explored. All RFDS MO/NP and RSQ Medical Coordinators are experienced in providing this kind of practical support
- It is preferable to make contact early, even if transport requirement is not confirmed, as this allows for a more efficient use of resources
- If the patient presents as a result of trauma see [Criteria for early notification of trauma for interfacility transfer, page 120](#)

Coordination of patient retrieval and transport using RFDS aircraft (and other available resources)

- RFDS MO/NP and RSQ Medical Coordinators are able to task RFDS fixed-wing aircraft or make use of other available resources as appropriate. All patient transports are prioritised according to clinical need and availability of local resources. Less urgent cases may be delayed to facilitate the transfer of urgent cases from other locations

What to tell the RFDS MO/NP or RSQ Medical Coordinator

Consulting the MO/NP⁴

If it is necessary to consult with a MO/NP, try to present your findings in a clear and methodical way. The ISOBAR handover tool provides a framework for presenting clinical information in a clear, concise manner utilising a recognised framework

- It is often easier if you write your findings down first (time permitting)
- It is helpful to advise the MO/NP early that you have a patient about whom you want some advice or who you think may need evacuation
- Utilise the ISOBAR tool to convey the information to the MO/NP. Say what you think is wrong - your assessment is important, after all, you are actually with the patient
- Always consult with the MO/NP if you are not sure. Take the opportunity to discuss general or specific cases or issues with the MO/NP at the next clinic visit

ISOBAR

I	Identification of caller and identify name and spelling of receiving MO/NP • I am (your name and role) • I am calling from (location) • I am calling because
S	Situation and status • I have a patient (name, age and gender)..... • With clinical impression or suspected 'diagnosis' • Who is (describe briefly clinical status - stable, deteriorating, improving) • The patient presented with
O	Observations • Most recent observations including general appearance and weight
B	Background and history • History - presenting problem, background problems and current issues • Evaluation - physical examination findings, investigation findings and current diagnosis • Management to date and whether it is having any effect
A	Assessment and actions • What needs to be done and what has been done
R	Responsibility and risk management • Identify responsibility for management and follow up • Identify risks • Read-back critical information, especially if not communicating face to face, for example: – I am Bob Smith, RN, calling from Thargomindah about a non-urgent patient – I have Jane Jones here who is a 52 year old female who is stable – She presented this morning complaining of urinary frequency – Her most recent observations are temperature 37°C, respiration rate 16, pulse 82, BP 110/70, O₂ saturation 98% in room air. She looks well – She has had frequency and burning when voiding for the past 2 days – She has had no fever, loin pain – Her urinalysis shows large leukocytes, nitrates, positive protein and SG of 1030, pH 6 – She has no health problems, no allergies, isn't pregnant and takes no regular medications – On the basis of the above she appears to have an urinary tract infection and requires – You have ordered trimethoprim 300 mg daily for 3 days and advise her to take some urinary alkalinisers. I'll send a mid stream specimen of urine now and arrange a follow up MSU in a week

1. Appropriate clinical information
 - Patient name, date of birth (DOB), gender, weight, specific location
 - Details of patient history obtained including current medications, known or suspected medical and infectious conditions, and allergies
 - Clinical observations, physical examination and investigation findings
 - Management commenced, including medicines and infusions administered
 - Intravenous lines, drains, catheters, splints, dressings
2. Change in clinical condition
 - Please inform the RFDS MO/NP or RSQ contact of any change to the clinical condition of the patient (worsening or improving) in order that flight priority can be appropriately reassessed
 - A MO/NP does not accompany all aeromedical retrievals. If a patient's condition worsens it may be necessary for an MO/NP to accompany the flight nurse when it was not originally planned to do so
3. Admission details
 - If the referring health professional is a Registered Nurse (RN) or an Aboriginal and Torres Strait Islander Health Worker (IHW) at a Primary Health Care facility, the RFDS MO/NP or RSQ Medical Coordinator will organise admission to an appropriate facility. Otherwise, the following information is also required:
 - reason for inter-hospital transfer
 - receiving hospital and unit (bed availability must be confirmed prior to transfer, unless the patient is time critical)
 - name of accepting doctor

What the RFDS MO/NP or RSQ Medical Coordinator will tell you

1. Requirements
 - The RFDS MO/NP or RSQ Medical Coordinator will discuss the patient and confirm any requirements. Ask if there is anything you are unsure about
2. Timeframe
 - A planned timeframe will be given but an accurate estimated time of arrival (ETA) will not be confirmed until the aircraft is in flight. Retrievals and patient transports are prioritised and timing is subject to amendment
3. Priority
 - You will be informed of significant change to planned activity such as another more urgent case taking priority

How to prepare a patient for transport

1. General considerations:
 - All patients must be adequately prepared and stabilised prior to transport. In many cases this can be done prior to arrival of the RFDS team
 - Please discuss patient with the RFDS MO/NP or RSQ Medical Coordinator as required
 - Complete the [RFDS Aeromedical Retrieval Checklist, page 27](#). This is to be completed for all patients requiring transport with the RFDS and is useful when the patient is being transported by other means
2. Specific clinical conditions:
 - Many patients require preparation specific to transport and the aeromedical environment. The following table illustrates some clinical conditions of particular importance
 - Please discuss with the RFDS MO/NP or RSQ Nursing or Medical Coordinator as required

Patient transport

General considerations	Rationale	Requirements
Documentation	Documentation is required by the flight crew and by the receiving facility in order to provide appropriate ongoing care	- All patients must be accompanied by appropriate documentation including: - prehospital documentation - referral letter - copy of medical/nursing records - pathology results - ECG print out - x-rays - Where digital radiology is available, if possible, ensure the electronic transfer of x-rays to the receiving facility has occurred
Analgesia	Any transfer involves movement of the patient, which may exacerbate pain	- The patient should receive analgesia prior to transfer - See Pain management for interfacility transfer, page 28 or consult MO/NP
Antiemetic	- Vomiting will potentially exacerbate certain clinical conditions by raising intracranial and intraocular pressure and placing the airway at risk - Motion sickness is common in the aeromedical environment	- Routine use of antiemetics is not indicated - Antiemetics should be considered if there is a history of motion sickness - Promethazine or prochlorperazine is preferred for motion sickness and should be given 30 minutes prior to transfer - Parenteral administration of an antiemetic is essential for patients with head, spinal injury or penetrating eye injury - For general nausea consider metoclopramide or ondansetron - Consult MO/NP
Disturbed patient	For the purpose of aviation safety special requirements apply to the transportation of the patient showing signs of mental illness, disturbed behaviour, or regarded as being a danger to him/herself and others in flight	- Reliable IV access. If possible x 2 - Night flights are to be avoided except in exceptional circumstances due to - the disorientating effect of night flying - limited available landing sites should a problem occur

Patient transport continued

General considerations	Rationale	Requirements
Parenteral medicine infusion	• The RFDS carries a useful but limited range of medicines • Infusions are administered using infusion pumps or syringe pumps. Time is saved if infusion is prepared prior to RFDS arrival	• Please prepare infusions prior to transfer using RFDS or other retrieval service compatible equipment if possible
Nasogastric catheter	• Nasogastric (NGT)/orogastric tube (OGT) allow drainage of stomach contents and reduce the risk of vomiting and aspiration	• All ventilated patients and patients with bowel obstruction should have an NGT/OGT inserted and secured prior to transfer • Conscious, alert and cooperative spinal injured patients do not require a nasogastric tube • Consult MO/NP
Urinary catheter	• There are no toilet facilities on RFDS aircraft • The use of bedpans is avoided due to limitations of space and waste disposal	• A urinary catheter is required for all incontinent or potentially incontinent patients • Those who wear a continence pad may not require catheterisation • All patients should empty their bladders prior to transfer
Venous cannula	• Venous access may be difficult to achieve during transfer due to space limitations and turbulence	• Critically ill and disturbed patients should have 2 patent IV cannulae inserted and secured prior to transfer • The majority of patients should have one IV cannula
Infectious conditions	• Confined space in the aircraft limits the ability to isolate patients with infectious conditions	• Advise RFDS MO/NP/RSQ Nursing or RSQ Medical Coordinators of infectious conditions when requesting aeromedical transfer
Patient escort	• Seating availability is often limited, particularly if more than one patient is carried • There are strict weight restrictions for take off and landing which influence amount of fuel and passenger numbers	• An escort will be carried if possible, at the discretion of the pilot

(continued)

Patient transport

General considerations	Rationale	Requirements
Baggage	- Space and weight restrictions limit the capacity to carry baggage - Baggage is carried in the same area as medical equipment, which must be easily accessible at all times	- Maximum baggage allowance is 1 small bag with a weight of 5 kg - Medical aids and additional baggage will be carried at the pilot's discretion
Handover location	Where clinically appropriate, airport handover of the patient reduces time and increases aircraft availability	- Patients who have been appropriately stabilised and prepared may be handed over to the RFDS crew at the airport - Critical and unstable patients will be retrieved from the health facility. Handover location will be discussed during the coordination process
Spinal injury	- All patients with proven or suspected spinal injuries are transported on a vacuum mattress - Insertion of a urinary catheter is necessary to monitor urine output and maintain immobilisation	- All ventilated spinal injured patients require a nasogastric tube - A nasogastric tube should be considered for all spinal injured patients who are uncooperative or have an altered level of consciousness
Bowel obstruction	- Trapped gas will expand in volume at altitude and cause pain - A nasogastric tube may allow escape of trapped gas and reduce vomiting	- All patients with bowel obstruction should have a nasogastric tube inserted. Leave nasogastric tube on free drainage or attach anti-reflux valve. Do not spigot nasogastric tube - Administer parenteral antiemetic as indicated and adequate analgesia prior to transfer
Pneumothorax	- Trapped gas in the pleural cavity will expand at altitude and may result in respiratory compromise - Underwater seal drains are avoided due to the risk of retrograde flow during transfer	- All patients with proven pneumothorax should have an intercostal catheter inserted and connected to a Heimlich valve or Portex ambulatory chest drainage system - Suspected pneumothorax should be excluded by appropriate imaging
Penetrating eye injury	- Trapped gas in the globe will expand at altitude and potentially worsen the injury - Vomiting may also worsen injury by raising intraocular pressure	- All patients with proven or suspected penetrating eye injury must receive a parenteral antiemetic - Patients will be transported at reduced cabin altitude

 Royal Flying Doctor Service QUEENSLAND SECTION			RFDS Aeromedical Retrieval Checklist		
Date and time of request for retrieval / transport				ETA (Will be confirmed in flight)	
PATIENT TRANSPORT DETAILS					
Patient Name		Patient Weight (kg)	☐ Valuables - specify		
Date of Birth		Sex ☐ M ☐ F	☐ Small bag <5 kg <i>Any other luggage must be approved by RFDS flight crew</i>		
Address			Escort (Must be approved by RFDS flight crew)		Approval ☐ Weight (kg)
Diagnosis			Escort Name		Escort Relationship to Patient
Infectious condition e.g. MRSA	☐ Y ☐ N Specify		Next of Kin		Contact Number
Mobility	☐ Able to manage stairs	☐ Requires stretcher			
PLEASE NOTE ■ Please advise RFDS MO or Clinical Coordinator immediately if clinical status deteriorates ■ Any patient with a fear of flying; who is claustrophobic; who is confused, agitated or aggressive must be discussed in full with the RFDS MO or RSQ Clinical Coordinator					
REFERRAL DETAILS					
Referring Facility				Referring Clinician	
Receiving Facility				Receiving MO	
CLINICAL INFORMATION (✓ where applicable) Infusion concentrations and rates must be documented on fluid order sheet and a copy sent with the patient					
	Size	Site	Date inserted	Infusion	
IV Cannula (1)					
IV Cannula (2)					
☐ Toilet prior to flight	☐ Urinary Catheter	☐ ICC	☐ Heimlich valve	☐ Fracture Immobilisation	
☐ Gastric tube (Free drain for flight)		☐ Chest drainage bag	☐ Other (Specify)		
Medicines given prior to transfer must be documented on a medication sheet and copy sent with the patient Ensure adequate analgesia and antiemetic is given if necessary					
Medication given prior to flight			Dose and route given		Time given
Analgesia					
Antiemetic					
Sedative					
Other					
DOCUMENTATION All patients must be accompanied with appropriate documentation					
Copies / originals of all the following must accompany			Other documentation that may be relevant during transfer		
LETTER	☐ Current Medication Sheet		☐ Inpatient Notes	☐ QAS MATT Form	
☐ Medical	☐ Fluid Orders		☐ Emergency Dept flowsheet	☐ Request for Assessment	
☐ Nursing	☐ Fluid Balance Chart		☐ QAS Report Form		
OBSERVATION FORMS	☐ ECGs		☐ Theatre Notes	PATHOLOGY SPECIMENS	
☐ Vital Signs	☐ Pathology Results		☐ Immunisation Status	☐ IATA Packing Instruction	
☐ Neurological Observations	☐ Xrays		☐ PTSS Form	650	
☐ Blood Sugar Levels					
HANDOVER Handover location and road transport details will be discussed during the coordination of the retrieval					
☐ Hospital handover OR ☐ Airport handover		☐ RFDS to arrange ambulance OR ☐ Hospital to arrange ambulance		Discuss any questions with the RFDS MO or RSQ Clinical Coordinator and / or refer to Primary Clinical Care Manual	
Additional comments				Name	
				Signature	

Pain management for interfacility transfer - adult

Recommend

- Where a HMP exists in the PCCM for a clinical condition the practitioner should refer to the specific HMP
- The best tool for measuring pain intensity is the patient's self report using a pain rating scale. The most commonly used measurement tool is the numeric pain score 0 - 10. The self reported pain score is used in conjunction with clinical assessment
- Patients in pain should receive analgesia in a timely and safe manner to achieve relative comfort
- It is not always possible to achieve a pain score of 0/10 and patients are often 'comfortable' with a pain score of 0 - 3/10. It is appropriate to ask the patient 'are you comfortable' rather than 'are you in pain'. Do not give the expectation of achieving 'zero' pain
- Research indicates that the elderly may find it easier to describe their pain as mild, moderate or severe, rather than using a numerical pain score
- A decrease in respiratory rate has been found to be a late and unreliable indicator of respiratory depression
- Pulse oximetry is not a reliable method of measuring the interaction between pain, opioids and respiration
- Pulse oximetry may be a poor indicator of respiratory function if the patient is receiving supplemental O₂, therefore, to assess the onset of side effects when opioids are administered, monitor the patient for signs of respiratory depression as per the sedation score⁵

Background

- Pain is defined by the International Association for the Study of Pain as 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage'⁵
- Pain is highly subjective to the individual experiencing it and is the most frequent reason for people seeking health care professional consultation

Related topics

 [Toxicology/opioids, page 246](#)

[Glasgow coma scale \(GCS\)/AVPU, page 766](#)

1. May present with

- Self report of pain
- Pre-existing medical condition causing pain and/or trauma
- Increased HR, respiratory rate and blood pressure
- History of pain related to medical condition and/or trauma
- Pallor, muscle tension/guarding, sweating
- Dilated pupils
- Nausea/vomiting
- Emotional responses - crying, screaming, anger, grimacing

2. Immediate management

- Identify the patient's self reported level of pain 0 - 10 and pre-existing medical condition/complaint

Pain score

No pain	Mild			Moderate			Severe			Worst
0	1	2	3	4	5	6	7	8	9	10

- Determine the patient's sedation score using the scale

Sedation score⁶

0	1	2	3
awake	mildly drowsy, responsive to voice stimuli	moderately drowsy, responds to touch only	severely drowsy, not responding

3. Clinical assessment

- Obtain patient history including presenting complaint
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - O₂ saturation
 - Glasgow coma scale (GCS) See [Glasgow coma scale \(GCS\)/AVPU, page 766](#)
- Inspect the size of the patient's pupils
- Is the patient able to swallow?
- Does the patient have a patent IV cannula insitu?
- Obtain history of current episode of pain by asking about:
 - **site** - where is the pain?
 - **onset** - when did it start - sudden or gradual onset?
 - **characteristics** - what is the pain like e.g. pressure, tightness, heaviness, cramping, burning, ache, sharp, dull, stabbing, fullness, squeezing
 - **radiation** - does it spread anywhere else?
 - **associated symptoms** e.g. cramping, breathlessness, nausea, vomiting, sweating, fever
 - **timing** - how long did it last? Constant or intermittent? What, if anything, changed the pain? Ever had this pain before? How often does it occur?
 - **exacerbating or relieving factors** - what brought on pain - activity, foods, cold, stress? What makes the pain better/worse - rest, medicines, eating, position changes? Any analgesia taken?
 - **severity** - how bad is the pain? (scale of 0 to 10, with 0 being none and 10 being the worst)
- Previous pharmacological and non-pharmacological methods used to control pain? What has worked/not worked? Have there been any side effects?
- Medication history including current medicines and allergies including over the counter medicines

4. Management

- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response tools) as well as pain and sedation scores prior to and post administration of analgesia
- If further doses are required, GCS must be 14 or above, systolic blood pressure > 90 mmHg, respiratory rate > 10 and sedation score 1 or less prior to each dose. Consult MO/NP if observations outside these parameters

- If patient develops a decreased level of consciousness, respiratory depression or severe hypotension following the administration of morphine or fentanyl see [Toxicology/opioids, page 246](#)
- Monitor vital signs, pain score and sedation scores at intervals appropriate to analgesia given

Pain score 1 - 3/mild pain

If not allergic can use paracetamol. Paracetamol is rapidly absorbed after oral administration, with a peak concentration in 10 to 60 minutes. Titrate dose according to weight and risk factors⁷. Find Safe paracetamol use guideline at <http://www.health.qld.gov.au/qhpolicy/docs/gdl/qh-gdl-415.pdf>

- See [Simple analgesia pull out](#)
- See [Safe use of paracetamol, page 767](#)

Pain score 4 - 6/moderate pain

- If not allergic can use paracetamol 500 mg/codeine phosphate 30 mgs. Codeine is well absorbed from the gastrointestinal tract, with peak plasma concentrations reached in 1 hour⁸
- Can use ibuprofen if not allergic/hypersensitive and does not have: GI ulcerative or bleeding conditions; severe renal failure (GFR <30 mL/min); severe heart failure; severe liver failure; coagulation disorder; lactating or is in 3rd trimester of pregnancy. Use caution if dehydrated, if taking ACE-inhibitors, angiotensin receptor blockers (ARB), diuretics, warfarin or lithium

Pain score 7 - 10/severe pain

If not allergic to morphine, has a systolic blood pressure > 90 mmHg, a respiratory rate over 8 breaths per minute, and has a sedation score of 1 or less then give subcutaneous, IV or IM morphine

- Titrate repeat doses against patient response and sedation score¹⁴
- If sedation score of 2 or more do not give morphine
- Use with caution in elderly and those with significant renal/liver disease. Fentanyl is more appropriate
- Insert IV cannula if required

Schedule	4	Paracetamol 500 mg/ Codeine phosphate 30 mg		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg/ 30 mg	Oral	Adult only 1 - 2 tablets every 4 - 6 hours up to a max. of 8 tablets/ day	Stat Can be repeated in 4 hours if required
Provide Consumer Medicine Information: may be taken with or without food. Can cause constipation, nausea, vomiting, drowsiness and dizziness. Patients taking this medicine should not drive, operate machinery, or drink alcohol. If breastfeeding avoid repeated doses if at all possible, particularly if breastfed infant is less than 1 month old. Qualify the dose in the frail elderly, and adults less than 50 kgs with eating disorders or chronic disease				
Note: do not give to patient < 18 years if undergoing tonsillectomy and/or adenoidectomy. The paracetamol content of all medicines the patient may have taken at home must be considered				
Management of associated emergency: consult MO/NP. See Toxicology/opioids, page 246				
6,7,9,10,20				

6,7,9,10,20

Schedule	2	Ibuprofen		DTP IHW/IPAP
Authorised Indigenous Health Worker may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg	Oral	Adult only 200 - 400 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: take with food, drink plenty of fluids while taking ibuprofen, be aware that ibuprofen may cause dizziness so be careful driving or operating machinery				
Note: use with caution in patients taking lithium and anticoagulants. The risk of renal injury needs to be considered for patients with pre-existing renal impairment, those taking diuretics and ACE inhibitors, and in cases of dehydration. Use with caution in adult patients with asthma. Interacts with warfarin - monitor INR				
Contraindication: hypersensitivity to ibuprofen, GI ulcerative or bleeding conditions, severe renal failure (GFR <30mL/min), severe heart failure, severe liver failure, lactation and coagulation disorders				
Use in Pregnancy: Category C, third trimester of pregnancy				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
6,12,13				

Schedule	8	Morphine		DTP IHW/SM R&IP
Authorised Indigenous Health Worker must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL	IM/Subcut	Adult only 0.1 mg - 0.2 mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
		IV (IHW may not administer IV)	Adult only Initial dose of 2.5 mg then 0.5 mg - 2.5 mg increments slowly, repeated every 5 minutes if required to a max. of 10 mg	
Provide Consumer Medicine Information: advise patient morphine can cause nausea and vomiting, and drowsiness				
Note: a reduced dose should be considered in patients with significant renal/liver disease. Use the lower end of the dose range in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				
6,14,15,16,21,				

- If allergic to morphine give fentanyl. **Note:** fentanyl has a rapid onset of action

Schedule	8	Fentanyl		DTP IHW/SM R&IP
Authorised Indigenous Health Worker must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	100 microgram / 2 mL	IM/Subcut	Adult only 1.5 microgram/kg to a max. of 100 microgram	Stat Further doses on MO/NP order
		IV	Adult only 25 microgram increments slowly, repeated every 10 minutes if required to a max. of 100 microgram	
Provide Consumer Medicine Information: advise patient fentanyl can cause nausea, vomiting and drowsiness				
Note: use with caution in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: significant sedation & respiratory depression is rare. If it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				
6,15,16,18,22				

- Give metoclopramide if nauseated or vomiting

Schedule	4	Metoclopramide		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: tell your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Note: give IV slowly over 1 - 2 minutes				
Contraindication: in patients with epilepsy and Parkinson's disease				
Use in Pregnancy: Category A				
Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction (e.g. oculogyric crisis) develops give benztropine 2 mg IM or oral. Consult MO/NP. See Mental health behavioural emergencies, page 437				

5. Follow up

- Monitor patient's response to analgesia
- Document vital signs including GCS, BP, pulse and respirations, O₂ saturation, pain and sedation score
- If sedation score is 3 or respiratory rate < 8 administer naloxone. Give O₂ via Hudson mask and consider need for assisted ventilation e.g. bag/valve/mask

6. Referral /consultation

- Consult MO/NP if further analgesia is required and maximum dose has been administered

Section 2

Emergency



Contents

- Resuscitation, page 36
- Cardiovascular emergencies, page 93
- Neurological emergencies, page 113
- Trauma and injuries, page 118
- Fractures, dislocations and sprains, page 141
- Acute wounds, page 157
- Burns, page 178
- Environmental emergencies, page 190
- Ear, nose and throat emergencies, page 196
- Gastrointestinal emergencies, page 200
- Genitourinary emergencies, page 217
- Toxicology, page 224
- Toxinology, page 258

Resuscitation

DRS ABCD resuscitation/the collapsed patient - adult/child/infant

Recommend

- Always call for help
- Always consult the MO/NP as soon as circumstances allow
- See Immediate management

Background

- Principles of management of the collapsed or injured patient¹:
 - ensure safety for the patient, rescuer and bystanders
 - send for help
 - prevention of further harm or injury to patient
 - checking response to verbal and tactile stimuli ('talk and touch')
 - care of airway and breathing
 - control of bleeding
 - protection from the weather
 - other first aid measures depending on circumstances
 - continued reassurance and observation of the collapsed patient

Related topics

-  [Toxinology - bites and stings, page 258](#)
-  [Toxicology/opioids, page 246](#)

[Basic life support flowchart, page 37](#)
[Cardiorespiratory arrest, page 38](#)
[Unconscious/altered level of consciousness, page 52](#)

1. May present with

- Sudden collapse
- As part of clinical picture seen in conditions that can be regarded as emergencies

2. Immediate management²

- See [Basic life support flowchart, page 37](#)

3. Clinical assessment

- Perform rapid history and assessment

4. Management

- See [Basic life support flowchart, page 37](#)
- See [Advanced life support - adult, page 42](#) or [Advanced life support - child/infant, page 43](#)

5. Follow up

- According to patient's condition/presentation

6. Referral/consultation

- Always call an MO/NP as soon as circumstances allow

Basic Life Support

D**Dangers?****R****Responsive?****S****Send for help****A****Open Airway****B****Normal Breathing?****C****Start CPR**

30 compressions : 2 breaths

D**Attach Defibrillator (AED)**

as soon as available, follow prompts

Continue CPR until responsiveness or normal breathing return

Cardiorespiratory arrest - adult/child

Recommend

- Defibrillate ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT)³
- Commencement of good CPR and early defibrillation is critical in achieving successful outcomes³
- Early identification of potentially reversible conditions that if unrecognised or left untreated during cardiac arrest may prevent successful resuscitation - 4 Hs (hypoxaemia, hypovolaemia, hypo/hyperthermia, hypo/hyperkalaemia) and 4 Ts (tamponade, tension pneumothorax, toxins/poisons/drugs, thrombosis)³

Background

- There is evidence that good CPR and early defibrillation saves lives
- In children, the majority of cardiorespiratory emergencies are due to either a primary respiratory problem e.g. inhaled foreign body, anaphylaxis or lack of adequate tissue perfusion e.g. blood loss, severe dehydration. Once cardiorespiratory arrest has occurred, the chances of survival for children are low
- The aim is to recognise and provide appropriate and rapid treatment to the critically ill child to prevent cardiorespiratory arrest
- Effective basic life support (BLS) may increase the likelihood of successful defibrillation and buys time until reversible causes are diagnosed and/or treated⁴
- Advanced life support (ALS) is BLS with the addition of invasive techniques e.g. manual defibrillation, advanced airway management, intravenous access and medication therapy as set out below⁴

Related topics



[Chest pain, page 93](#)

[Basic life support flowchart, page 37](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)

[Cardiac arrhythmias, page 105](#)

[Electrocution/electric shock, page 107](#)

1. May present with

- Sudden collapse
- A complication of heart attack
- As part of the clinical picture seen in conditions that can be regarded as emergencies

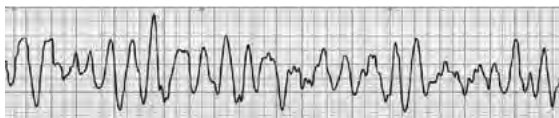
2. Immediate management

- Implement DRS ABCD
- Commence CPR - each set of CPR is 30 compressions:2 breaths. A loop is 5 sets of CPR in 2 minutes with compressions given at approximate rate of 100 - 120 compressions per minute. See [Basic life support flowchart, page 37](#)
- Attach defibrillator
 - if AED, follow prompts
 - if manual defibrillator, assess rhythm - determine if shockable rhythm (VF or pulseless VT) or non-shockable rhythm
 - deliver shock if indicated

Shockable rhythm

Ventricular fibrillation
(example trace only)

Note: VF rhythm may not always appear coarse e.g. can be smaller in amplitude



Ventricular tachycardia (pulseless)
(example trace only)

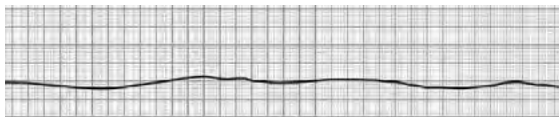
Note: pulseless or haemodynamically compromising VT rhythm may not always be this rapid in rate



Non-shockable rhythm

Asystole

(example trace only)



Sinus rhythm

(example trace only)



3. Clinical assessment

- See Immediate management
- Monitor response to defibrillation, medication and improved oxygenation
- Consider reversible causes in all cases of cardiac arrest

Reversible causes (4Hs and 4Ts)

Management in these situations involves considering and correcting the possibilities outlined below

- Hypoxaemia
- Hypovolaemia
- Hypo/hyperthermia
- Hypo/hyperkalaemia (and other metabolic disorders)
- Tamponade (cardiac)
- Tension pneumothorax
- Toxins/poisons/drugs
- Thrombosis (pulmonary/coronary)

4. Management

- Contact MO/NP as soon as circumstances allow

Shockable rhythms⁵

VF and pulseless VT

- Administer a single shock
 - adults and children > 8 years⁶
 - biphasic 200 joules
 - monophasic 360 joules⁵
 - infants and children 1 - 8 years 4 joules/kg⁷

- Immediately resume CPR
- Repeat 30 compressions: 2 breaths (5 sets of CPR in 2 minutes = 1 loop) for 2 minutes after delivery of shock. Do not delay commencing CPR to assess the rhythm
- Airway and breathing
 - bag and mask with high flow O₂. See [Basic life support flowchart, page 37](#)
 - consider airway adjunct (e.g. laryngeal mask airway) though this should not interrupt CPR for more than 20 seconds
- Vascular access
 - insert IV/IO cannula
- Medicines:
 - adrenaline
 - child - adrenaline 10 microgram/kg, IV/IO after 2nd shock, then every 2nd loop^{8,9}
 - adult - adrenaline 1 mg, IV/IO after 2nd shock, then every 2nd loop¹⁰
 - amiodarone (on MO/NP order only)
 - child - amiodarone 5 mg/kg/dose, IV/IO after 3rd shock, to a maximum of 300 mgs^{8,10,89}
 - adult - amiodarone 300 mg, IV/IO bolus after 3rd shock. Additional dose of 150 mg could be considered, followed by an infusion 15 mg/kg over 24 hours¹⁰
 - magnesium, potassium may be ordered by MO/NP
- Identify and correct reversible causes for all rhythms³

Non-shockable rhythms

Asystole

- Do not defibrillate
- Airway and breathing
 - bag and mask with high flow O₂. See [Basic life support flowchart, page 37](#)
 - or laryngeal mask airway (LMA)
- Cardiac compressions
- Vascular access
 - insert IV/IO cannula
- Medicine:
 - adrenaline
 - child - adrenaline 10 microgram/kg, IV/IO immediately, then every 2nd loop⁹
 - adult - adrenaline 1 mg, IV/IO immediately, then every 2nd loop
- Identify and correct reversible causes for all rhythms³

Pulseless Electrical Activity (PEA)

PEA can either occur:

- In a heart with little functional viable myocardium e.g. dying heart
- Secondary to reversible medical conditions including the 4Hs and 4Ts

The patient history will often guide to the possible causes:

- If trauma e.g. motor vehicle accident (MVA), hypovolaemia, tension pneumothorax or pericardial tamponade should be considered early
- If known to be on a calcium antagonist or beta blocker medication, appropriate management needs to be considered early
 - do not defibrillate
 - airway and breathing:
 - bag and mask with high flow O₂. See [Basic life support flowchart, page 37](#)

- or laryngeal mask airway (LMA)
- cardiac compressions
- vascular access:
 - insert IV/IO cannula
 - give IV/IO fluid bolus of sodium chloride 0.9% up to 20 mL/kg (adult and child)
- medicines:
 - child - adrenaline 10 microgram/kg, IV/IO
 - adult - adrenaline 1 mg, IV/IO
 - adrenaline can be repeated every 2nd loop
- consult MO/NP and discuss what further intervention is required
- Identify and correct reversible causes for all abnormal rhythms³

Symptomatic bradycardia/peri-arrest situation

Inadequate cardiac output in the presence of bradycardia. There may be a palpable pulse with each beat but poor cardiac output associated with slow HR. The following adverse signs suggest a need for immediate treatment

Adverse signs⁹

- Systolic BP < 90
- HR < 40 bpm
- Ventricular arrhythmia
- Heart failure

Treatment

- Do not defibrillate
- Airway and breathing:
 - bag and mask with high flow O₂ . See [Basic life support flowchart, page 37](#)
 - or laryngeal mask airway (LMA)
- Vascular access:
 - insert IV/IO cannula

In a child bradycardia is almost always a pre-terminal event. Airway, breathing and circulation should always be assessed and treated if needed before pharmacological management of bradycardia is given

- Medicines:
 - child - adrenaline 10 microgram/kg, IV/IO (MO/NP must order)⁸
 - adult - atropine 0.5 mg - 0.6 mg, IV/IO (MO/NP must order)
 - can be repeated every 2 loops (every 4 minutes) on MO/NP order to a maximum of 3 mg (adult)¹¹
- If still no response to treatment may require external cardiac pacing
- Identify and correct reversible causes³

Cessation of resuscitation may not always follow a definite timeframe but will obviously be determined by response to treatment. Usually asystole will intervene and generally 20 minutes of asystole after resuscitative efforts would be sufficient for an MO/NP to advise stopping CPR

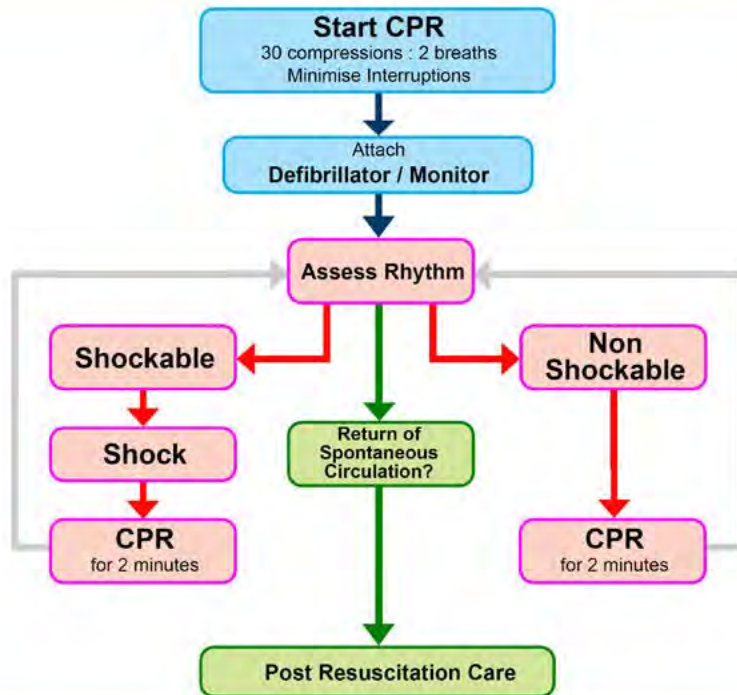
5. Follow up

- Post resuscitation care - if return of spontaneous circulation occurs it is essential to continue to maintain airway, breathing and circulation¹²
- Provide support for family members

6. Referral/consultation

- Always contact MO/NP as soon as circumstances allow during a cardiac arrest

Advanced Life Support for Adults



During CPR

Airway adjuncts (LMA / ETT)
Oxygen
Waveform capnography
IV / IO access
Plan actions before interrupting compressions
(e.g. charge manual defibrillator)

Drugs

Shockable

- * Adrenaline 1 mg after 2nd shock (then every 2nd loop)
- * Amiodarone 300mg after 3 shocks

Non Shockable

- * Adrenaline 1 mg immediately (then every 2nd loop)

Consider and Correct

Hypoxia
Hypovolaemia
Hyper / hypokalaemia / metabolic disorders
Hypothermia / hyperthermia
Tension pneumothorax
Tamponade
Toxins
Thrombosis (pulmonary / coronary)

Post Resuscitation Care

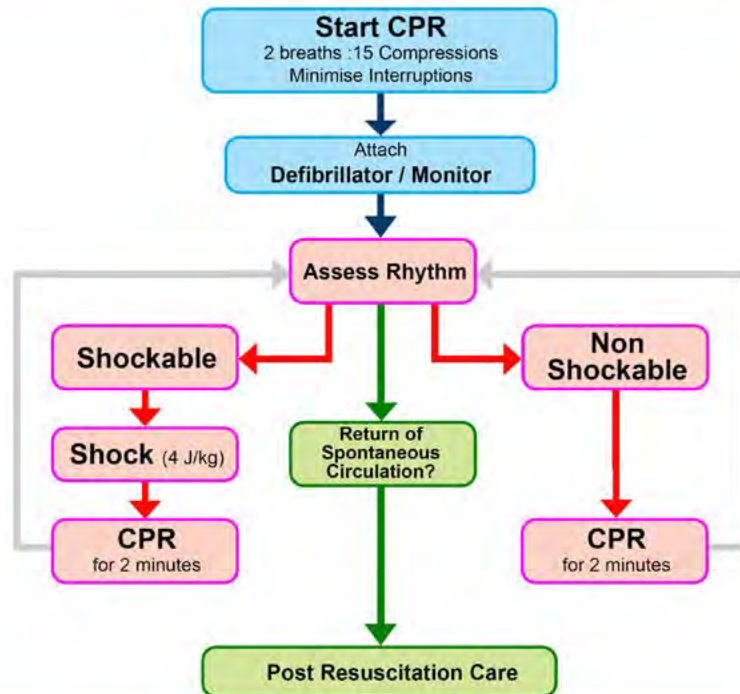
Re-evaluate ABCDE
12 lead ECG
Treat precipitating causes
Aim for: SpO₂ 94-98%, normocapnia and normoglycaemia
Targeted temperature management

January 2016



NEW ZEALAND
Resuscitation Council
WHAKAHAU/ORA AOTEAROA

Advanced Life Support for Infants and Children



During CPR

Airway adjuncts (LMA / ETT)

Oxygen

Waveform capnography

IV / IO access

Plan actions before interrupting compressions
(e.g. charge manual defibrillator to 4 J/kg)

Drugs

Shockable

- * Adrenaline 10 mcg/kg after 2nd shock (then every 2nd loop)
- * Amiodarone 5mg/kg after 3 shocks

Non Shockable

- * Adrenaline 10 mcg/kg immediately (then every 2nd loop)

Consider and Correct

Hypoxia

Hypovolaemia

Hyper / hypokalaemia / metabolic disorders

Hypothermia / hyperthermia

Tension pneumothorax

Tamponade

Toxins

Thrombosis (pulmonary / coronary)

Post Resuscitation Care

Re-evaluate ABCDE

12 lead ECG

Treat precipitating causes

Re-evaluate oxygenation and ventilation

Targeted Temperature Management

January 2016



NEW ZEALAND
Resuscitation Council
WHAKAHAUORA AOTEAROA

Oxygen delivery systems - adult/child

O₂ therapy

Frequent clinical assessment is required in all patients receiving O₂ therapy¹³. In the primary clinical care setting arterial O₂ saturation is measured via a non-invasive technique - pulse oximetry documented as SpO₂

Delivery methods

Delivery methods include nasal prongs, simple face masks and non-rebreathing masks which deliver O₂ percentage concentrations that may vary considerably¹⁴

In selecting the proper delivery method, consideration should be given to the clinical condition of the patient and the amount of O₂ needed¹³

Target range:

- Utilise O₂ delivery system to optimise patient's clinical outcome
- SpO₂ > 93% for most acutely ill adult or > 95% child¹⁵
- SpO₂ 88 - 92% for patients with chronic hypoxaemia¹⁶

Definitions	
SpO ₂	Arterial oxygen saturation measured by pulse oximetry ¹⁵
Hypoxaemia	Low O ₂ tension in the blood ¹⁵
SaO ₂	O ₂ saturation obtained from arterial blood. SaO ₂ and SpO ₂ are often used interchangeably. Equipment provided at primary health centre only measure SpO ₂ levels
FiO ₂	Fraction of inspired O ₂ concentration (%)
High flow O ₂	O ₂ delivered at > 10 L/min via a partial or full non-rebreather mask ¹⁷

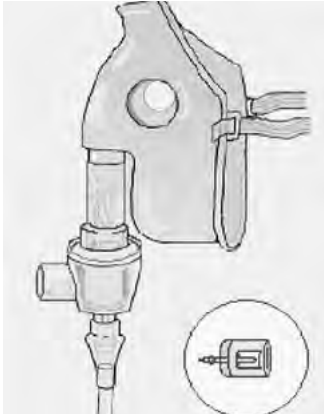
Patients with COPD

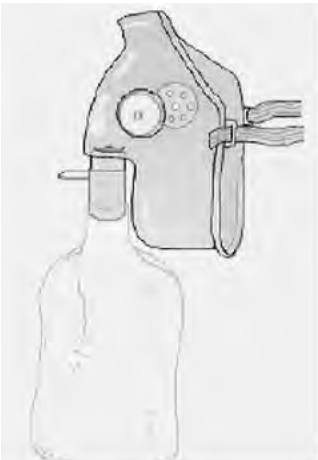
Controlled O₂ delivery is indicated for hypoxaemia (SpO₂ < 88%). Target O₂ saturation is 88 - 92%¹⁶. Careful monitoring is required

Principles

In the emergency setting:

- O₂ therapy should never be withheld from a hypoxaemic patient for fear of complications or clinical deterioration¹³
- In a patient with acute coronary syndrome, supplemental O₂ should be initiated for breathlessness, hypoxaemia (O₂ saturation < 93%), or signs of heart failure or shock^{18,19}
- Shock states resulting from haemorrhage, vasodilatory states and/or obstructive lesions can all lead to tissue hypoxia and should benefit from supplemental O₂¹³
- It is reasonable to administer O₂ to hypotensive patients and those with severe trauma until hypoxia can definitely be excluded
- Administer O₂ to patients with carbon monoxide poisoning¹³
- Administer high flow O₂ at > 10 L/min to patients with decompression illness²⁰

Oxygen delivery systems			User guide	Flowrate
Nasal cannula (prongs) 	Child < 2 years Min. 0.125 L/min Max. 2 L/min		Low flow device Nasal cannula are very comfortable for patients and are the most common low flow O ₂ delivery device ¹³ Best suited to patients who do not require a high FiO ₂ and will not be harmed by the lack of precise control ¹³ If need more than 4 litres per minute use a face mask	0.125 L/min to 4 L/min
	Child > 2 years/ adult Min. 0.125 L/min Max. 4 L/min			
	Flow rate L/min	% O ₂		
	1	25		
	2	29		
	3	33		
	4	37		
Simple face mask 	5 L/min - 6 L/min 35 - 50%		Low flow device Available in two sizes - paediatric and adult Ensure good mask fit for max. O ₂ Inspired FiO ₂ varies as this is dependant on O ₂ flow rate, mask size and fit and the patient's ventilation rate If require more than 10 L/min use non-rebreathing mask	5 L/min to 10 L/min
	6 L/min - 10 L/min 50 - 65% ¹⁵			
Venturi face mask 	Colour coded diluters delivering ¹⁴ : 24% 28% 31% 35% 40% 50%		High flow device Select the appropriate coloured diluter (insert) and O ₂ flow rate according to manufacturer's instructions	4 L/min to 10 L/min

Oxygen delivery systems		User guide	Flowrate
Non-rebreathing mask 	Partial non-rebreathing face mask with reservoir bag	High flow device Ensure the flow from the wall to the mask is adequate to maintain a fully inflated reservoir during the whole respiratory cycle i.e. inspiration and expiration	8 to 15 L/min
	Full non-rebreathing face mask with reservoir bag		
O₂ flow meters - high and low flow meters are available Low flow ranges from 0 - 3 L/min and high flow ranges from 4 L/min - 15 L/min			

Insertion of laryngeal mask airway (LMA)



- Pre-oxygenate patient. Use a non-rebreather mask for patients who are breathing adequately. In patients who are not breathing adequately a bag-valve-mask can be used to pre-oxygenate the patient²¹
- Check LMA cuff for leaks
- Deflate cuff so folds back from aperture and lubricate back of LMA
- Extend the head and flex the neck. Take precaution if there is a suspected cervical spine injury
- Keep patient neck flexed using the non-dominant hand behind head



- Press the tip of cuff against hard palate and advance into the pharynx
- Push down into the pharynx as far as possible



- Continue to advance the LMA until a definite resistance is felt



- Once resistance is felt double check the LMA position then proceed to next step



- Immediately inflate the cuff without holding the tube. The LMA may 'rise up' out of the mouth a little as the cuff is inflated



- Attach bag-valve ensuring O_2 is attached
- Many LMAs now have a built in bite guard. However if you are using an LMA without a bite guard (such as the 'Classic LMA'), you may need to insert an oropharyngeal airway at this point to prevent the patient biting the LMA.²² Become familiar with the equipment available at your facility
- Confirm placement with end tidal CO_2 (ETCO₂) monitor

Photos demonstrate Supreme[®] LMA. Technique Cairns Skills Centre, 2011

Intraosseous infusion - adult/child

Intraosseous (IO) infusion provides a route for the administration of parenteral fluids and medicines in life threatening situations. Use this route when intravenous access is unable to be established or is likely to be difficult and time consuming. Intraosseous infusion can be used in any age

Generally intravenous access should be established within 2 to 3 hours and the intraosseous infusion ceased

Bilateral intraosseous lines with pressure infusion cuffs are effective in delivering large volumes quickly in cases of severe shock

Location

- Proximal tibia site:
 - insert needle into the anterior (flat) medial surface of the proximal tibia 1 - 3 cms below the tibial tuberosity
 - insert needle at 90° to skin surface
- Distal tibia site:
 - use in any age
 - insert needle into the medial surface of the tibia, proximal to the medial malleolus (2 - 3 cms above the medial malleolus) - insert needle at 90° to skin surface
- Humerus:²³
 - in adults, the anterolateral proximal humerus is the preferred site, as it is closer to central circulation

Note: Do not insert needle into either site if the bone is broken, made brittle by disease, or if the tissue over the bone is burnt or infected

Manual and battery powered handheld drill/driver insertion technique⁸¹

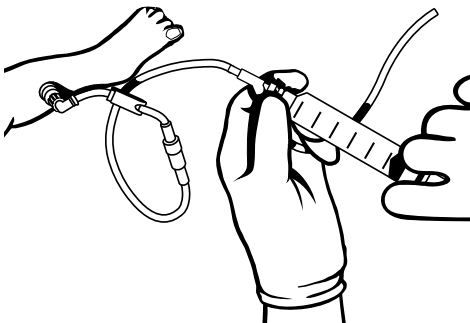
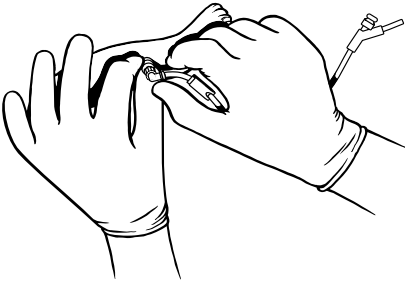
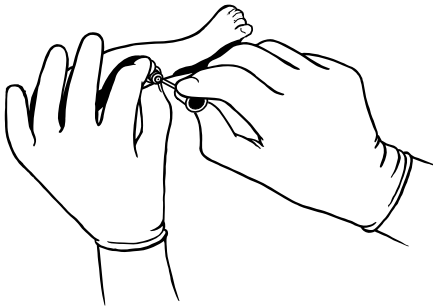
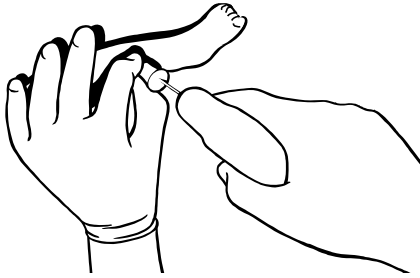
Standard precautions and aseptic technique should always be employed. If the patient is responsive consider using local anaesthetic for insertion and ensure they have adequate systemic analgesia as administration of fluid (via infusion or push) can be extremely painful⁸¹. Consult MO/NP for local anaesthetic order into the IO site where required. It is recommended that clinicians familiarise themselves with the device available and follow manufacturer's recommendations on correct usage and safe work practices

In a medical emergency/resuscitation allow 2 minutes or 2 attempts to insert an IV then immediately attempt IO insertion

Procedure

- Prepare injection site using aseptic technique with antiseptic solution
- Anaesthetise the skin, subcutaneous tissue and periosteum with 1% lignocaine. If the patient is unresponsive, this step can be omitted
- Stabilise and support the leg on a firm surface
- Palpate landmarks to identify distal tibia or proximal tibial site
- Check the needle/battery powered handheld drill/driver to ensure that the bevels of the outer needle and the internal stylet are properly aligned

Manual insertion



- Push the intraosseous needle (or 16 - 18 G needle with stylet) into the bone with a rotary clockwise and anticlockwise motion whilst maintaining a perpendicular approach until a sudden loss of resistance is felt
- This means the bony cortex has been penetrated and the needle is now in the intra-medullary cavity/marrow or cancellous bone and marrow
- The IO needle should be stable and stand rigidly in the bone without support - in a child, this is rarely more than 1 cm from the skin surface
- Aspiration of blood and marrow and/or easy injection of 5 mL of sodium chloride 0.9% confirms the needle is correctly placed. Utilise aspirate to collect blood sample if required
- If IV fluids do not flow via gravity be wary as the fluid is likely to be extravasating
- **Do not attach a syringe directly to the IO hub.** Risk of dislodgement
- If flow is good and extravasation is not evident, connect the intravenous (IV) line extension set with a 3 way stopcock at the luer lock and secure the needle with a clear dressing and tape. Although fluid may run in via the IV line by gravity, the rate is too slow for resuscitation. Faster rates of infusion occur by drawing up 20 mL amounts from the intravenous bag and administering manual fluid boluses via the 3 way stopcock

Battery powered handheld drill/driver²³

- Position the drill/driver at insertion site with needle set at a 90° angle to the bone
- Gently press through the skin and tissue until needle tip touches the bone
- There must be at least 0.5 cm of space visible between the skin and the needle hub. **Note** this, as this is the depth of insertion. For large or obese patients a longer needle is recommended
- Penetrate the bone cortex by squeezing the drill/driver trigger and applying gentle steady downward pressure. When a sudden give or pop is felt upon entry into the intra-medullary space and the desired depth is obtained release drill trigger and stop insertion process
- The needle cap is unscrewed and the stylet is removed from the needle
- Aspiration of blood and marrow and/or easy injection of 5 mL of sodium chloride 0.9% confirms the needle is correctly placed. Utilise aspirate to collect blood sample if required
- Attach an extension set to the IO hub with a 3 way stopcock at the proximal end, and secure the needle with clear dressing and tape, or the specific stabiliser dressing
- Once the IO is inserted connect the intravenous line and begin the infusion. If flow is good and extravasation is not evident, faster rates of infusion can be performed by drawing up 20 mL from the intravenous bag and administering manual fluid boluses via the 3 way stopcock. The rate of the infusion may also be accelerated by the use of a pressure infusion cuff
- The needle is secured by attaching the recommended extension set to the IO hub's luer lock and applying stabiliser dressing or taping to the skin to prevent dislodgement. The IV/IO line is taped to the leg. The site must be observed for signs of extravasation

Schedule	4	Lignocaine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	1% 50 mg/5 mL	Subcutaneous	Adult and child ≥ 12 years and/or > 50 kg up to max. of 3 mg/kg/dose to a total max. infiltration of 200 mg Child up to max. of 3 mg/kg/dose based on the least of actual body weight or ideal body weight	Stat Consult MO/NP for further doses
Provide Consumer Medicine Information: report any drowsiness, dizziness, blurred vision, vomiting or tremors				
Note: use the lowest dose necessary. Determine child's ideal weight on 50 th centile on an appropriate weight - for - age percentile chart available from http://www.rch.org.au/childgrowth/Growth_Charts				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

24,25,82,83

Unconscious/altered level of consciousness (LOC) - adult/child/infant

Recommend

- Never leave an unconscious/altered LOC patient alone if possible
- The Glasgow coma scale (GCS) or AVPU are measures of consciousness
- Discuss all patients who have GCS < 15 with MO/NP - urgently if patient is a child
- Discuss with MO/NP urgently if GCS drops 2 or more points since last assessment
- A patient who fails to respond is managed as if unconscious. A patient who shows only a minor response, such as groaning without opening eyes, should be managed as if unconscious²⁶
- Although care of the airway takes precedence over any injury, including the possibility of spinal injury, spinal precautions should be maintained where possible²⁷

Background

- There are many causes of altered level or loss of consciousness. The most common causes are alcohol and drug misuse, stroke, seizure, hypoglycaemia and sepsis (especially in the elderly)
- Syncope, and sometimes fainting, can also cause loss of consciousness due to insufficient blood flow to the brain. Patients with altered level of consciousness should be assumed to have a serious cause until proven otherwise
- Most clues to the cause will be gained through taking a thorough history from friends or relatives

Related topics

-  [Fits/convulsions/seizures, page 72](#)
-  [Cardiorespiratory arrest, page 38](#)
-  [Toxicology/poisoning/overdose, page 224](#)
-  [Toxinology/bites and stings, page 258](#)
-  [Head injuries, page 131](#)
-  [Transient ischaemic attack \(TIA\) and stroke, page 114](#)
-  [Meningitis, page 644](#)
-  [Hypoglycaemia, page 78](#)

- [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- [Acute upper airway obstruction and choking, page 64](#)
- [Glasgow coma scale \(GCS\)/AVPU, page 766](#)

1. May present with

- Confusion, drowsiness, poor response to stimulation, unresponsiveness
- As part of clinical picture of most conditions that can be regarded as emergencies

2. Immediate management

D	Check for danger - hazards/risks/safety of patient and staff
R	• Check for response • Assess verbal and tactile response - talk and touch. Give a simple command 'open your eyes', 'squeeze my hand'. Then grasp and squeeze the shoulders firmly to elicit a response²⁶
S	Send for help
A	• Assess airway patency and consider cervical spine protection • Position the patient - handle gently and avoid twisting movement of the head and neck – if unconscious and breathing turn onto side to establish and maintain clear airway²⁶ – if unconscious and not breathing lie patient flat, open airway using the head tilt, chin lift manoeuvre or jaw thrust if suspicion of cervical spine injury. In infants (less than 1 year of age) head is kept in the neutral position²⁷ • Give O₂ to maintain O₂ saturation > 93% adult or > 95% child • See Oxygen delivery systems, page 44 • Maintain cervical spine in-line immobilisation using a cervicle spine immobilisation device or method if known or suspected history of trauma (appropriate to size)
B	• Assess breathing - look, listen and feel • Check respiratory rate, effort, O₂ saturation
C	• Insert large bore IV/IO cannula. Insert the largest you can in the circumstances • Check BP, HR and capillary refill
D	• Dysfunction of the central nervous system - check Glasgow coma scale or AVPU, pupil size and reaction. Consider intubation if GCS is < 9

- Take emergency patient history from relatives/friends, if present
- BGL, temperature
- Attach cardiac monitor and perform ECG
- Consult MO/NP as soon as circumstances allow

3. Clinical assessment

- Obtain a history from friend or relative including circumstances leading to unconscious state. Look for clues which may indicate reason for unconscious state e.g.:
 - trauma, overdose (suicidal), alcohol or illegal drugs, infection - especially elderly
 - past history - especially epilepsy, diabetes, cancer
- Expose and examine the patient systematically starting at the head and progressing downwards to the toes
 - remove all clothing as you move down, maintaining privacy
 - do not let the patient get cold, cover with a blanket after examination
 - whilst performing examination look for clinical signs which point to reason for altered level of consciousness
 - urinalysis
 - see differential diagnoses next page for altered level of consciousness

4. Management

- Consult MO/NP who will advise further assessment and management depending on clinical circumstances
- Maintain temperature

- If BGL < 4 mmol/L. See [Hypoglycaemia, page 78](#)
- There are a large number of possible causes for altered level of consciousness, however most are relatively rare. These causes can be classified into four broad groups²⁶:
 - central nervous system problems (head injury, stroke, tumour, epilepsy)
 - blood oxygenation problems
 - metabolic problems (diabetes, overdose)
 - blood circulation problems

Differential diagnoses for altered level of consciousness

Note: when the potential cause of an altered level of consciousness has been identified relevant Clinical Care Guidelines and Health Management Protocols may be available in this *Primary Clinical Care Manual*

Central nervous system problems • head injury (think of non-accidental injury in young child) • stroke • tumour • epilepsy • poisoning • IV drug use • alcohol intoxication • meningitis/encephalitis	Blood O₂ problems (problems with airway/breathing) • airway obstruction • croup/epiglottitis • choking/foreign body • allergy/anaphylaxis • burns • lung problems • smoke/gas/steam inhalation • asthma/COPD • drowning • pneumonia • respiratory failure • pulmonary emboli • pulmonary oedema • hypoxia
Metabolic problems • diabetes • hypoglycaemia/hyperglycaemia • drug overdose - accidental or deliberate • poisoning • encephalopathy • liver failure • kidney failure • sepsis - especially in the elderly • electrolyte derangement	Blood circulation problems • haemorrhage • trauma • gastrointestinal bleed • ectopic pregnancy • leaking aortic aneurysm • cardiac arrest • cardiac arrhythmia • intracranial haemorrhage • hypothermia • hyperthermia • hypotension • hypertension

5. Follow up

- According to possible cause for unconsciousness
- Patient will need evacuation/hospitalisation in suitably equipped facility

6. Referral/consultation

- Always contact MO/NP as soon as possible if patient presents with altered level of consciousness or unconsciousness or this occurs during the course of care
- Discuss all patients who have GCS < 15 with MO/NP - urgently if patient is a child
- Discuss with MO/NP urgently if GCS drops 2 or more points since last assessment

Shock - adult/child

Recommend

- The aim of management is to increase tissue oxygenation by improving tissue perfusion. This may be achieved by replacing lost intravascular fluid and/or increasing vascular tone and/or increasing cardiac output

Background

- Shock is a clinical state in which hypotension occurs, due to haemorrhage/cardiac failure/decreased vascular tone, resulting in inadequate tissue perfusion. The patient in shock may look pale and the body tries to make sure enough blood reaches vital organs such as the brain, heart and liver, by diverting it from e.g. the skin and the kidneys. Many organs can stop functioning
- There are different types of shock:
 - hypovolaemic shock - due to a large amount of blood or fluid loss from the circulation e.g. from severe bleeding, major or multiple fractures or major trauma, severe burns or scalds, severe diarrhoea and vomiting, severe sweating and dehydration
 - cardiogenic shock e.g. myocardial infarction
 - obstructive shock e.g. tension pneumothorax, cardiac tamponade, pulmonary embolism
 - distributive shock e.g. severe infection, allergic reactions, severe brain/spinal injuries²⁸
- O₂ saturation readings in shock can be unreliable due to poor peripheral perfusion

Related topics

 [Trauma and injuries, page 118](#)

 [Burns, page 178](#)

 [Fits/convulsions/seizures, page 72](#)

 [Acute wounds, page 157](#)

 [Nose bleed/epistaxis, page 196](#)

 [Anaphylaxis and severe allergic reaction, page 67](#)

 [Chest pain, page 93](#)

 [Acute gastroenteritis/dehydration, page 205](#)

 [Acute gastroenteritis/dehydration - child, page 702](#)

 [Sepsis, page 57](#)

[Cardiorespiratory arrest, page 38](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)

[Acute upper airway obstruction and choking, page 64](#)

[Upper gastrointestinal bleeding, page 212](#)

[Rectal bleeding, page 214](#)

[Ectopic pregnancy, page 505](#)

1. May present with

- Hypotension with increased HR (tachycardia)
- May look pale with cool, clammy, moist skin with poor capillary return (> 2 secs)
- Increased respiratory rate (tachypnoea) - 'air hunger'
- Shortness of breath
- Decreased urine output
- Altered mentation, irritability, confusion, drowsiness, unconsciousness
- Very low or high temperature

- Warm peripheries in distributive shock
- As part of clinical picture of most conditions that can be regarded as emergencies e.g. trauma and injuries, burns, fractures, acute wounds, nose bleed, gastrointestinal bleeding, septicæmia, heart attack, tubal/ectopic pregnancy, anaphylaxis

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Call for help if available
- Control any major bleeding
- Diagnostic evaluation should occur at the same time as resuscitation
- Take emergency history from patient and relatives and/or friends, if present
- Give O₂ to maintain O₂ saturation > 93% adult or > 95% child. If saturation not maintained consult MO/NP. See [Oxygen delivery systems, page 44](#)
- In case of fracture or bleeding wound, stop any external bleeding by direct pressure with a bandage and/or apply traction and splint fracture(s) if possible
- Check and monitor BP, HR, respiratory rate, O₂ saturation, BGL, body and skin temperatures
- Check and monitor conscious state. See [Glasgow coma scale \(GCS\)/AVPU, page 766](#)
- Insert large bore IV/IO cannula (14 G or 16 G if possible)
- If intravenous access is unable to be established or is likely to be difficult and time consuming insert intraosseous cannula. See [Intraosseous infusion, page 49](#)
- If unable to access IV or IO consult MO/NP immediately
- For all causes of shock except for cardiogenic shock it is usual to start with IV/IO sodium chloride 0.9% or Hartmann's solution 10 - 20 mL/kg bolus IV/IO⁹⁰. Further fluids on MO/NP order. The aim is to keep:
 - adults
 - HR < 120/min
 - systolic BP > 90 - 100 mm Hg
 - urine output > 0.5 mL/kg/hour
 - children compensate very well in the early stages of shock, but can decompensate rapidly. Consult MO/NP as soon as possible and administer 10 - 20 mL/kg bolus of sodium chloride 0.9% IV/IO if signs of shock present then reassess⁹⁰. This bolus may need to be repeated
- Insert urinary catheter and monitor hourly urine output

3. Clinical assessment

- Obtain patient history including circumstances that may suggest the cause of shock including medicines
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - see [Glasgow coma scale \(GCS\)/AVPU, page 766](#)
 - pay particular attention to the trends in vital signs

4. Management

- Consult MO/NP as soon as possible, to organise evacuation/hospitalisation
- Monitor clinical status and response to intervention
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - capillary refill
 - urine output

- Use caution when treating elderly patients and those on beta blockers
- Suspect internal bleeding if injured and shocked and not obvious where blood has been lost from:
 - abdomen (ruptured spleen/liver/kidneys). See [Abdominal injuries, page 139](#)
 - fractured femur (thigh), pelvis. See [Fractured pelvis, page 148](#)
 - chest (haemothorax). See [Chest injuries, page 127](#)
- If in distributive shock consider early antibiotic therapy in consultation with MO/NP
- Manage in consultation with MO/NP as per:
 - severe chest, abdominal and spinal injuries. See [Trauma and injuries, page 118](#)
 - burns. See [Burns, page 178](#)
 - fractures, dislocations and sprains. See [Fractures, dislocations and sprains, page 141](#)
 - acute wounds. See [Acute wounds, page 157](#)
 - nose bleed. See [Nose bleed/epistaxis, page 196](#)
 - upper gastrointestinal bleeding. See [Upper gastrointestinal bleeding, page 212](#)
 - anaphylaxis. See [Anaphylaxis and severe allergic reaction, page 67](#)
 - acute coronary syndrome. See [Chest pain, page 93](#)
 - acute gastroenteritis. See [Acute gastroenteritis/dehydration - child, page 702](#) and [Acute gastroenteritis/dehydration, page 205](#)

5. Follow up

- According to possible cause for shock
- Patient will need evacuation/hospitalisation in suitably equipped facility

6. Referral/consultation

- Consult MO/NP on all occasions of shock



Sepsis

Recommend

- Consult MO/NP as soon as possible
- Early recognition and management including resuscitation, especially IV fluids, and antibiotics
- Point of care testing to measure lactate

Background

- Sepsis is a maladaptive systemic inflammatory response to infection. Sepsis has an interactive effect on inflammatory mediators, coagulation, cellular oxygen processing, and both macro- and micro-circulation leading to acute organ dysfunction
- Sepsis is associated with significant morbidity and mortality
- Early recognition and intervention significantly improves morbidity and mortality outcomes²⁹

Related topics



[Fits/convulsions/seizures, page 72](#)

[Meningitis, page 644](#)

[Cardiorespiratory arrest, page 38](#)

[Unconscious/altered level of consciousness, page 52](#)

[Shock, page 55](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)

[Oxygen delivery systems, page 44](#)

1. May present with

- Hypotension
- Tachypnea + / - hypoxia
- Respiratory distress
- Tachycardia
- May have high, low, or normal temperature
- Delayed central capillary refill
- Lethargy
- Altered level of consciousness
- Purpuric rash
- Vomiting and or diarrhoea^{29,30,31}

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- If fitting see [Fits/convulsions/seizures, page 72](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) and continue to monitor
- Give O₂ to maintain O₂ saturation > 95% adult or child . See [Oxygen delivery systems, page 44](#)
- Urgent consultation with MO/NP who will arrange evacuation
- Insert large bore IV/IO cannula and take bloods including blood cultures if possible
- If shock give IV fluids 0.9% sodium chloride 10 - 20mL/kg⁹⁰ bolus stat and repeat x 1 if necessary (further fluids on MO/NP order). Caution to avoid overload in patients with heart failure³³. See [Shock, page 55](#)
- Prepare to give antibiotics urgently as ordered by MO/NP (aim for < 1 hour after presentation)³⁰
- If IV/IO access cannot be established seek expert advice

3. Clinical assessment

- Obtain as complete a patient history of presenting concern and past history as possible, according to the circumstances of the presentation
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weight if possible
 - auscultate the chest for air entry and any added sounds e.g. crackles or wheezes - pneumonia is the most common cause of sepsis³⁰
 - inspect all skin surfaces for any bruising/bleeding or skin rash especially at pressure points and under clothing. **Note:** petechiae and purpura do not fade on pressure. Look for signs of infection
- BGL (in sepsis may have BGL > 6.7 mmol/L in absence of diabetes)³⁰
- Central capillary refill
- Check bowel sounds - paralytic ileus may be present
- If possible check lactate value - lactate > 4 mmol/L is a sign of severe illness³⁴
- Perform urinalysis and if possible collect midstream urine for MC/S
- Check vaccination status

4. Management

- Consult MO/NP who will arrange/order:

- IV antibiotics which should be commenced within 1 hr of presentation and should not be delayed awaiting results of diagnostic tests or fluid resuscitation. Can be given by IM route if unable to obtain IV access³¹
- evacuation/hospitalisation
- Monitor clinical observations closely including BGL
- Strictly monitor urine output and fluid balances. Insertion of urinary catheter and monitor hourly urine output should be considered if patient unwell or clinical signs outside of normal parameters for age
- Continue IV/IO as ordered by MO/NP. Goal of resuscitation is to maintain: mean arterial pressure ≥ 65 mmHg or systolic blood pressure ≥ 100 mmHg; and urine output ≥ 0.5 mL/kg/hour³³
- Blood specimen including blood cultures should be taken where possible but should not delay initial treatment
- Give paracetamol for fever, pain or distress. See [Simple analgesia pull out](#)
- If there is no obvious focus of infection empirical therapy should be commenced until a clear focus is identified

For **paediatric patients** (1 month to 16 years of age) if not allergic MO/NP may order cefotaxime **OR** ceftriaxone **PLUS** gentamicin **PLUS** vancomycin

Schedule	4	Cefotaxime		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	500 mg 1 g 2 g	IV/IO/IM	Child 1 month to 16 years 50 mg/kg/dose to a max. 2 g	Stat
Provide Consumer Medicine Information: may cause pain and inflammation at injection site. May cause nausea, diarrhoea, headache and dizziness				
Note: administration advice: inject over 3 - 5 minutes to avoid arrhythmias. Cefotaxime can be given IM but it is extremely painful. If IM is required ceftriaxone is the preferred agent. Interacts with warfarin - monitor INR				
Contraindication: with a history of allergy to cephalosporins or a severe or immediate allergic reaction to a penicillin. There is the potential for cross-reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

35,36,93

35,36,93

- Or

Schedule	4	Ceftriaxone		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	1 g	IV/IO/IM	Child 1 month to 16 years 50 mg/kg/dose to a max. 2 g	Stat
Provide Consumer Medicine Information: may cause pain and inflammation at injection site. May cause nausea, diarrhoea, headache and dizziness				
Note: give IV/IO slowly to avoid seizures. Doses ≤ 1 g infuse over 5 minutes. Doses > 1 g infuse over 30 minutes. If giving IM reconstitute with 3.5 mL lignocaine 1 % and give by deep injection into gluteal muscle. Interacts with warfarin - monitor INR				
Contraindication: with a history of allergy to cephalosporins or a severe or immediate allergic reaction to a penicillin. There is the potential for cross-reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
36,37,84,93				

- Plus

Schedule	4	Gentamicin		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	80 mg/2 mL	IV/IO/IM (if IV/IO dilute in 10 -20 mLs sodium chloride 0.9% and give over minimum 5 minutes)	Child dose based on ideal body weight unless actual body weight is lower Child 1 month to < 12 years 7.5 mg/kg/dose up to max. dose 320 mg per day Child 12 - 16 years 7.5 mg/kg/dose up to max. dose 560 mg per day	Stat
Note: IV gentamicin is inactivated by cephalosporins and penicillins. Flush line well before giving gentamicin or administer at separate sites to prevent inactivation. If giving IM, inject undiluted into a large muscle. Determine child's ideal weight on 50 th centile on an appropriate weight - for - age percentile chart available from http://www.rch.org.au/childgrowth/Growth_Charts				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
36,38,39,93				

- Plus

Schedule	4	Vancomycin		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	500 mg 1 g	IV/IO Dissolve to 5 mg/mL or weaker and infuse over at least 60 minutes. Maximum rate for doses over 500 mg is 10 mg per minute	Child dose based on actual body weight Child 15 mg/kg/dose up to max. dose 750 mg (6 hourly)	Stat
Note: vancomycin cannot be given intramuscularly. Give through securely fastened cannula as extravasation may cause tissue necrosis. Give over at least 60 minutes and no faster than a rate of 10 mg/min to reduce risk of 'red man syndrome', an adverse reaction to vancomycin which presents as tingling, flushing or rash of the face, neck and upper body, muscle spasm of the chest and back and rarely hypotension and shock like symptoms. If 'red man syndrome' occurs decrease/cease infusion rate and consult MO/NP				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
36,40,85,93				

- For adults, if not allergic, give flucloxacillin plus gentamicin

Schedule	4	Flucloxacillin		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	500 mg 1 g	IV/IO/IM give IV/IO slowly over 3 - 4 mins	Adult 2 g (4 hourly)	Stat
Note: be aware of potential cross sensitivity in patients allergic to carbapenems or cephalosporins. Give IV/IO slowly to avoid seizures				
Contraindication: if previous history of severe hypersensitivity to penicillin and in patients with a previous history of flucloxacillin associated jaundice or hepatic dysfunction				
Administration advice: lignocaine may be used to reconstitute IM injections to reduce local pain - inject slowly into large muscle				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
41,42,43,47,93				

- If hypersensitive to penicillin (excluding immediate hypersensitivity) give cephazolin in place of flucloxacillin

Schedule	4	Cephazolin		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	1 g	IV/IO	Adult 2 g	Stat
Provide Consumer Medicine Information: may cause diarrhoea, nausea, vomiting, pain and inflammation at injection site				
Note: administer slowly. Give IV/IO slowly to avoid seizures. Use with caution in patients with history of gastro intestinal disease, patients on sodium restriction, bleeding disorders. Interacts with warfarin - monitor INR				
Contraindication: history of allergy to cephalosporins or a severe or immediate allergic reaction to a penicillin. There is the potential for cross-reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
44,45,46,47,93				

- If immediate hypersensitivity to penicillins replace flucloxacillin with vancomycin

Schedule	4	Vancomycin		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	500 mg 1 g	IV/IO Dissolve to 5 mg/mL or weaker Infuse at a rate no faster than 10 mg/min	Adult 25 - 30 mg/kg	Stat
Note: vancomycin cannot be given intramuscularly. If 'red man syndrome' occurs decrease/cease infusion rate and consult MO/NP				
Administration advice: give through securely fastened cannula as extravasation may cause tissue necrosis. Give over at least 60 minutes and no faster than a rate of 10 mg/min to reduce risk of 'red man syndrome', an adverse reaction to vancomycin which presents as tingling, flushing or rash of the face, neck and upper body, muscle spasm of the chest and back and rarely hypotension and shock like symptoms				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
40,47,85,93				

- Plus

Schedule	4	Gentamicin		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	80 mg/2 mL	IV/IO/IM (if IV/IO dilute in 10 -20 mLs sodium chloride 0.9% and give over minimum 5 minutes)	Adult dose based on actual body weight. If greater than 20 % over ideal body weight use ideal body weight Adult 4 - 7 mg/kg	Stat
Note: IV gentamicin is inactivated by cephalosporins and penicillins. Flush line well before giving gentamicin or administer at separate sites to prevent inactivation. If giving IM inject undiluted into a large muscle. Use lower end of dosing range in the elderly and those with renal impairment				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
39,47,93				

- If IV/IO route not available substitute vancomycin IV with teicoplanin IM and the MO/NP will seek expert advice regarding administration of IM antibiotics

Schedule	4	Teicoplanin		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	400mg 460mg Supplied with water for injection diluent	IM	Child 1 month to 16 years 10 mg/kg up to a max. of 400 mg, 12 hourly for 3 doses then 10 mg/kg up to a max. of 400 mg daily	Stat
Provide Consumer Medicine Information: may cause pain and inflammation at injection site. May cause nausea, diarrhoea, headache and dizziness				
Note: MO/NP will seek expert advice. Reconstitute the vial as per product leaflet or <i>Australian Injectable Drugs Handbook</i> by injecting the diluent slowly down the wall of the vial. Roll the vial gently between palms until dissolved. Do not shake. If foaming occurs, stand the vial aside for 15 minutes to allow the foam to settle				
Contraindication: administer with caution to patients with a history of allergic reaction to vancomycin as cross sensitivity may occur. A history of red man syndrome with vancomycin is not a contraindication to teicoplanin use				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

91,92

5. Follow up

- All patients with suspected or confirmed sepsis should be managed in an appropriately equipped hospital

6. Referral/consultation

- Most patients will require urgent treatment and evacuation/hospitalisation
- For children the MO/NP will arrange telehealth consult with regional paediatrician if possible

Acute upper airway obstruction and choking - adult/child

Recommend

- Perform chest thrusts or back blows to relieve inhaled foreign body in the conscious adult or child > 1 year of age²⁷. An infant less than 1 year old may be placed in a head downward position i.e. across the rescuers' lap prior to delivering back blows^{6,27}
- For non breathing patient with airway obstruction. See [Unconscious/altered level of consciousness, page 52](#)
- There is the risk of laryngeal and upper airway oedema developing over time. Early transfer to a facility with advanced airway management capability is recommended in the event of near-choking or an unseen positional foreign object

Background

- Upper airway obstruction in the conscious patient may be due to inhalation of foreign body, trauma to the airway, anaphylactic reaction²⁷, angioedema, croup, epiglottitis or mass (tumour or abscess)
- Obstruction can be complete or partial
- Children often put objects into their mouths. There is risk of inhalation or swallowing. Most commonly occurs aged 6 months to 4 years

Related topics

-  [Trauma and injuries, page 118](#)
-  [Anaphylaxis and severe allergic reaction, page 67](#)
-  [Croup/epiglottitis, page 660](#)

- [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- [Oxygen delivery systems, page 44](#)
- [Unconscious/altered level of consciousness, page 52](#)
- [Button Battery, page 236](#)

1. May present with

- Extreme anxiety, agitation, gasping sounds
- Coughing or loss of voice (hoarseness)
- Clutching the neck with thumb and finger
- Stridor (high pitched noise caused by inspiration)
- Drooling
- Ineffective respiratory effort
- Cyanosis

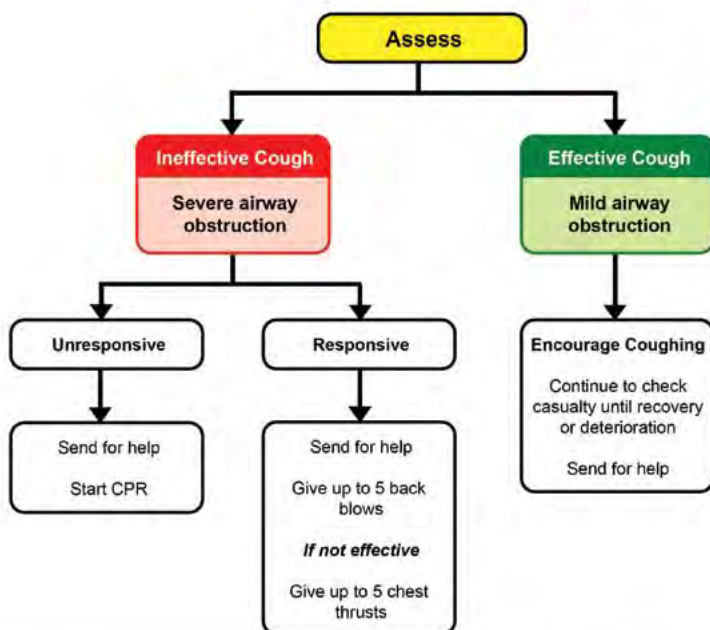
2. Immediate management

- Choking adult or child. See Choking flowchart next page

- Acute upper airway obstruction - unconscious. See [Unconscious/altered level of consciousness, page 52](#)
- Acute upper airway obstruction - conscious
 - allow patient to posture themselves - leave child on parent's lap
 - do not examine airway
 - do not lie patient down

Choking flowchart⁴⁸

Foreign Body Airway Obstruction (Choking)



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NEW ZEALAND
Resuscitation Council
WHAKAMAUDORA AOTEAROA

3. Clinical assessment

- Take emergency patient history - with particular attention to the circumstances which occurred leading to choking
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Assess effectiveness of cough
- During inspiration observe chest for expansion and drawing in of the spaces between ribs and the clavicles
- Listen to the chest for air entry and added sounds (crackles or wheezes)

4. Management

- Conscious adult or child
 - sit patient up bending forward, an infant may be placed in a head down position on parent or health professional lap
 - try to calm patient and encourage to breathe deeply
 - encourage to cough
- Consult MO/NP
- Perform chest x-ray if available and MO/NP orders

5. Follow up

- If the choking episode is minor and cause is a foreign body which has been dislodged and removed, the patient is asymptomatic and chest findings are normal then patient can be allowed home after a period of observation
- Review after one day and consult MO/NP if the patient has any symptoms e.g. an increased HR, increased temperature or any chest findings
 - evacuation/hospitalisation will be required

6. Referral/consultation

- Consult MO/NP on all occasions of choking (except minor choking episode as above) and/or acute upper airway obstruction
- Prepare for evacuation to a facility with advanced airway management capability in cases of near choking or unseen positional foreign object

Choking - conscious patient

- Adults and children may be treated in a standing or sitting position
- Infants may be placed in a head downwards position prior to delivering back blows

Effective cough

(Mild airway obstruction)

- Patient positions themselves
- Keep coughing until foreign body is expelled

Ineffective cough

(Severe airway obstruction)

- Perform 5 sharp back blows
 - this is done with the heel of the hand in the middle of the back between the shoulder blades
- Check to see if each back blow has relieved the obstruction

- The aim is to relieve the obstruction with each blow rather than to give all five blows
- If back blows are unsuccessful perform up to 5 chest thrusts
 - identify the same compression point as for CPR to perform chest thrust. Thrusts are similar to chest compressions but sharper and delivered at greater intervals
- Continue alternating five back blows with five chest thrusts if the obstruction is still not relieved



Anaphylaxis and severe allergic reaction - adult/child

Recommend

- Rapid assessment of conscious state, airway (risk or evidence of obstruction), adequacy of respiratory effort and circulation (including HR, BP, and capillary refill) is essential to guide treatment
- The intramuscular injection of adrenaline is first line medication treatment in life threatening anaphylaxis⁴⁹
- People with diagnosed allergies e.g. nuts, bees and/or medicine, should avoid trigger agents/confirmed allergens and have a readily accessible anaphylaxis action plan, medicine and medical alert device⁴⁹
- Always check for medic alert jewellery

Background

- Anaphylaxis encompasses a variety of symptoms and signs. Diagnosis is largely based on history and physical findings. Onset can range from minutes to hours following exposure to a substance. It can be caused by many agents but the most common ones are:
 - food - especially nuts, eggs, cow's milk, wheat, seafood, fish, soy, sesame
 - medicine e.g. penicillin
 - venom from bites, ticks or stings e.g. bees, wasps or ants⁴⁹

Related topics

- [Mild and moderate allergic reaction, page 290](#)
- [Toxinology/bites and stings, page 258](#)
- [Acute asthma, page 81](#)
- [Chest pain, page 93](#)
- [Acute upper airway obstruction and choking, page 64](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Oxygen delivery systems, page 44](#)

1. May present with⁴⁹

- Difficult/noisy breathing
- Wheeze or persistent cough
- Swelling of face and tongue
- Swelling/tightness in throat
- Difficulty talking and/or hoarse voice
- Persistent dizziness/loss of consciousness and/or collapse
- Pale and floppy (young children)
- Abdominal pain and vomiting
- Hives, welts and body redness

2. Immediate management

- Stop administration immediately, if you are administering a medicine injection, or an infusion of a medicine or blood product
- If allergic reaction or anaphylaxis has occurred from an insect allergy or tick bite, immediately remove the sting, or carefully remove the tick^{49,50}
- If patient is unconscious, lie patient down on left side to keep the airway clear
- If the patient is conscious, lay patient flat, do not stand or walk, if breathing is difficult, allow to sit
- **Give adrenaline by intramuscular injection without delay.** See adrenaline drug box for dosage. If there is no improvement in the patient's condition by 5 minutes, repeat doses of adrenaline every 5 minutes until improvement occurs
- Administer O₂ by face mask 10 - 15 L/minute and/or asthma medication for respiratory symptoms
- Consult MO/NP as soon as circumstances allow. Do not leave the patient alone
- Commence resuscitation if apnoeic
- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- If hypotensive insert IV cannula, a 14 - 16 G if possible
- If hypotensive give sodium chloride 0.9% (crystalloid) IV 20 mL/kg rapidly. See [Anaphylaxis flowchart, page 70](#)
- If airway obstruction See [Acute upper airway obstruction and choking, page 64](#) and consider need for needle cricothyroidotomy
- If patient on beta blocker they may be resistant to adrenaline. Contact MO/NP for further advice

Schedule	3	Adrenaline				DTP IHW
Authorised Indigenous Health Worker may proceed with first dose						
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1						
Form	Strength	Route of administration	Recommended dosage			Duration
Ampoule	1:1,000	Deep IM mid-lateral thigh in 1 mL syringe (not insulin syringe) with 23 G needle/25 mm length	Age (years)	Weight (kg)	Adrenaline volume 1:1000	Stat Repeat every 5 minutes as required
			< 1	5 - 10	0.05 - 0.1 mL	
			1 - 2	10	0.1 mL	
			2 - 3	15	0.15 mL	
			4 - 6	20	0.2 mL	
			7 - 10	30	0.3 mL	
			10 - 12	40	0.4 mL	
> 12 and adult	> 50	0.5 mL				
Provide Consumer Medicine Information: adrenaline may cause restlessness, anxiety, headache and palpitations in conscious patients						
Management of associated emergency: consult MO/NP						

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- **Adrenaline autoinjectors**
- **EpiPen® or AnaPen®** may be used instead of an adrenaline ampoule and syringe. For children 10 - 20 kg (aged 1 - 5 years) **EpiPen Junior®** or **AnaPen Junior®** should be used. Instructions are on device label

3. Clinical assessment

- Obtain emergency patient history (from relatives or friends)
 - circumstances leading up to the severe allergic reaction and potential contact with irritants - plant, animal, marine creatures
 - known allergies of any kind
 - any previous episodes, treatment used and effect
 - current medications including an EpiPen®
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination
 - inspect, auscultate and palpate all affected body systems e.g. skin changes, face, throat, breathing, HR, neurological state. Document all changes

4. Management

- Consult MO/NP who may order in addition to IM adrenaline
 - salbutamol nebulised with O₂ for persistent wheeze see [Acute asthma, page 81](#)
 - adrenaline nebulised with O₂ for upper airway obstruction⁴⁹. See [Croup/epiglottitis, page 660](#)
 - hydrocortisone IV stat (5 mg/kg, maximum 200 mg)

Anaphylaxis flowchart

Anaphylactic reaction?

Airway, Breathing, Circulation, Disability, Exposure

Diagnosis

Look for

- Acute onset of illness
- Life-threatening airway and/or breathing and/or circulation problems
- And usually skin changes⁴⁹

Call for help

- Lie patient flat
- Raise patient's legs⁴⁹

Give IM adrenaline without delay - Inject into mid-lateral thigh
Repeat every 5 minutes as needed

Supportive management

- Establish/support airway
 - High flow oxygen
 - IV access (wide bore if possible)
 - IV fluids if hypotensive
- Monitor:**
- Pulse, pulse oximetry, blood pressure, respiratory rate
 - ECG

Life-threatening problems:

Airway: swelling, hoarseness, stridor

Breathing: rapid breathing, wheeze, fatigue, cyanosis, SpO₂ < 92%, confusion

Circulation: pale, clammy, low blood pressure, faintness, drowsy, coma

Adrenaline⁵⁰: give IM into mid-lateral thigh

Age (years)	Weight (kg)	Adrenaline volume 1:1000
< 1	5 - 10	0.05 mL - 0.1 mL
1 - 2	10	0.1 mL
2 - 3	15	0.15 mL
4 - 6	20	0.2 mL
7 - 10	30	0.3 mL
10 - 12	40	0.4 mL
> 12 and adult	> 50	0.5 mL

Additional Measures

Adrenaline IV infusion to be given only by experienced clinician in consult with MO/NP

- Mix 1mL of 1:1000 adrenaline in 1000 mL of sodium chloride 0.9%.
- Start infusion at ~ 5 mL/kg/hour (~ 0.1 microgram/kg/minute)
- Titrate rate according to response
- Monitor continuously

If hypotensive give IV fluid

- Sodium chloride 0.9% 20 mL/kg rapidly (stop IV colloid if this might be the cause of anaphylaxis)

Flowchart adapted from ARC and Aust. Prescriber flowcharts

- BP and respiratory rate and conscious state should be checked every 15 minutes for 2 hours then hourly for a minimum of 4 hours
- After the resolution of all symptoms and signs, observe for a minimum of 4 hours after the last dose of adrenaline or until daylight hours
- Those with severe reactions: hypoxia, hypotension, and/or neurological compromise, delayed or inadequate response to initial therapy, poorly controlled asthma or a history of life-threatening reactions and those who present late in the evening, live alone or are remote from medical care require longer observation⁵⁰
- Those with severe reactions who have had a 12 hour period of being symptom free and have required no further adrenaline, may be discharged in consultation with MO/NP

Schedule	4	Hydrocortisone	DTP IHW/IPAP	
Authorised Indigenous Health Workers and Isolated Practice Area Paramedics must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	100 mg/2 mL (reconstitute powder with 2 mL of water for injection or 0.9% sodium chloride)	IV	5 mg/kg up to a max. of 200 mg	Stat
Provide Consumer Medicine Information: may cause increased BGL, and affect mood and sleep				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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5. Follow up

- It is important to find out exactly what happened before the episode - food or medicine ingestion, bites and stings etc. Make sure this is documented in the notes, as well as what treatment was required
- Patient must be advised to avoid re-exposure
- Discuss with the patient medical alert jewellery (e.g. Medicalert®) that carry medical information such as allergies on them. See [History and physical examination - adult, page 13](#)
- Document in medical record 'Allergic to.....'
- Review the next day and if no symptoms or findings, review at next MO/NP clinic

6 Referral/consultation

- Consult MO/NP on all occasions
- All patients are to be referred to MO/NP for prescriptions for EpiPen®
- ① Promptly report any significant adverse event following immunisation (AEFI) directly to Queensland Health by completing an AEFI form available at <http://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/aei-reporting-form.pdf> and send as fax or email as on the form. If practising outside of Queensland use the local reporting systems
- ① For adverse reactions caused by medicines, report directly to the TGA Australian Adverse Drug Reaction Reporting System available at <http://www.tga.gov.au/reporting-problems-o>

Fits/convulsions/seizures - adult/child

Recommend

- Do not attempt to open teeth or wedge mouth open during a seizure
- Consider **meningitis** in **all children** presenting with convulsions/fits and fever until proven otherwise
- **Children younger than 6 months of age** who present with convulsions and fever, may have a serious underlying medical condition

Background

- First seizure can occur at any age, but new onset epilepsy is more common in young children and elderly
- In a patient with known epilepsy, they are at risk of seizures if they:
 - do not take epilepsy medications regularly
 - drink excess alcohol
 - are in alcohol withdrawal and/or
 - are sleep deprived
- Usually fits cause no damage (unless the patient injures themselves or drowns). The vast majority of fits last less than two minutes and stop spontaneously. However fits lasting longer than five minutes (*status epilepticus*) need to be treated urgently, as prolonged fitting can cause damage to the brain. Multiple seizures with incomplete recovery between also need to be stopped urgently
- **Febrile convulsions** (fits associated with fever) usually occur in children aged between 3 months and 6 years of age and are associated with a temperature $> 38^{\circ}\text{C}$ ^{53,54}
- Clinical signs of fits in children may be subtle. In infants:
 - flicking eye movements
 - smiling inappropriate for age
- Some conditions can mimic a fit:
 - faints (syncope) - episodes of low systemic blood pressure possibly due to pain, fear, dehydration or medicines
 - cardiac arrhythmia - causing a drop in blood pressure
 - hypoglycaemia/hyperglycaemia - for example in a diabetic

Related topics

-  [Hypoglycaemia, page 78](#)
-  [Alcohol withdrawal, page 472](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Child with fever, page 639](#)
[Meningitis, page 644](#)

1. May present with

- Generalised - tonic - clonic seizure (convulsion)
- Reported history of 'having a fit':
 - 'falling and shaking all over'
 - 'eyes roll back' and 'froth at the mouth'
 - 'biting tongue' during the seizure
- Typically patients can not remember the fit, although they may recall some warning signs (aura)
- Patients may be:

- drowsy, confused, incontinent or possibly agitated after the fit for about 10 minutes (postictal phase). Patient may have been incontinent. During this phase breathing often sounds heavy, with loud 'snoring', due to partial obstruction of the airway
- **Focal seizures**
 - localised area of jerking (may reflect a TIA or brain tumour)
- **Partial - complex partial seizures**

The patient has impaired consciousness, but may remain standing/sitting, although behaving oddly. Usually lasts a minute or two. Signs include:

 - may lick lips repetitively, or fidget with hands
 - may have focal jerking of one limb
 - head and eyes may turn to one side. May stare blankly
 - patient will usually have no memory and may deny episodes are occurring
- **Special syndromes - febrile convulsions**
 - common in young children (3 months to 6 years). Mostly benign temperature over 38°C
 - most commonly associated with viral URTI, otitis media
 - prolonged febrile convulsions (greater than five minutes) need to be stopped urgently
 - fits in older children and adults can not be put down to 'febrile convulsions', even if the patient has a temperature. Another cause should be considered

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Protect patient from injury, especially the head
- Turn onto side in recovery position
- Time the duration of the fit and note characteristics of fit
- Draw up midazolam or prepare diazepam
- If fitting e.g. jerking, is lasting longer than five minutes treat with midazolam
- After the seizure has stopped O₂ may be administered via Hudson mask, to maintain O₂ saturation > 93% adult or > 95% child. See [Oxygen delivery systems, page 44](#)
- If O₂ saturation not maintained consult MO/NP
- In the postictal phase an oropharyngeal airway will help protect airway if it can be inserted easily. While the patient is still jerking it is usually better not to try to put anything into the mouth

3. Clinical assessment

- Take emergency patient history from witnesses. Once patient has recovered obtain more detailed history regarding presenting and previous fits
- Check patient is taking their regular anticonvulsant medicine
- Consider possibility of alcohol or drug related seizure caused by withdrawal
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination checking for any injury which may have occurred if patient fell or hit themselves during the seizure
- Check for skin rashes

4. Management

- Consult MO/NP
- Insert IV cannula
- If BGL less than 4 mmol/L

- adult - give 50% glucose or glucagon. See [Hypoglycaemia, page 78](#)
- child - give 10% glucose or glucagon. See [Hypoglycaemia, page 78](#)
- If capillary BGL is within normal limits and/or fit continuing give midazolam or diazepam⁵⁴
- For people with known alcohol use or who are malnourished - give thiamine 100 mgs IV (made up to 10 mL with sodium chloride 0.9%, give slowly over 10 minutes). If IV access difficult should be given undiluted IM
- If seizure continues in a child despite 2nd dose (on MO/NP orders) of midazolam/diazepam, MO/NP may advise to give IV phenobarbitone 15 - 20 mg/kg
- Paracetamol has not been shown to reduce the risk of further febrile convulsions⁵³. If child is uncomfortable with febrile illnesses, once fit has finished, give oral (if fully conscious) or rectal

Schedule	4	Midazolam		DTP IHW/SM R&IP
Authorised Indigenous Health Worker must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	5 mg/1 mL	IM or IV (IHW may not administer IV)	Adult IM 10 mg maximum dose IV up to 10 mg in 2.5 mg increments. Give over 2 - 5 minutes Child IM 0.2 mg/kg to a max. of 10 mg IV 0.15 mg/kg to a max. of 10 mg Give over 2 - 5 minutes	Stat Further doses on MO/NP order
	5 mg/5 mL		Adult 5 mg with second 5 mg dose if required to a max. of 10 mg Child 0.2 mg/kg to a max. of 10 mg	
		Intranasal via mucosal atomisation device (MAD) or 1 - 3 drops at a time into alternate nostrils until full dose is given (over about 15 seconds)	Adult 5 mg with second 5 mg dose if required to a max. of 10 mg Child 0.2 mg/kg to a max. of 10 mg	
Provide Consumer Medicine Information: causes sedation and respiratory depression				
Note: midazolam response is highly variable. Caution should be observed with the elderly, in the presence of hypotension or opioids and in children less than 8 years. Patients should be regularly monitored for at least 4 hours after last administration in case of excessive sedation, respiratory depression or hypotension				
Management of associated emergency: consult MO/NP. See Toxicology/sedatives/hypnotics, page 257				

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- Or

Schedule	4	Diazepam		DTP IHW/SM R&IP
Authorised Indigenous Health Worker must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Rectal solution	5 mg/5 mL	Per rectum	Adult 10 mg Child 0.3 mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: causes sedation and respiratory depression				
Management of associated emergency: consult MO/NP. See Toxicology/sedatives/hypnotics, page 257				
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5. Follow up

- Any patient who presents with their first fit/convulsion/seizure usually needs full investigation including EEG and CT scan
- MO/NP may order electrolytes, calcium and magnesium and serum anticonvulsant levels
- Usually allowed home after a period of 4 hours observation, if patient has returned to normal level of awareness after consultation with MO/NP. Must be in care of a responsible person
- Review next day
- See MO/NP at next clinic
- The MO/NP will advise the family on how to manage a fit should one occur, including medication

6. Referral/consultation

- Consult MO/NP on all occasions
- Any patient with recurrent seizures despite anticonvulsant medications needs MO/NP and specialist medical review

Diabetic ketoacidosis (DKA) - adult/child

Recommend

- Check capillary BGL and urine ketones in any patient with altered consciousness or a neurological abnormality
- Commence initial treatment as early as possible as may progress to coma and death⁵⁶
- Refer to:
 - adult DKA protocol *Management of diabetic ketoacidosis in adults (age 16 years and over)*: <https://www.health.qld.gov.au/improvement/networks/docs/diabetic-ketoacidosis.pdf>
 - paediatric DKA guideline *Diabetic Ketoacidosis: Emergency Management in Children*: <http://qheps.health.qld.gov.au/childrenshealth/resources/guidelines/gdl-00706.pdf>

Background

- Diabetic ketoacidosis (DKA) occurs primarily in type 1 diabetes mellitus⁵⁶
- Results in three primary metabolic derangements - hyperglycaemia, severe dehydration and acidosis
- DKA may occur:
 - at the onset of type 1 diabetes mellitus and therefore leads to its diagnosis
 - as a result of infection, omitted insulin doses, acute myocardial infarction, trauma,⁵⁶ insulin pump disconnection or malfunction

Related topics

 [Chest pain, page 93](#)

 [Fits/convulsions/seizures, page 72](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)

[Unconscious/altered level of consciousness, page 52](#)

1. May present with

- High blood glucose levels
- High blood ketone level
- Large glucose and ketones in urine
- Dehydrated - excessive thirst and urination
- Odour of breath - fruity/acetone
- Breathing patterns altered - deep slow laboured breathing (Kussmaul breathing)
- Rigid abdomen
- Nausea and gastrointestinal problems
- Recent weight loss (in undiagnosed type 1 diabetes)
- Hypotensive, tachycardia, hypothermic
- Altered level of consciousness

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Take emergency patient history if possible
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - urine ketones

- Insert IV cannula
 - commence IV fluids, MO/NP will advise type and rate
 - in children fluid replacement which is too rapid can result in cerebral oedema and worsening of situation. Consult MO/NP
- Always contact MO/NP if DKA
 - MO/NP will advise a short acting insulin IV
 - if unable to access IV route IM or subcutaneous may be used
- If using insulin pump therapy, discontinue insulin pump and give IV insulin until DKA resolved

3. Clinical assessment

- Take comprehensive patient history when able with particular attention to current diabetes status, insulin, food intake, exercise, recent alcohol intake, chest pain, infections or possible injury, urine output, fluid intake, possible dehydration
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - ECG - look for large T waves
 - test for ketones in blood and urine⁵⁷
 - record blood ketone level as a number (normal value < 0.6) e.g. '0.6' or '1.4'
 - record urine result as negative, +, ++,
- Collect urine for MC/S
- Collect blood for gases and electrolytes. Use point of care testing where appropriate. In children, venous gas recommended

4. Management

- Consult MO/NP as soon as possible who will organise/advise:
 - evacuation/hospitalisation to appropriately equipped facility
 - administration of IV fluids, insulin, glucose
 - K⁺ (potassium) replacement will be needed early in treatment to prevent hypokalaemia. K⁺ may initially be high or normal but will decrease when rehydration commenced
 - observe closely and document patient's vital signs and conscious state
- Record fluid balance (all input and output) on a fluid balance chart
- BGL, blood gases (particularly pH) and electrolytes should be examined regularly, initially every hour where possible
- Children and adolescents should have hourly neurological observations done for 24 hours

5. Follow up

- Minimum 3 monthly review by a Diabetes Specialist/Endocrinologist/Paediatrician. In children and adolescents, this would be recommended at time of DKA or as soon as possible afterwards
- Intensive one-on-one education by Diabetes Educator and Dietitian
- If new diagnosis of type 1 diabetes, patient will need blood tests for Islet Cell Antibodies and glutamic acid decarboxylase (GAD) antibodies
- Check for thyroid disease (TFTs) and coeliac disease, if family history or clinical suspicion

6. Referral/consultation

- Consult MO/NP as soon as possible on all occasions of DKA
- Refer to:
 - adult DKA protocol *Management of diabetic ketoacidosis in adults (age 16 years and over)*:
<https://www.health.qld.gov.au/improvement/networks/docs/diabetic-ketoacidosis.pdf>

- paediatric DKA guideline *Diabetic Ketoacidosis: Emergency Management in Children*: <http://qheps.health.qld.gov.au/childrenshealth/resources/guidelines/gdl-00706.pdf>

Hypoglycaemia - adult/child

Recommend

- Check capillary BGL in any patient with altered consciousness or a neurological abnormality
- Consult MO/NP for people with known alcohol misuse or who are malnourished as IV glucose can precipitate Wernicke's encephalopathy (serious brain damage). These patients should also have thiamine given IV made up to 10 mL with sodium chloride 0.9% and given slowly over 10 minutes. If IV access is difficult, should be given undiluted IM and commenced on oral thiamine 300 mg daily⁶⁴

Background

- Hypoglycaemia or low blood glucose level e.g. BGL < 4.0 mmol/L, may occur:
 - in people with diabetes taking tablets or insulin
 - as a result of heavy alcohol intake
 - in newborns and sick children
 - as a result of some rare medical conditions

Related topics

-  [Fits/convulsions/seizures, page 72](#)
-  [Diabetes, page 424](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Unconscious/altered level of consciousness, page 52](#)

1. May present with

- Capillary BGL less than 4 mmol/L
- Pale, sweating, tremor, rapid HR, anxiety
- Hunger, headache, dizziness, irritability
- Aggressive behaviour, may appear drunk
- Confusion, drowsiness, unconscious or fitting
- Neurological abnormality

2. Immediate management

- See [Fits/convulsions/seizures, page 72](#)
- If confused or drowsy
 - check capillary BGL
 - do not give any oral fluid or food
 - if patient not malnourished and/or not suffering alcohol induced hypoglycaemia give glucagon IM or subcut unless IV or IO access is available to administer glucose IV
 - if patient malnourished and/or suffering alcohol induced hypoglycaemia do not give glucagon. Give thiamine IV before administering glucose IV if it will not delay treatment with glucose. If thiamine unavailable, proceed with glucose IV and administer thiamine IV as soon as possible as high dose glucose in these patients can precipitate Wernicke's encephalopathy. Further doses may be required. If patient remains confused, consult MO/NP^{58,59}

Schedule	3	Glucagon		DTP IHW
Authorised Indigenous Health Worker may administer one dose then consult MO/NP				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial or Hypokit® (reconstitute with diluent provided)	1 mg	IM/Subcut	Adult/child > 25 kg 1 mg Child ≤ 25 kg 0.5 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: advise - can cause nausea and vomiting				
Note: patient will normally respond within 10 minutes. Do not give to patients who are fasting, malnourished or those with alcohol induced hypoglycaemia				
Management of associated emergency: consult MO/NP				

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Schedule	Unscheduled	Thiamine		NON DTP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	100 mg/1 mL	IV (diluted to 10 mL of sodium chloride 0.9% and given slowly over 10 minutes) or IM undiluted	Adult 300 mg	Stat
Note: contraindicated if patient is allergic to latex				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
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- If no improvement in BGL within 10 minutes:
 - insert IV cannula
 - check capillary BGL, if < 3 mmol/L
 - **adult** give 50% glucose 20 mL IV through a securely positioned cannula⁶⁵
 - **child** give 10% glucose 2 mL/kg IV bolus over a few minutes, until blood glucose concentration normalises (more than 4 mmol/L) followed by sodium chloride 0.9% with glucose 5% IV (maintenance fluids)⁶⁵, at maintenance rate to prevent further hypoglycaemia. Increase concentration of glucose in fluid if necessary to maintain blood glucose concentration above 4 mmol/L⁶¹
- Recovery should be almost immediate or ideally within 6 minutes⁶⁵
- Check BGL every 15 minutes until within normal limits

3. Clinical assessment

- Obtain comprehensive patient history when able with particular attention to current diabetes status, insulin, food intake, exercise, recent alcohol intake, illness or injury
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - urinalysis

4. Management

- **If conscious and able to swallow** - give rapidly absorbed form of oral sugar (carbohydrate)
 - 3 teaspoons or sachets of sugar either straight or added to a non-sweetened drink or
 - ½ cup ordinary soft drink or cordial or sweetened juice or
 - 5 - 6 jelly beans or other chewable sweets or
 - 2 - 3 sweet biscuits
- Follow with a sandwich, a piece of fresh or dried fruit or a meal
- Check BGL in 15 minutes
 - if greater than 4.0 mmol/L, check again in another 15 minutes and if still greater than 4.0 mmol/L, patient can go home, depending on cause, and in consultation with MO/NP
 - if less than 4.0 mmol/L, repeat above treatment, check in 15 minutes and 15 minutes later and if greater than 4.0 mmol/L monitor every 1 - 2 hours for 4 hours. If cause of hypoglycaemia not immediately reversible consult with MO/NP
- Review next dose of insulin/diabetes medication
- Review events with patient which may have led to hypoglycaemic episode:
 - was too much diabetes medication or insulin taken?
 - unplanned exercise?
 - not enough carbohydrate food/forgot to eat meal?
 - had too much alcohol? People consuming alcohol are advised to limit their consumption and ensure that they eat carbohydrate to reduce the risk of hypoglycaemia
 - patient has end stage kidney failure?

5. Follow up

- Review signs and symptoms of hypoglycaemia with the patient
- Review treatment of hypoglycaemia with the patient. Patients should know how to recognise and treat a 'hypo' themselves
- See [Diabetes, page 424](#) for additional information and cycle of care checks that could be opportunistically carried out at this visit
- For people with known alcohol misuse, see [Alcohol misuse, page 464](#) and continue oral thiamine 300 mg daily⁶⁴

6. Referral/consultation

- Consult MO/NP on all occasions and prior to discharge
- Refer to Diabetes Educator

Acute asthma - adult/child

Recommend

- If the adult or child is acutely distressed give salbutamol with O₂ immediately following rapid assessment
- Beware of the patient with asthma in distress who is unable to speak and without audible wheeze, this indicates severe/acute asthma
- Cyanosis, impaired conscious state and a quiet chest indicate a life threatening episode
- Management is determined by assessment of severity of asthma episode⁶⁶
- Asthma is less likely to be the cause of wheezing in children less than 12 months of age. Monitor these patients closely and consult MO/NP
- Administer systemic corticosteroids within the first hour of treatment
- Repeatedly reassess response to treatment

Related topics

 [Upper respiratory tract infection, page 294](#)

 [Chronic asthma, page 415](#)

 [Acute pulmonary oedema, page 102](#)

 [Anaphylaxis and severe allergic reaction, page 67](#)

[Breathlessness, page 91](#)

[Oxygen delivery systems, page 44](#)

[Glasgow coma scale \(GCS\)/AVPU, page](#)

[766](#)

1. May present with

- Breathlessness
- Wheeze/cough
- Speaking in short sentences
- In distress
- Tiredness/exhaustion
- Cyanosis
- O₂ saturation < 93% adult or < 95% child
- Symptoms continue despite 'reliever' medicine

2. Immediate management

Adult and Child^{66,67}

- Take an emergency history
- Perform rapid clinical assessment + O₂ saturation and severity assessment (see table below)
- Give O₂ if saturation is < 95% adult and child
- Consider IM adrenaline for anaphylaxis. See [Anaphylaxis and severe allergic reaction, page 67](#)
- If acutely distressed, sit patient up to assist with breathing
- Consult MO/NP

Rapid assessment and severity - signs and symptoms in adults and children⁶⁷

Mild/Moderate	Severe	Life-threatening
Can walk, speak whole sentences in one breath For young children, can move around and speak in phrases Oxygen saturation greater than 94%	Any of the following: • Unable to speak in sentences • Obvious respiratory distress • Use of accessory muscles • Tracheal tug during inspiration or subcostal recession • Increased work of breathing • Oxygen saturation 90-94%	Any of the following: • Decreased level of consciousness • Collapsed • Exhausted • Cyanotic • Poor respiratory effort • Soft/absent breath sounds • Oxygen saturation less than 90%

IMMEDIATE Management - child 0 - 5 years⁶⁷

Mild/Moderate	Severe	Life-threatening
Give salbutamol (100 microgram/dose) 2 - 6 puffs via MDI plus spacer (plus mask for younger children)	• Give salbutamol (100 microgram/dose) 6 puffs via MDI plus spacer (plus mask for younger children) OR • Salbutamol 2.5 mg via intermittent nebulisation • Start oxygen if saturation less than 95% • Target oxygen saturation 95% or more	• Give salbutamol 2 x 2.5 mg nebulas via continuous nebulisation • Start oxygen if saturation less than 95% • Target oxygen saturation 95% or more • Notify MO/NP who will arrange evacuation and provide guidance on further management
Drive nebuliser with oxygen		

IMMEDIATE Management - adults and children 6 years and over⁶⁷

Mild/Moderate	Severe	Life-threatening
Give salbutamol (100 microgram/dose) 4 - 12 puffs via MDI plus spacer	• Give salbutamol (100 microgram/dose) 12 puffs via MDI plus spacer OR • Salbutamol 5mg nebule via intermittent nebulisation • Start oxygen if saturation less than 95% • Target oxygen saturation 92 - 95%	• Give salbutamol 2 x 5 mg nebulas via continuous nebulisation • Start oxygen if saturation less than 95% • Target oxygen saturation 92 - 95% • Notify MO/NP who will arrange evacuation and provide guidance on further management
Drive nebuliser with air unless oxygen needed or air not available		

3. Clinical assessment

- Obtain complete patient history of this episode, previous episodes of asthma and previous admissions to ICU for acute asthma
- Of particular importance is severity of previous episodes including need for ICU hospitalisation and/or medications/steroids e.g. prednisolone
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools). See [Glasgow coma scale \(GCS\)/AVPU](#), [page 766](#)
- Inspect for the use of accessory muscles chest and neck, nasal flaring, intercostal recession and sternal retraction
- Listen to the chest for air entry and wheezes. Air entry can often be unequal in asthma due to mucous plugging and does not always mean pneumothorax or pneumonia
- Check spirometry (FEV). If spirometry not available and patient is not distressed, use peak expiratory flow rate (PEFR) before and after salbutamol administered

4. Management

- Consult MO/NP if this is the first episode, is a mild episode or the patient has fever, or doesn't settle with initial dose of salbutamol
- Management is based on the severity of the acute asthma presentation - mild/moderate, severe or life-threatening. If moderate/severe or life threatening consult MO/NP on all occasions. Patients with severe/life-threatening asthma will require evacuation/hospitalisation
- IM adrenaline for anaphylaxis or imminent cardiorespiratory arrest⁴⁹
- See [Anaphylaxis and severe allergic reaction](#), [page 67](#)
- Antibiotics are rarely needed
- Chest x-ray (if available) to exclude pneumothorax

Ongoing management of acute asthma - child 0 - 5 years⁶⁷

Within minutes of immediate management reassess severity. If no improvement consult MO/NP and continue with bronchodilator

Mild/Moderate	Severe	Life threatening
- Repeat salbutamol (100 mcg) 2 - 6 puffs via MDI plus spacer (plus mask for younger children) - Every 20 - 30 minutes for first hour or sooner as needed	- Repeat salbutamol (100 microgram) 6 puffs via MDI plus spacer (plus mask for younger children) - Every 20 minutes for first hour (3 doses) or sooner as needed OR - Salbutamol 2.5 mg via intermittent nebulisation. Repeat dose every 20 minutes for first hour (3 doses) or sooner as needed	- Ongoing continuous nebulised salbutamol driven by oxygen until breathing difficulty improves - Consider changing to MDI plus spacer (use doses as per severe)
If poor response add ipratropium bromide (21 microgram per dose) 4 puffs via MDI (plus mask for younger children) OR ipratropium bromide 250 microgram nebule via nebuliser added to nebulised salbutamol Give dose every 20 minutes for first hour Repeat every 4 - 6 hours as needed		
Consider other add on treatment options - MO/NP order		
Oral prednisolone 2 mg/kg (maximum 50 mg) stat then 1 mg/kg on days 2 and 3 OR if oral route not possible hydrocortisone 8 - 10 mg/kg (max. 300 mg) IV stat, then 1 mg/kg every 6 hours on day 1, and then every 12 hours on day 2, then daily on day 3 OR methylprednisolone 2 mg/kg (max 60 mg) IV stat, then 1 mg/kg every 6 hours on day 1, and then every 12 hours on day 2, then daily on day 3		
Dyspnoea resolved Observe for 1 hour	Dyspnoea unresolved - Continue with salbutamol and ipratropium bromide - Consult MO/NP - Admit/evacuate	Dyspnoea unresolved Consult MO/NP who will provide guidance on further management

Ongoing management of acute asthma - adult and children 6 years and over⁶⁷

Within minutes of immediate management reassess severity. If no improvement consult MO/NP and continue with bronchodilator

Mild/Moderate	Severe	Life threatening
Repeat salbutamol (100 microgram/dose) 4 - 12 puffs salbutamol via MDI plus spacer every 20 - 30 minutes or sooner for first hour as needed	- Repeat salbutamol (100 microgram/dose) 12 puffs via MDI plus spacer every 20 minutes or sooner for first hour (3 doses) as needed OR - Repeat salbutamol 5 mg nebulisation every 20 minutes or sooner for first hour (3 doses) as needed	- Ongoing continuous nebulised salbutamol until dyspnoea improves THEN - Consider changing to MDI plus spacer (dosages as per for severe)
If poor response add ipratropium bromide (21 microgram per dose) 8 puffs via MDI OR ipratropium bromide 500 microgram/mL nebule via nebuliser added to nebulised salbutamol Give dose every 20 minutes for first hour. Repeat every 4 - 6 hours as needed		
Start systemic corticosteroids - commence within first hour of treatment prednisolone 37.5 - 50 mg oral stat then continue 5 - 10 days OR If oral route not possible hydrocortisone 100 mg IV every 6 hours		
Dyspnoea resolved Observe for 1 hour	Dyspnoea unresolved - Continue with salbutamol and ipratropium bromide - Consult MO/NP	Dyspnoea unresolved Consult MO/NP who will provide guidance on further management

Schedule	3	Salbutamol		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may administer one dose then consult MO/NP				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Metered dose inhaler (MDI)	100 microgram/dose	Inhalation with spacing device. Use with mask for young children	Adult and child ≥ 6 years 4 - 12 puffs Child < 6 years 2 - 6 puffs	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: advise patient it may cause fine tremor of skeletal muscle, anxiety, and fast heart beat				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
67,68,69				

Schedule	4	Salbutamol		DTP
IHW/IPAP/SM R&IP				
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may administer one dose then consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Nebule	2.5 mg/2.5 mL 5 mg/2.5 mL	Nebulised with air or O ₂ (at least 6 L/min)	Adult and child ≥ 6 years 2.5 mg - 5 mg	Stat Further doses on MO/NP order
Solution	5 mg/mL in 30 mL		Child < 6 years 2.5 mg	
Provide Consumer Medicine Information: advise patient it may cause fine tremor of skeletal muscle, anxiety, and fast heart beat				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
66,67,68,69				

Schedule	4	Ipratropium bromide		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and and Isolated Practice Area Paramedics may administer one dose then must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Nebule and solution	250 microgram/ mL	Nebulised with air or O ₂ (at least 6 L/min) added to nebulised salbutamol	Adult and child ≥ 6 years 500 microgram	Stat Further doses on MO /NP orders
	500 microgram/ mL		Child < 6 years 250 microgram	
Metered dose inhaler (MDI)	21 microgram/ dose	Inhalation with spacing device	Adult and child ≥ 6 years 8 puffs Child < 6 years 4 puffs	
Provide Consumer Medicine Information: tell your health professional if you notice any eye pain, blurred vision or difficulty urinating. May cause dry mouth, throat irritation and nausea				
Note: avoid getting mist into patients' eyes. If using nebuliser, patient should close their eyes or wear eye protection. Can be combined and administered together with salbutamol in the same nebuliser				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

67,70

Schedule	4	Prednisolone		DTP IHW/IPAP
Authorised Indigenous Health Workers and Isolated Practice Area Paramedics must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	1 mg 5 mg 25 mg	Oral	Adult and child ≥ 6 years 37.5 mg - 50 mg Child < 6 years 1 - 2 mg/kg to a max. of 50 mg	Stat
Mixture	5 mg/mL			
Provide Consumer Medicine Information: can cause nervousness or restlessness, and insomnia				
Note: for children < 6 years avoid systemic corticosteroids if mild/moderate wheezing responds to initial bronchodilator treatment				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

67,71,72

Schedule	4	Methylprednisolone <u>sodium succinate</u>		DTP IHW/IPAP
Authorised Indigenous Health Workers and Isolated Practice Area Paramedics must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	40 mg 500 mg 1 g	IV by slow injection over at least 5 minutes	Child < 6 years Initial dose 2 mg/kg to a max. of 60 mg/dose	Stat
			Child < 6 years Ongoing doses 1 mg/kg	Day 1 6 hourly Day 2 12 hourly Day 3 Once daily
Provide Consumer Medicine Information: may cause disturbances in mood, sleep or behaviour				
Note: for children < 6 years avoid systemic corticosteroids if mild/moderate wheezing responds to initial bronchodilatory treatment				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
67,73,74				

Schedule	4	Hydrocortisone <u>sodium succinate</u>		DTP IHW/IPAP
Authorised Indigenous Health Workers and Isolated Practice Area Paramedics must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	100 mg/2 mL (reconstitute powder with 2 mL of water or 0.9% sodium chloride)	IV	Adult or child ≥ 6 years 100 mg 6 hourly	Stat Switch to oral prednisolone as soon as patient can swallow
			Child < 6 years Initial dose 8 - 10 mg/kg to a max. of 300 mg	Stat
			Child < 6 years Ongoing dose 4 - 5 mg/kg to a max. of 100 mg	Day 1 - 6 hourly Day 2 - 12 hourly Day 3 - daily
Provide Consumer Medicine Information: may cause increased BGL and affect mood and sleep				
Note: for children 0 - 5 years avoid systemic corticosteroids if mild/moderate wheezing responds to initial bronchodilatory treatment				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
52,67,75,76				

5. Follow up

- If mild/moderate episode, no fever, and wheeze settles with initial salbutamol, patient may return home after 1 hour of observation with advice to continue usual asthma medicines, including salbutamol, every 4 hours as needed
- Review the next day and if still no wheeze present, patient needs to be reviewed by MO/NP at next clinic
- For mild/moderate asthma MO/NP may order oral prednisolone for 5 - 10 days for adults and 3 - 5 days in children
- If patient returns earlier because they are requiring salbutamol more than every 4 hours or if wheeze on review, consult MO/NP
- All people who have asthma should have an 'Asthma Action Plan'. Ensure patients or parents/carers are able to monitor and manage asthma at home. See the current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual> for additional advice, information and ongoing care
- Viral chest infections in infants may also cause wheeze that may not respond to bronchodilators
- Patients, relatives and friends of people with asthma should know asthma first aid available from: <http://www.nationalasthma.org.au/uploads/content/22-First-Aid-Asthma-Chart.pdf> or www.nationalasthma.org.au/handbook

6. Referral/consultation

- If mild/moderate and first episode, or has fever, or doesn't settle with initial dose of salbutamol, consult MO/NP
- If severe/life-threatening asthma consult MO/NP on all occasions (as above) and see at next MO/NP clinic
- People with severe asthma require specialist referral

Drowning/submersion - adult/child

Recommend

- The aim of management is to reverse hypoxia - lack of O₂ to body tissues⁷⁸
- Trauma, alcohol and drug intoxication, hypoglycaemia and seizures must be considered as precipitating events...
- Cervical spine injury is not commonly associated with near drowning - unless there is a strong suggestion of risk, immobilisation of the spine should not be allowed to interfere with resuscitation⁷⁸

Related topics

 [Cardiorespiratory arrest, page 38](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Unconscious/altered level of consciousness, page 52](#)

1. May present with

- History of submersion with no symptoms
- Cardiorespiratory arrest
- Respiratory arrest, distress, cyanosis, crackles or wheeze in the lungs (pulmonary oedema - fluid on the lung)
- Altered consciousness - unconscious from hypoxia - decreased O₂ to the brain

- Very low temperature (hypothermia)
- Hypotension

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- See [Cardiorespiratory arrest, page 38](#)
- Give high flow O₂ via non-rebreathing mask. A Hudson mask is not sufficient
See [Oxygen delivery systems, page 44](#)
- Hypothermia makes assessment of the circulation difficult therefore if CPR commenced do not stop, unless in consultation with MO/NP and there is no response to resuscitation efforts despite the patient's body temperature being above 32°C or cannot be raised despite every measure taken
- Consult MO/NP as soon as possible
- Remove all wet clothing and dry patient
- Keep patient warm with blankets and space blankets

3. Clinical assessment

- Obtain a complete patient history including circumstances of submersion
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - core temperature (if possible)
- Listen to chest for added sounds - crackles or wheezes
- Take chest x-ray if available
- Expose and examine the patient systematically for other injuries, starting at the head and progressing downwards to the toes. Maintain privacy. Do not let the patient get cold. Cover with a blanket after examination

4. Management

- Consult MO/NP
- Continue O₂ therapy⁷⁹, intubation may be required if patient is unconscious
- Encourage to cough and take deep breaths
- The MO/NP may advise insertion of a nasogastric tube to empty the stomach of swallowed water

5. Follow up

- The patient may be allowed home in consultation with the MO/NP and in the company of a responsible adult, if the patient did not lose consciousness, is asymptomatic and chest findings are normal
- Review after 6 hours, the next day and in 2 days and consult MO/NP if the patient has any symptoms, an increased HR, increased temperature or any chest findings

6. Referral/consultation

- Consult MO/NP on all occasions
- Any patient who has lost consciousness or has chest symptoms or signs or had submersion in contaminated water, will need evacuation/hospitalisation because of a risk of developing adult respiratory distress syndrome (ARDS) and/or cerebral oedema

Breathlessness - adult/child

Recommend

- Nearly all patients with breathlessness require O_2 in high concentrations
- For patients with chronic obstructive pulmonary disease (COPD), an O_2 saturation of 88 - 92% may be normal and O_2 in high concentration may put the patient at risk by decreasing their breathing effort. However CO_2 retention is not a contraindication to O_2 therapy. Rather it demands that the clinician administer O_2 carefully and recognise potential for respiratory acidosis and clinical deterioration⁸⁰

Background

- Breathlessness occurs when the body receives inadequate O_2 to tissues because of lung, heart or other problems. The body's first response is to breathe faster to increase the amount of air passing through the lungs

Related topics

 [Acute pulmonary oedema, page 102](#)
 [Pneumonia, page 300](#)
 [Acute asthma, page 81](#)

 [Chronic obstructive pulmonary disease, page 416](#)
 [Chest injuries, page 127](#)

1. May present with

- Breathing fast and often frightened
- Increased HR
- Fever
- Chest pain, dull or sharp
- Cough with purulent, frothy or blood stained sputum
- Chest wheezes or crackles
- Hypotension
- Cyanosis
- Confused, drowsy

2. Immediate management

- Give O_2 See [Oxygen delivery systems, page 44](#)
 - for all patients except known COPD: give high flow O_2 to maintain O_2 saturation > 93% adult or > 95% child. If not maintained consult MO/NP
 - for severely distressed patients with known COPD it may be necessary to give high flow O_2 , however, patient with COPD should receive lower maintenance O_2 therapy, as soon as clinical condition allows - consult MO/NP
 - for patients with known COPD give O_2 28% by Venturi mask or nasal cannula to maintain O_2 saturation 88 - 92%. If not maintained, consult MO/NP. If Venturi mask not available, give O_2 by Hudson mask at 5 L/min only, or by nasal prongs at 2 L/min only

3. Clinical assessment

- Obtain a complete patient history including this and any previous episodes of acute or chronic breathlessness
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)

- Assess quality of respirations and note signs of accessory muscle use e.g. nasal flaring, sternal retraction, intercostal recession
- Inspect chest for expansion
- Auscultate the chest for air entry and added sound (crackles or wheezes)

4. Management

- Consult MO/NP using the following table as a guide

Differential diagnosis table

Probable cause	Symptoms and signs	What to do
Pulmonary oedema (fluid in the lungs)/ heart failure	• History of heart trouble (angina, acute coronary syndrome, heart failure) • Worse when lying down • May start suddenly waking up at night short of breath • May have pink frothy sputum • May have wheezes and crackles at the bottom of the lungs or all over the lungs • May have ischaemic chest pain	See Acute pulmonary oedema, page 102
Chest infection	• Fever, cough and looks unwell • May have reduced air entry or wheezes and crackles in the lungs • May have sharp chest pain, worse on deep breath	See Pneumonia, page 300
Acute asthma	• Known asthmatic (usually) • Usually wheezing, difficulty breathing out	See Acute asthma, page 81
Chronic obstructive pulmonary disease (COPD)	• History of chronic chest problems • Usually no fever • More than the usual amounts of coloured sputum	See Chronic obstructive pulmonary disease, page 416
Pulmonary embolus (blood clot in the lungs) secondary to deep vein thrombosis (DVT)	• Sharp chest pain, may be worse with breathing, may cough up blood • May occur in pregnant women or post natal women, people who have had an operation in the past 2 months, and older people who have spent a long time without much movement (e.g. after a long journey sitting down or after a long time in bed in hospital) especially if they have a painful or swollen leg	Consult MO/NP urgently Evacuating/attending MO/NP may consider heparinisation
Spontaneous pneumothorax/ traumatic pneumothorax	• Usually starts suddenly • Can occur in a young fit and healthy person (tall and thin) or in someone with a history of asthma	See Chest injuries, page 127

5. Follow up

- See [Acute pulmonary oedema, page 102](#)
- See [Pneumonia, page 300](#)
- See [Acute asthma, page 81](#)
- See [Chronic obstructive pulmonary disease, page 416](#)
- See [Chest injuries, page 127](#)

6. Referral/consultation

- Consult MO/NP

Cardiovascular emergencies

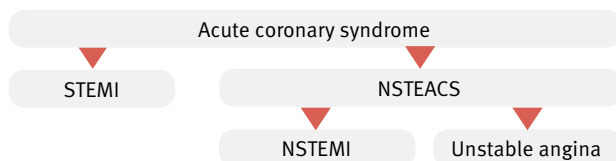


Chest pain - adult

Acute coronary syndrome (ACS)/unstable angina/myocardial infarction

Recommend

- Management is determined by clinical presentation, results of the 12 lead ECG and blood tests
- Consider acute coronary syndrome (myocardial infarction or unstable angina) in all people who present with chest pain that is new, recurrent, increasingly frequent or long lasting¹
- Early reperfusion (percutaneous coronary intervention [PCI] or thrombolysis) provides the best outcomes for patients with ST elevation myocardial infarction (STEMI). Contact MO/NP immediately who will promptly discuss management options with Cardiologist
- The Heart Foundation and Australian Resuscitation Council have released separate statements about the routine use of O₂ in acute coronary syndrome, recommending that 'supplemental O₂ should be initiated for breathlessness, hypoxaemia (O₂ saturation < 93%) or signs of heart failure or shock^{2,3}
- Acute coronary syndrome (ACS) is clinically divided into syndromes that are characterised by the absence or presence of ST elevation on the ECG. They are further subdivided into⁴:
 - ST elevation myocardial infarction (STEMI) - this is a medical emergency for which urgent reperfusion therapy needs to be considered
 - non ST elevation acute coronary syndrome (NSTEMI) - patients without ST elevation are initially described as having NSTEMI until subsequent investigation divides them into:
 - non ST elevation myocardial infarction - NSTEMI
 - unstable angina - those without myocardial infarction



Related topics

-  [Cardiorespiratory arrest, page 38](#)
-  [Cardiac arrhythmias, page 105](#)
-  [Acute pulmonary oedema, page 102](#)
-  [Trauma and injuries, page 118](#)
-  [Alcohol related epigastric pain, page 209](#)
-  [Acute abdominal pain, page 200](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)

1. May present with

- Chest pain or chest discomfort
- Nausea
- Dizziness
- Diaphoresis
- Hypotension
- Collapse/cardiac arrest
- Irregular heart beat
- Breathlessness
- Confusion (especially if elderly)
- Beware unusual presentation in older patients, people with diabetes and women

Differential diagnosis table

Probable cause of chest pain	Symptoms and signs	What to do
Acute coronary syndrome (unstable angina, myocardial infarction)	• Central chest pain or discomfort may also be described as 'heaviness' or 'pressure' • Pain may radiate to the arm or neck or jaw or shoulder and may have associated nausea, vomiting, pallor, sweating and/or breathlessness	• O₂ if patient has – O₂ saturation < 93% – is breathless – has signs of heart failure or shock² • Perform 12 lead ECG as soon as possible and fax/scan/email to MO/NP • Aspirin • Glyceryl trinitrate (GTN) • Morphine • Thrombolysis/PCI may be necessary • See under Management
Chest infection with pleurisy	• Sharp chest pain, worse on deep breath • May have reduced air entry or wheezes/crackles in the lungs	• See Pneumonia, page 300

(continued)

Differential diagnosis table (continued)

Probable cause of chest pain	Symptoms and signs	What to do
Pericarditis	• A history of fever and malaise, sharp retrosternal or left sided chest pain • Pain is often eased by leaning forward and is worse in the supine position • Friction rub on examination, often transient • Tachycardia (often) • Evidence of underlying cause e.g. viraemia, uraemia, autoimmune connective tissue disorders or recent myocardial infarction⁵	• Perform 12 lead ECG then fax/scan/email to MO/NP • Consult MO/NP urgently • MO/NP will recommend: – bloods – chest x-ray – NSAID and – admission to hospital
Stable Angina	• The pattern of symptoms has not changed during the past month, such as the distance walked before the development of angina • Pain is typically transient, lasting less than 10 minutes, and subsides promptly with rest	• The patient should stop activities as soon as pain is felt. Before taking medication, they should sit or lie down, particularly when first using glyceryl trinitrate, because of the possibility of hypotension • If the pain persists more than 10 minutes despite taking two doses, the patient should be advised to take a third dose and call an ambulance • At hospital refer what to do for acute coronary syndrome
Pulmonary embolus (PE) (blood clot in the lungs) secondary to deep vein thrombosis (DVT)	• Sharp chest pain, may be worse with breathing and may cough up blood • Think of PE in: – pregnant/postnatal women – people who have had surgery in the past 2 months – older people who have had a period of inactivity e.g. after a long journey sitting down or after a long time in bed in hospital, especially if they have a painful or swollen leg	• Consult MO/NP urgently • Perform 12 lead ECG then fax/scan/email to MO/NP • Evacuating/attending MO/NP may consider heparinisation

Differential diagnosis table

Probable cause of chest pain	Symptoms and signs	What to do
Chest injuries	Chest pain associated with chest injuries	See Chest injuries, page 127
Oesophageal pain	- Burning retrosternal pain, worse on lying down - May be associated with a sensation of fluid in the back of the throat ('water brash') - Often associated with pregnancy, obesity, alcohol and/or a history of 'indigestion'	- Perform 12 lead ECG then fax/scan/email to MO/NP - Consult MO/NP who may advise antacid 20 mL stat and/or metoclopramide 10 mg IM stat - See Alcohol related epigastric pain, page 209
Abdominal pain Biliary colic	Chest/lower abdominal pain, associated with abdominal symptoms or tenderness	- Perform 12 lead ECG then fax/scan/email to MO/NP - See Acute abdominal pain, page 200
Dissecting thoracic aortic aneurysm	- Severe chest pain begins suddenly - Pain described as sharp, stabbing, tearing or ripping, felt below the chest bone, then moves under the shoulder blades or to the back, neck, arm, jaw, abdomen or hips - Pain moves to the arms and legs as the aortic dissection gets worse - May be found in young otherwise well people - May display differences between left and right arm blood pressure readings	- Consult MO/NP immediately - Perform 12 lead ECG then fax/scan/email to MO/NP No thrombolysis, anticoagulant or antiplatelet medication

2. Immediate management of chest pain

- See [DRS ABCD resuscitation/the collapsed patient](#), page 36
- Supplemental O₂ if patient has O₂ saturation < 93%, is breathless, has signs of heart failure or shock² or diagnosis is uncertain
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note pulse strength, rate and regularity of HR
- Connect to continuous cardiac monitor
- Do 12 lead ECG within 10 minutes, fax/scan/email to MO/NP. Send copy of previous ECG - if available - this should not delay sending new ECG to MO/NP
- Insert IV cannula
- Consult MO/NP as soon as possible

3. Clinical assessment

- As part of patient history identify:
 - previous history of similar episodes of pain
 - past medical and surgical history, note heart disease, hypertension, dyslipidaemia, diabetes

- note any family history of angina, heart attacks, stents or coronary bypass surgery, elevated cholesterol
- smoking status
- Take medication history - current medicines: aspirin, warfarin, allergies?
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BP on both arms (> 20 mmHg difference between right and left arm suggests aortic dissection)
 - heart rhythm - note palpitations/irregular HR
 - listen to heart and breath sounds
- Assess the pain:^{6,7}
 - site - where is the pain e.g. retrosternal, (L) chest, epigastric, interscapulae?
 - onset - when did it start, sudden or gradual onset?
 - characteristics - what is the pain like: pressure, tightness, heaviness, cramping, band like burning, ache, sharp, dull, stabbing, fullness, squeezing, tearing, ripping?
 - radiation - does it spread anywhere else e.g. neck, jaw, shoulder, one or both arms, into hands and wrists, back?
 - associated symptoms e.g. breathlessness, nausea, vomiting, sweating, dizziness/light headedness, fever, cough with purulent or pink frothy sputum or blood?
 - timing - how long did it last, constant or intermittent? What, if anything, changed the pain? Ever had this pain before? How often does it occur?
 - exacerbating or relieving factors - what brought on pain e.g. activity, foods, cold, stress? What makes the pain better/worse e.g. rest, medicines (GTN, antacids), eating, position changes, deep inspiration? Any analgesia taken?
 - severity - how bad is the pain? Scale of 0 to 10, with 0 being none and 10 being the worst
- Perform physical examination - use the Differential diagnosis table on previous pages to guide possible causes of chest pain:
 - auscultate the chest for air entry and added sounds (wheezes and crackles)
 - note any chest tenderness
 - palpate the abdomen for tenderness: acute abdominal problems can present as chest pain and vice versa. See [Acute abdominal pain, page 200](#)
- Report findings to MO/NP
- Repeat ECG will be required (if pain is cardiac in origin)

4. Management

Acute coronary syndrome

- Continue O₂ if patient has O₂ saturation < 93%, is breathless, has signs of heart failure or shock²
- Continuous cardiac monitoring
- Give aspirin 300 mg (provided not already given or contraindicated)
- Ongoing monitoring performing standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Insert two IV cannula - **collect blood for baseline troponin levels**. Recurrent testing may be required⁸
- Perform point of care troponin testing where available
- Give sublingual GTN provided not hypotensive. **Note:** do not give GTN if patient has taken phosphodiesterase-5-inhibitors e.g. sildenafil (Viagra[®]), vardenafil (Levitra[®]) in the last 24 hours or tadalafil (Cialis[®]) in the last 48 hours
- Give morphine IV if pain not relieved by GTN. Consult MO/NP if allergic to morphine
- Give metoclopramide if nauseated or vomiting

ST elevation myocardial infarction (STEMI)

- If ECG shows STEMI acute coronary syndrome, early reperfusion must be considered. MO/NP will assess and promptly discuss options with Cardiologist
- Early reperfusion therapy must be considered if 12 lead ECG shows:
 - persistent ST segment elevation > 1mm in two contiguous limb leads or
 - ST segment elevation > 2 mm in two contiguous chest leads or
 - new left bundle branch block pattern
- Reperfusion options include:
 - PCI (invasive procedure, requiring admission to specialist hospital service) or
 - thrombolysis (non-invasive procedure using IV medications e.g. tenecteplase)
- Options for reperfusion will depend on:
 - time since onset of pain
 - time of assessment and STEMI diagnosis
 - availability and time to PCI (appropriately equipped facility)
 - contraindication to PCI or thrombolysis therapy
 - see [Tenecteplase, page 101](#) for information
 - availability of appropriate transport
- If thrombolysis is required the MO/NP may advise use of:
 - enoxaparin 30 mg IV loading dose, unless contraindicated followed by
 - thrombolytic agent e.g. tenecteplase see [Tenecteplase, page 101](#) for information followed by
 - clopidogrel orally 300 mg³¹ followed by
 - enoxaparin up to 1 mg/kg subcutaneously³¹ (15 minutes after loading dose of enoxaparin IV)
- ECG monitoring and access to external defibrillator is required during thrombolysis in case of shockable reperfusion arrhythmias. Monitor closely following thrombolysis looking for evidence of bleeding. See [Management post thrombolysis, page 101](#)
- Notify MO/NP if pain recurs or abnormal cardiac rhythm
- Follow local protocols for thrombolysis or PCI in collaboration with MO/NP as variance may be needed on an individual patient basis. Refer to the Heart Foundation ACS treatment algorithm for guidance as to PCI or thrombolysis for STEMI available at <http://www.heartfoundation.org.au/information-for-professionals/Clinical-Information/Pages/acute-coronary-syndrome.aspx>

NSTEACS (includes NSTEMI and unstable angina)

- Management of patients with NSTEACS is based on risk assessment and treatment ordered according to high, intermediate and low risk stratification. Follow local protocols in collaboration with MO/NP. Refer to Heart Foundation ACS treatment algorithm for guidance on risk stratification for NSTEACS available at <http://www.heartfoundation.org.au/information-for-professionals/Clinical-Information/Pages/acute-coronary-syndrome.aspx>
- Management may include⁹:
 - continuous cardiac monitoring
 - repeat ECG every 15 minutes to exclude evolving infarction, requires regular MO/NP review
 - frequent HR, respiratory rate, rhythm check, BP, heart sounds, breath sounds, O₂ saturations, BGL, circulation and neurological observations as per MO/NP order
 - administration of aspirin 300 mg unless contraindicated or already given
 - administration of clopidogrel 300 - 600 mg or ticagrelor 180 mg as per MO/NP order
 - check resolution of pain and for recurrent pain
- Strict rest in bed for 12 hours post NSTEMI
- Prepare for evacuation/hospitalisation
- MO/NP may order GTN patch if patient has ongoing chest pain

Schedule	2	Aspirin soluble		DTP IHW
Authorised Indigenous Health Worker may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	300 mg	Oral	Adult only 300 mg Dissolved in small amount of water or chewed	Stat
Provide Consumer Medicine Information: may cause gastrointestinal irritation				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

1,22

Schedule	3	Glyceryl trinitrate (GTN)		DTP IHW
Authorised Indigenous Health Worker may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	600 microgram	Sublingual	Adult only 300 - 600 micrograms to a max. dose of 1800 micrograms provided the systolic BP is greater than 100 mmHg	Stat If pain persists and not hypotensive can repeat after 5 minutes to a max. dose of 1800 micrograms
Spray	400 microgram		Adult only 1 spray to a max. of 3 doses provided the systolic BP is greater than 100 mmHg	Stat If pain persists and not hypotensive can repeat every 5 minutes to a max. of 3 doses
Provide Consumer Medicine Information: may cause headache, flushing, palpitations, orthostatic hypotension and fainting. Patient should get up gradually from sitting or lying				
Note: do not use tablets from bottles that have been opened greater than 3 months as they may not be effective. Prime the spray until an even spray is obtained before administering to patient				
Contraindication: do not give GTN if patient has taken phosphodiesterase-5-inhibitors e.g. sildenafil (Viagra®), vardenafil (Levitra®) in the last 24 hours or tadalafil (Cialis®) in the last 48 hours				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

1,23,24,29

Schedule	8	Morphine	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL	IM/Subcut	Adult only 0.1 mg - 0.2 mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
		IV (IPAP may not administer IV)	Adult only Initial dose of 2.5 mg then 0.5 mg - 2.5 mg increments slowly, repeated every 5 minutes if required to a max. of 10 mg	

Provide Consumer Medicine Information: advise patient morphine can cause nausea, vomiting and drowsiness

Note: a reduced dose should be considered in patients with significant renal/liver disease. Use the lower end of the dose range in patients > 70 years

Use in Pregnancy: Category C

Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See [Toxicology/ opioids, page 246](#)

10,11,25,26,27

Schedule	4	Metoclopramide	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order

Provide Consumer Medicine Information: tell your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)

Note: give IV slowly over 1 - 2 minutes

Contraindication: in patients with epilepsy and Parkinson's disease

Use in Pregnancy: Category A

Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction e.g. oculogyric crisis develops give benztropine 2 mg IM or oral. Consult MO/NP. See [Mental health behavioural emergencies, page 437](#)

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Tenecteplase (Metalyse®)**NON DTP**

Tenecteplase (Metalyse®) is an S4 medicine which must be ordered by an MO/NP. The efficacy is greatest given in the first 3 hours of the onset of symptoms¹²

Form	Strength	Route of administration	Recommended dosage	Duration
Vial	50 mg (200 units = 1mg)	IV	30 - 50 mg (over 10 seconds) (up to 50 mg on basis of body weight) < 60 kg 30 mg 60 - 69 kg 35 mg 70 - 79 kg 40 mg 80 - 89 kg 45 mg ≥ 90 kg 50 mg	Stat

Contraindications for fibrinolysis¹² the decision to thrombolyse a patient is made on an individual basis by the MO/NP taking into account absolute and relative contraindications and individual risk factors for bleeding. Discuss with coronary care unit as necessary

Absolute contraindications

- Active bleeding or bleeding diathesis (excluding menses)
- Significant closed head or facial trauma within 3 months
- Suspected aortic dissection
- Any prior intracranial haemorrhage
- Ischaemic stroke within 3 months
- Known cerebral vascular lesion
- Known malignant intracranial neoplasm

Relative contraindications

- Current anticoagulants, including anticoagulant agents
- Noncompressible vascular punctures
- Traumatic or prolonged (> 10 min) CPR
- Ischaemic stroke > 3 months ago, dementia or known intracranial abnormality (not covered in absolute contraindications)
- History of chronic, severe, poorly controlled hypertension
- Severe uncontrolled hypertension on this presentation (systolic BP > 180 mmHg or diastolic > 110 mmHg)
- Recent major surgery (< 3 weeks)
- Recent internal bleeding (within 4 weeks)
- Advanced metastatic cancer/advanced liver disease
- Suspected pericarditis
- Active peptic ulcer
- Pregnancy or within 1 week postpartum

Monitor for side effects

- Continuous ECG monitoring/have external defibrillator ready during thrombolysis in case of shockable reperfusion cardiac arrhythmias, including ventricular fibrillation. See [Cardiac arrhythmias, page 105](#). **If side effects: consult MO/NP immediately**

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Management post thrombolysis¹⁴

- Direct observations of all patients given a thrombolytic agent e.g. tenecteplase, until evacuated
- Continuous cardiac monitoring required. As the vessels re-open, the patient may have reperfusion arrhythmias e.g. VT and bradycardia which may be sinus bradycardia or varying degrees of AV block. These are generally managed conservatively, without medicines, as they are usually self limiting

- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - initially every 15 minutes with attention to heart sounds, breath sounds as per MO/NP order
- Avoid IM injections and other invasive procedures during thrombolytic treatment. In case of severe bleeding not controlled by local pressure, stop infusion of thrombolytic agent¹⁵
- ECG must be taken at 90 minutes, 6 hours and 12 hours
- Reduction (> 50%) in raised ST segments expected within 90 minutes
- Relief of symptoms expected
- Haemodynamic stability achieved
- Complete rest in bed while awaiting evacuation/hospitalisation and observe for cardiac arrhythmias, recurrence of chest pain, episodes of shortness of breath
- Keep patient nil by mouth

5. Follow up

- As directed by MO/NP

6. Referral/consultation

- Consult MO/NP on all occasions of chest pain

Resources

- Acute Coronary Syndrome Clinical Pathway - <http://www.health.qld.gov.au/caru/pathways/docs/sw594-ac-s-pathway.pdf>



Acute pulmonary oedema - adult **Left ventricular failure/heart failure**

Recommend

- See Immediate management below

Background

- GTN is very beneficial in severe pulmonary oedema even if no chest pain because it reduces blood pressure, which is often raised, and reduces the work of the heart and dilates vessels

Related topics

 [Chest pain, page 93](#)

[Breathlessness, page 91](#)

1. May present with

- Breathlessness - may start suddenly waking up at night, worse when lying down
- Increased HR
- Cough, with or without wheeze
- Pink frothy sputum in severe cases
- Crackles especially in lung bases
- Lethargy, confusion
- Oedema of the ankles or sacrum and an enlarged liver may co-exist as a sign of right heart failure

- Seen in conjunction with renal failure
- Cyanosis
- Ischaemic chest pain
- Nearly all patients with breathlessness require O_2 in high concentrations. For the few patients with chronic obstructive pulmonary disease (COPD), an O_2 saturation of 88 - 92% may be normal for them and O_2 in high concentration may put them at risk by decreasing their breathing effort
- However it may be necessary to use high flow O_2 when patient is acutely distressed for a short time only, MO/NP will advise

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Sit the patient up. See [Oxygen delivery systems, page 44](#)
 - for all patients (except known COPD): give O_2 at 15 L/minute via non re-breather mask to maintain O_2 saturation > 93%. If not maintained consult MO/NP
 - for patients with known COPD give O_2 28% by Venturi mask or nasal cannula to maintain O_2 saturation 88 - 92%. If not maintained consult MO/NP. If no Venturi mask available, give O_2 by Hudson mask at 5 L/min only, or by nasal prongs at 2 L/min only
- Connect to ECG monitor/defibrillator
- Perform rapid clinical assessment including HR, BP, O_2 saturation, conscious state. See [Glasgow coma scale \(GCS\)/AVPU, page 766](#)
- Insert IV cannula - take bloods for electrolytes, troponin level and renal function
- Do 12 lead ECG then fax/scan/email to MO/NP
- If hypotension/shock or irregular HR (fast or slow) consult MO/NP urgently
- Administer sublingual GTN provided the systolic BP is greater than 100 mmHg
- Consult MO/NP as soon as possible

3. Clinical assessment

- Obtain patient history - include in history this episode and previous heart trouble
 - angina, heart attack, heart failure?
 - has patient had heart palpitations?
- Current medicines
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note HR and rhythm - is it irregular?
- Perform physical examination:
 - inspect and palpate the skin - what is the colour? ashen, cyanosed, sweaty?
 - are peripheries cool?
 - check the capillary return. Is it reduced?
 - auscultate the chest for air entry and added sounds - are there crackles or wheeze?
 - palpate the abdomen for enlarged liver
 - inspect and palpate the ankles, front of legs, sacrum - is oedema present?

4. Management

- Consult MO/NP who may advise:
 - frusemide IV
 - transdermal GTN patch
 - GTN IV infusion

- CPAP/BiPap - can reduce the need for intubation. Intubation and ventilation may be needed if above not available or not successful
- Continue rest in bed, sitting up with legs hanging down, until patient settles or is evacuated/hospitalised

Schedule	4	Frusemide		DTP IHW
Authorised Indigenous Health Worker must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	20 mg/2 mL	IV Give slowly over at least 10 minutes	Adult only 40 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: may cause orthostatic hypertension - tell your health professional if you feel dizzy. Patient should get up gradually from sitting or lying				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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Schedule	3	Glyceryl trinitrate (GTN)		DTP IHW
Authorised Indigenous Health Worker may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	600 microgram	Sublingual	Adult only 300 - 600 micrograms to a max. dose of 1800 micrograms provided the systolic BP is greater than 100 mmHg	Stat If not hypotensive can repeat after 5 minutes to a max. dose of 1800 micrograms
Spray	400 microgram		Adult only 1 spray to a max. of 3 doses provided the systolic BP is greater than 100 mmHg	Stat If not hypotensive can repeat every 5 minutes to a max. of 3 doses
Provide Consumer Medicine Information: may cause headache, flushing, palpitations, orthostatic hypotension and fainting. Patient should get up gradually from sitting or lying				
Note: do not use tablets from bottles that have been opened greater than 3 months as they may not be effective. Prime the spray until an even spray is obtained before administering to patient				
Contraindication: do not give GTN if patient has taken phosphodiesterase-5-inhibitors e.g. sildenafil (Viagra®), vardenafil (Levitra®) in the last 24 hours or tadalafil (Cialis®) in the last 48 hours				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
1,23,24,28,29,30				

Schedule	4	Glyceryl trinitrate (GTN)		DTP IHW/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP					
Form	Strength		Route of administration	Recommended dosage	Duration
Patch	5 mg =	1 x Nitro-Dur 5 OR 1 x Transiderm Nitro 25	Transdermal	Adult only 5 to 15 mg once daily applied for a maximum of 14 hours in a 24-hour period	Stat
	10 mg =	1 x Nitro-Dur 10 OR 1 x Transiderm Nitro 50			
	15 mg =	1 x Nitro-Dur 15 OR 1 x Transiderm Nitro 25 PLUS 1 x Transiderm Nitro 50			
Provide Consumer Medicine Information: apply to clean dry skin on the chest area or upper arm. may cause headache, flushing, palpitations, orthostatic hypotension and fainting. Patient should get up gradually from sitting or lying					
Contraindication: do not give GTN if patient has taken phosphodiesterase-5-inhibitors e.g. sildenafil (Viagra®), vardenafil (Levitra®) in the last 24 hours or tadalafil (Cialis®) in the last 48 hours					
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67					
17,23,24					

5. Follow up

- Keep patient under close supervision until evacuated/hospitalised as per MO/NP instructions

6. Referral/consultation

- Consult MO/NP on all occasions of pulmonary oedema (left ventricular failure /heart failure)

Cardiac arrhythmias - adult/child

Recommend

- Avoidance of caffeine in tea/coffee/chocolate/colas,energy drinks, nicotine in cigarettes and alcohol in those predisposed to arrhythmias

Background

- Sinus tachycardia (increased HR with a normal ECG) can occur secondary to most injuries and illnesses: anxiety, fever, infection, blood loss/shock, dehydration
- Algorithms for bradycardia and tachycardia are available from the *Australian Resuscitation Council Guideline 11.9 - Managing Acute Dysrhythmias* available at <http://resus.org.au/guidelines/>

Related topics

 [Chest pain, page 93](#)

 [Acute pulmonary oedema, page 102](#)

1. May present with

- Hypotension/shock
- Chest pain
- Heart failure
- Fast, slow or irregular HR/palpitations
- Asymptomatic

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Give O₂ to maintain O₂ saturation > 93% adult or > 95% child. If not maintained consult MO/NP. See [Oxygen delivery systems, page 44](#)
- Attach monitor/defibrillator - send copy of rhythm strip to MO/NP
- Perform rapid assessment +
 - rhythm
- If hypotensive/shocked consult MO/NP urgently

3. Clinical assessment

- Do 12 lead ECG then fax/scan/email to MO/NP
- Include in patient history contributing factors to this episode, previous episodes, history of heart trouble
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - heart rhythm
- Perform physical examination - listen to the chest for air entry and added sounds
 - crackles or wheeze
- Palpate the abdomen for enlarged liver
- Inspect and palpate the ankles, front of legs and sacrum for oedema

4. Management

- Connect to ECG monitor/defibrillator
- Insert IV cannula, unless asymptomatic and incidental finding. Collect blood for FBC, electrolytes and troponin levels
- Consult MO/NP who may advise:
 - atropine for slow ± irregular heart beat
 - other medicine treatment for fast ± irregular heart beat
 - evacuation/hospitalisation
 - management of any underlying cause

5. Follow up

- If patient not evacuated/hospitalised, review next day and see next MO/NP clinic with:
 - further tests e.g. repeat ECG, blood tests, chest x-ray as ordered by MO/NP

6. Referral/consultation

- Consult MO/NP on all occasions of arrhythmia

Electrocution/electric shock - adult/child¹⁸

Recommend

- See Immediate management
- The severity of the injury and risk of death is greatest with:
 - high voltage electricity e.g. lightning and power lines
 - low resistance e.g. wet skin
 - electrical pathway across the heart
 - prolonged exposure

Background

- The electrical charge causes an entry wound (burn) that is often full thickness, with potential underlying tissue damage that may be extensive and not immediately apparent. There may be a similar exit (earthing) burn
- Arrhythmias including ventricular fibrillation may occur, leading to cardiac arrest if the charge crosses the heart. If it crosses the brain, unconsciousness may occur

Related topics

 [Trauma and injuries, page 118](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)

 [Burns, page 178](#)

1. May present with

- History of exposure to high or low voltage electricity (household or industrial)
- Minor superficial burns
- Deep tissue injury
- Seizures, confusion, drowsiness, loss of consciousness
- Cardiac arrest due to ventricular fibrillation
- Compartment syndrome - if bone in path of the current, significant heat is generated and causes thermal injury to surrounding muscle
- Extensive tissue damage leading to rhabdomyolysis and therefore kidney failure

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Remove patient from injury. Only approach patient or surroundings after power is turned off at mains
- Give O₂ to maintain O₂ saturation > 93% adult or > 95% child. If not maintained consult MO/NP. See [Oxygen delivery systems, page 44](#)
- Connect to ECG monitor/defibrillator
- Rapid assessment +
 - O₂ saturation
 - conscious state. See [Glasgow coma scale \(GCS\)/AVPU, page 766](#)
- Insert IV cannula
- Consult MO/NP

3. Clinical assessment

- Obtain emergency patient history - circumstances of injury, type of electrical exposure, any

cardiorespiratory resuscitation measures implemented

- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - urinalysis, checking for proteinuria/haematuria
- Monitor and act on any changes in conscious state
- See [Glasgow coma scale \(GCS\)/AVPU](#), page 766
- Perform physical examination
 - inspect skin for entry wound (burn) and exit (earthing) burn

4. Management

- Do 12 lead ECG then fax/scan/email to MO/NP
- Continue cardiac monitoring if ECG is abnormal, seizures or loss of consciousness
- See [Burns](#), page 178

5. Follow up

- If there has been no history of altered consciousness or cardiac arrhythmia, the ECG is normal and the patient sustained only minor burns, the patient need not be evacuated/hospitalised and can be allowed home after a few hours of observation
- Review daily initially for 2 - 3 days. See [Burns](#), page 178
- See next MO/NP clinic

6. Referral/consultation

- Consult MO/NP on all occasions of:
 - electrocution/electric shock/electrical burns
- Refer patients with suspected deep tissue electrical injury to specialist burns unit



Acute hypertensive crisis - adult

Recommend

- Aim to reduce blood pressure by no more than 25% within the first 2 hours, then towards 160/100 mmHg within 2 to 6 hours¹⁹
- Avoid lowering blood pressure too rapidly as this can cause decreased blood supply (ischaemia) to kidney, heart or brain¹⁹

Background

- Severe hypertension, often defined as systolic blood pressure of ≥ 180 mmHg and/or diastolic blood pressure ≥ 120 mmHg, can produce a variety of acute, life threatening complications such as encephalopathy, acute heart failure, aortic dissection, subarachnoid haemorrhage, retinal haemorrhages, papilloedema, and acute kidney failure. These are hypertensive emergencies
- BP cuff size is critical and must be appropriate to the arm size

Related topics

-  [Chest pain, page 93](#)
-  [Acute pulmonary oedema, page 102](#)
-  [Hypertension, page 418](#)
-  [Acute post streptococcal glomerulonephritis, page 667](#)
-  [Irukandji syndrome, page 273](#)

[Transient ischaemic attack \(TIA\) and stroke, page 114](#)
[Pre-eclampsia, page 500](#)

1. May present with

- Dizziness/feeling faint
- Confused, drowsy, unconscious, fitting
- Headache, visual disturbance
- Chest pain (angina/heart attack)
- Breathlessness/heart failure
- Papilloedema, retinal haemorrhages on looking into the back of the eyes (fundoscopy)
- Haemorrhagic stroke. See [Transient ischaemic attack \(TIA\) and stroke, page 114](#)
- Asymptomatic

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)

3. Clinical assessment

- Obtain emergency patient history - previous medical history, including previous blood pressure readings and episodes of acute hypertensive crisis and current medications
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note blood pressure (with correct size cuff), record with patient lying and standing and on both arms
 - height and weight (if possible)
 - urinalysis
 - urine pregnancy test (with consent) if female of childbearing age (12 - 52 years). Pregnancy should be considered as a cause in women of childbearing age, who present with symptomatic hypertension. See [Pre-eclampsia, page 500](#)
 - 12 lead ECG - fax/scan/email to MO/NP
 - take blood for electrolytes
- Perform physical examination:
 - auscultate the chest for air entry and added sounds (crackles or wheeze)
 - palpate the abdomen for enlarged liver
 - inspect and palpate the ankles, shins and sacrum for oedema

4. Management

- If the patient is conscious with no evidence of complications
 - insert IV cannula
 - consult MO/NP who may advise:
 - administer sublingual glyceryl trinitrate (GTN)
 - GTN patch or infusion
 - labetalol tablet

- hydralazine IV
- oral treatment with antihypertensive such as metoprolol, ACE-inhibitor
- evacuation/hospitalisation
- Rapid reduction in BP is not recommended. Aim to lower BP to not less than systolic BP of 160 mmHg and diastolic BP of 100 mmHg. Be wary of lowering the BP if there is any acute neurological deficit
- Do not give GTN if patient has taken phosphodiesterase 5 inhibitors e.g. sildenafil (Viagra[®]), vardenafil (Levitra[®]) in the last 24 hours or tadalafil (Cialis[®]) in the last 48 hours

Schedule	3	Glyceryl trinitrate (GTN)	DTP IHW

Scheduled Medicines Rural & Isolated Practice Registered Nurse, Registered Nurse and authorised Indigenous Health Worker must consult MO/NP

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	600 microgram	Sublingual	Adult only 300 - 600 micrograms to a max. dose of 1200 micrograms provided the systolic BP is greater than 100 mmHg	Stat If pain persists and not hypotensive can repeat after 5 minutes to a max. dose of 1200 micrograms
Spray	400 microgram		Adult only 1 spray to a max. of 3 doses provided the systolic BP is greater than 100 mmHg	Stat If pain persists and not hypotensive can repeat every 5 minutes to a max. of 3 doses

Provide Consumer Medicine Information: may cause headache, flushing, palpitations, orthostatic hypotension and fainting. Patient should get up gradually from sitting or lying

Note: do not use tablets from bottles that have been opened greater than 3 months as they may not be effective. Prime the spray until an even spray is obtained before administering to patient

Contraindication: do not give GTN if patient has taken phosphodiesterase-5-inhibitors e.g. sildenafil (Viagra[®]), vardenafil (Levitra[®]) in the last 24 hours or tadalafil (Cialis[®]) in the last 48 hours

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

1,23,24,28

5. Follow up

- Review next day if patient not evacuated/hospitalised
- Next MO/NP clinic
- Hypertension may be due to other conditions e.g. intracranial haemorrhage, raised intracranial pressure, chronic kidney failure - manage as per MO/NP directions
- Offer advice and information about lifestyles factors contributing to hypertension (alcohol, obesity, lack of exercise) and how compounded by other factors (smoking, increased blood lipids, diabetes, family history) they can greatly increase risk of ischaemic heart disease (angina/heart attack) and cerebrovascular disease (TIA/stroke). See [Hypertension, page 418](#)

6. Referral/consultation

- Consult MO/NP on all occasions BP $\geq$ 160/110 mmHg
- Review next day and see next MO/NP clinic on all occasions where BP $\geq$ 140/90 mmHg



Acute arterial occlusion - adult

Recommend

- Urgent evacuation for surgery

Background

- Acute peripheral arterial occlusion is caused by a blockage (blood clot/foreign body) of an artery cutting off blood supply to a limb. The blockage can be partial or complete
- Usually occurs in patients without a history of atherosclerosis²⁰

1. May present with

- In affected limb: pain, pallor, pulselessness, paraesthesia, paralysis

2. Immediate management

- Rest the affected limb
- Contact MO/NP immediately to arrange evacuation for surgical management
- Administer analgesia

3. Clinical assessment

- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note if HR is regular or irregular
- Compare affected limb with the other limb, checking particularly for colour, warmth, active and passive movement, sensation, pulses

4. Management

- Give analgesia
- Prepare for evacuation/surgery
- Ensure patient is nil by mouth
- Rest affected limb
- Consult MO/NP urgently
- The MO/NP will:
 - arrange urgent evacuation/hospitalisation to a facility with appropriate surgical capability
 - advise ongoing analgesia (IM/IV morphine and metoclopramide)
 - advise on heparinisation

5. Follow up

- As advised by discharging MO/NP

6. Referral/consultation

- MO/NP will notify the referring hospital of situation

Schedule	8	Morphine	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL	IM/Subcut	Adult only 0.1 mg - 0.2 mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
		IV (IHW and IPAP may not administer IV)	Adult only Initial dose of 2.5 mg then 0.5 mg - 2.5 mg increments slowly, repeated every 5 minutes if required to a max. of 10 mg	

Provide Consumer Medicine Information: advise patient morphine can cause nausea and vomiting, and drowsiness

Note: a reduced dose should be considered in patients with significant renal/liver disease. Use the lower end of the dose range in patients > 70 years

Use in Pregnancy: Category C

Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See [Toxicology/opioids, page 246](#)

1,2,10,11,27

Schedule	4	Metoclopramide	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order

Provide Consumer Medicine Information: tell your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)

Note: give IV slowly over 1 - 2 minutes

Contraindication: in patients with epilepsy and Parkinson's disease

Use in Pregnancy: Category A

Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction e.g. oculogyric crisis develops give benzotropine 2 mg IM or oral. Consult MO/NP. See [Mental health behavioural emergencies, page 437](#)

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Neurological emergencies

Subarachnoid haemorrhage (SAH) - adult/child

Recommend

- Suspect subarachnoid haemorrhage (SAH) in all patients presenting with a headache, if severe and of sudden onset. Immediately consult MO/NP

Background

- Any awake patient who complains of the most severe headache they have ever had must be regarded as having a subarachnoid haemorrhage
- It is usually due to an aneurysm on an intra-cerebral artery. It is important to suspect SAH as a subsequent recurrent bleed is often associated with a poor outcome¹

Related topics



[Acute and chronic headache, page 305](#)

[Meningitis, page 644](#)

[Transient ischaemic attack \(TIA\) and stroke, page 114](#)

1. May present with

- Sudden onset severe headache, often occipital - patient may feel they have been hit in the back of the head (described as a 'thunder clap' headache)
- May have a history of headache, 7 - 10 days earlier
- Nausea/vomiting
- Stiff neck
- A short period of loss of consciousness and focal neurology, especially of the cranial nerves
- Altered level of consciousness or unconscious

2. Immediate management

- Give high flow O₂. Maintain oxygen saturation $\geq$ 98% (within limitations of lung function)
- Perform rapid clinical assessment +
 - conscious state. See [Glasgow coma scale \(GCS\)/AVPU, page 766](#)

3. Clinical assessment

- Take emergency patient history
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Check neck for stiffness (put hand under the patient's head and gently flex neck or ask patient to put chin on chest)

4. Management

- Consult MO/NP immediately
- Beware of lowering elevated BP if there is any neurological deficit
- Arrange urgent evacuation/hospitalisation

5. Follow up

- Evacuation/hospitalisation to appropriately equipped and staffed facility
- Investigation will include non-contrast CT and/or lumbar puncture

6. Referral/consultation

- Consult MO/NP urgently in all cases of suspected subarachnoid haemorrhage

Transient ischaemic attack (TIA) and stroke - adult/child

Recommend

- Acute stroke is a medical emergency. Appropriate initial management can reduce disability and mortality resulting from stroke
- Consult MO/NP as soon as possible if patient presents with signs/symptoms of TIA/stroke. It is essential the patient is transferred to a suitably equipped and staffed facility as soon as possible. All patients with acute onset suspected TIA/stroke should have urgent brain CT or MRI (immediately or as soon as possible and certainly within 24 hours)²
- Inform about warning signs and need for immediate medical attention for stroke in the community. FAST stands for:
 - **F** - Facial weakness
 - **A** - Arm and/or leg weakness
 - **S** - Speech difficulty
 - **T** - Time to act fast³

Background

- A stroke occurs when the arteries to the brain become blocked (ischaemic stroke/cerebral infarction) or rupture (haemorrhagic stroke), resulting in disrupted blood supply and death of brain tissue
- A transient ischaemic attack (TIA) is defined as rapidly developed clinical signs of disturbed cerebral function that completely go away within 24 hours and have no other apparent non-vascular cause. Rapid assessment should be performed and patients should be evacuated to an appropriate facility for further assessment and treatment²
- See Transient Ischaemic Attack (TIA)/Stroke Clinical Pathway : https://www.health.qld.gov.au/caru/pathways/docs/tiastroke_pathway.pdf

Related topics

 [Acute and chronic headache, page 305](#)

[Subarachnoid haemorrhage \(SAH\), page 113](#)

1. May present with

- Neurological symptoms consistent with stroke/TIA almost always come on suddenly. Neurological symptoms or signs are often localised
- Common:
 - unilateral weakness/clumsiness or altered sensation of limbs and/or face, e.g. drooping on one side of the face, clumsy hand
 - difficulty speaking and understanding speech
 - trouble seeing in one or both eyes, or double vision
 - difficulty walking, loss of balance or coordination

- dizziness
- severe headache with no known cause
- Less common presentation:
 - confusion
 - sudden onset vertigo
 - nausea or vomiting
 - stupor or coma
 - difficulty swallowing
 - collapsed

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Give O₂ to maintain O₂ saturation > 95%. If not maintained consult MO/NP. If O₂ saturation is > 95% on room air then do not give O₂.² See [Oxygen delivery systems, page 44](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Consult MO/NP as soon as possible

3. Clinical assessment

- Document:
 - date and time when signs/symptoms were first noted and how long they lasted
 - when the patient was last known to be well
- Take as complete a patient history as possible allowing for severity of condition. Obtain information from family and friends of patient if patient unable to provide
 - note previous history of TIA/stroke
 - document - risk factors such as hypertension, diabetes, smoker, obesity, dyslipidaemia, is the patient usually physically active?
 - is there a history of atrial fibrillation (irregular heart beat)?
 - do they or did they have a headache? Do they feel dizzy?
 - has the patient's vision changed in one eye or both? Do they have double vision?
 - take medication history including anticoagulant/antiplatelet medications?
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
 - 12 lead ECG
- Perform full clinical assessment:
 - dysarthria: can the patient speak normally? Speech slurred/alterd in any way
 - does the patient understand questions and obey commands?
 - does the patient have any weakness or altered sensation of limbs and/or face, usually on one side of the body, e.g. drooping on one side of the face, clumsy hand. Does the patient have a symmetrical smile?
 - ataxia: did the patient walk in? Describe their gait. Do they have difficulty walking, loss of balance or have poor coordination
- Score patient according to ABCD² tool. The ABCD² score is a risk assessment tool designed to improve the prediction of short-term stroke risk after a transient ischemic attack (TIA). The score is optimized to predict the risk of stroke within 2 days after a TIA, but also predicts stroke risk within 90 days. The ABCD² score is calculated by summing up points for five independent factors. Aboriginal and/or Torres Strait Islander people are at greater risk of cardiovascular disease

ABCD² score tool⁵

Risk factor	Points	Score
Age $\geq$ 60 years	1	
Blood pressure Systolic BP $\geq$ 90 mm Hg	1	
Clinical features of TIA (choose one) Unilateral weakness with or without speech impairment OR Speech impairment without unilateral weakness	2 1	
Duration TIA duration $\geq$ 60 minutes TIA duration 10 - 59 minutes	2 1	
Diabetes	1	
Total ABCD² score	0 - 7	

Using the ABCD² score⁵ The authors of the ABCD² score make the following recommendations

ABCD ² score	2 day stroke risk	Comment
0 - 3	1.0%	Hospital observation may be unnecessary without another indication e.g. new atrial fibrillation
4 - 5	4.1%	Hospital observation justified in most situations
6 - 7	8.1%	Hospital observation worthwhile

4. Management

- Consult MO/NP as soon as possible giving history of signs, symptoms and ABCD² score. MO/NP will advise:
 - maintain O₂ saturation $>$ 95%. If not maintained consult MO/NP. If O₂ saturation is $>$ 95% on room air then do not give O₂²
 - insert IV cannula - collect FBC, electrolytes, renal function, cholesterol levels
 - arrange evacuation/hospitalisation
- Keep acute patients with neurological symptoms nil by mouth
- Do not give aspirin until the neuroimaging has ruled out a haemorrhage

Symptoms of TIA/stroke on presentation and transfer of patient²

Situation		Recommended action
All patients with suspected stroke		Urgent* transfer to appropriate facility for urgent imaging and management, including possible thrombolysis
Patients with suspected TIA need full assessment, including ABCD ² score and clinical history/examination. Action depends on both ABCD ² score and clinical history/examination	Patients at moderate/high risk e.g. ABCD ² > 3 or AF or carotid territory symptoms or crescendo TIA	
	Patients classified as low risk : ABCD ² score < 4 without AF or carotid territory symptoms, or who present within one week of last symptoms	Need transfer to appropriate facility for brain and carotid imaging (if indicated) as soon as possible (within 48 hours)
* 'Urgent' means immediately if imaging facilities available but at most within 24 hrs		

5. Follow up

- Patients with TIA/stroke will require evacuation/hospitalisation for neurological assessment and/or treatment
- All patients with acute onset suspected stroke and high risk TIA should have urgent brain CT or MRI (immediately or as soon as possible and certainly within 24 hours)²
- Antiplatelet therapy (unless contraindicated) and statins are recommended for patients found to have an ischaemic stroke²
- Antihypertensive therapy is recommended for patients with ischaemic/haemorrhagic stroke
- Anticoagulation therapy for patients with atrial fibrillation²
- Rehabilitation program
- Community and carer support is essential during the recovery period and ongoing
- Post stroke care plan
- See the current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>

6. Referral/consultation

- Consult MO/NP on all occasions of suspected TIA/stroke

Trauma and injuries

Chest injuries, head injuries, spinal injuries, abdominal injuries

Recommend

- The management of the seriously injured patient should have three main parts:
 - primary survey of patient and resuscitation
 - secondary survey - more detailed clinical assessment
 - preparation for evacuation/hospitalisation
- See [Criteria for early notification of trauma for interfacility transfer, page 120](#)
- Ideally one or more assistants are needed
- Protect yourself e.g. from body fluids, traffic or the perpetrators of a crime
- Prevent further damage caused by hypoxia and hypotension and rapidly treat life threatening complications such as airway obstruction and tension pneumothorax
- Keep all trauma patients warm
- Consult MO/NP for pain relief medicines in children
- Complete Trauma Record, available at: <http://qheps.health.qld.gov.au/torres-cape/docs/sw139.pdf>

1. Primary survey and resuscitation - ABCDE¹

- Airway and cervical spine protection
- Breathing and ventilation - give O₂
- Circulation, stop external bleeding with pressure
- Disability - evaluation of central nervous system
- Expose and examine (complete visualisation) and environmental control (prevent hypothermia)

2. Secondary survey - FGHIJ

3. Preparation for evacuation/hospitalisation

Related topics

-  [Chest injuries, page 127](#)
-  [Fractures, dislocations and sprains, page 141](#)
-  [Acute wounds, page 157](#)
-  [Burns, page 178](#)
-  [Spinal injuries, page 137](#)

- [Insertion of laryngeal mask airway, page 47](#)
- [Oxygen delivery systems, page 44](#)
- [Head injuries, page 131](#)
- [Abdominal injuries, page 139](#)
- [DRS ABCD resuscitation/the collapsed patient, page 36](#)

1. May present with

- History of injury
- Pain
- Increased HR
- Acute upper airway obstruction/choking
- Respiratory distress, cyanosis
- Hypotension/shock/pale/sweaty
- Altered consciousness - confused, drowsy, unconscious, not breathing

- Wounds, fractures, burns

2. Immediate management - primary survey and resuscitation

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Obtain emergency patient history from patient/witnesses
- **A - Airway** and cervical spine protection
 - assess airway patency (look, listen, feel)
 - establish clear airway - use chin lift /jaw thrust and/or oropharyngeal airway. Caution if suspected cervical spine injury. This requires team work for patient safety where possible. Suction oropharynx if indicated
 - if unable to secure airway consider inserting laryngeal mask airway
 - see [Insertion of laryngeal mask airway, page 47](#) or perform needle cricothyroidotomy
 - maintain cervical spine in line immobilisation using cervical spine immobilisation device or method
 - check for wounds/signs of injury and trachea position
 - assess SpO₂
- **B - Breathing**, give O₂
 - assess effort and efficacy of breathing e.g. respiratory rate, chest movements, air entry and look for tracheal deviation
 - assess threats to breathing - conscious state, bleeding to upper airway, rib tenderness or visible flail segments, circumferential burns or airway burn
 - pulse oximetry
 - give O₂ either through non-rebreather mask, bag-valve-mask, LMA or ETT see [Oxygen delivery systems, page 44](#)
- **C - Circulation**, stop external bleeding with pressure
 - stop any external haemorrhage by direct pressure/pressure bandaging
 - check BP and HR, colour and perfusion, capillary refill time
 - insert 2 large bore IV cannula if possible (14 G or 16 G). Use intraosseous route if indicated. See [Intraosseous infusion, page 49](#)
 - generally 10 - 20 mL/kg of fluid is usual²⁵. Start with IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate. In an adult the aim is to keep:
 - HR < 120/min
 - systolic BP > 100 mmHg
 - urine output > 0.5 mL/kg/hour
 - attach cardiac monitor
- **D - Disability** of the central nervous system - conscious state
 - see [Glasgow coma scale \(GCS\)/AVPU, page 766](#)
 - talk to the patient and if they reply with a normal voice and give sensible answers, this indicates that the airway is not obstructed and the brain is getting adequate blood supply
 - check capillary response
- **E - Expose** and examine - identify life threatening injury, prevent hypothermia
 - consult MO/NP as early as possible, particularly if any concern about ongoing bleeding
 - if patient has history of trauma and meets any of the criteria for early notification of trauma for interfacility transfer consult your retrieval service urgently
 - see [Criteria for early notification of trauma for interfacility transfer, page 120](#)
 - search for and control sites of bleeding which may require a pelvic binder at this stage. Clinician may call the MO/NP on completion of primary survey if there is concern over ongoing bleeding
 - perform FAST (Focussed Assessment with Sonography for Trauma) ultrasound scan if suitably trained and equipment available

Begin secondary survey only after any life saving interventions/management initiated in the primary survey. It may be beneficial for the patient to have adjuncts at this stage e.g. ECG, NG tube, IDC, oximetry

Criteria for early notification of trauma for interfacility transfer⁴

Vital signs	Adult	Newborn < 2 weeks	Infant < 1 year	Child 1 - 8 years	Child 9 - 15 years
Respiratory rate/min	< 10 or > 30	< 40 or > 60	< 20 or > 50	< 20 or > 35	< 15 or > 25
O ₂ saturation in room air	< 90%	< 95%	< 95%	< 95%	< 95%
Systolic BP mmHg	< 90	n/a	< 60	< 70	< 80
HR/min	> 120	< 100 or > 170	< 90 or > 170	< 75 or > 130	< 65 or > 100
GCS	< 14	Altered LOC	Altered LOC	Altered LOC	Altered LOC

Note: if outside these ranges, continue with normal assessment

and/or

Injuries

- All penetrating injuries
 - head/neck/chest/abdomen/pelvis/axilla
- Blunt injuries
 - patients with significant injuries to a single region - head/neck/chest/abdomen/pelvis/axilla
 - patients with injuries involving 2 or more of the above body regions
- Specific injuries
 - limb amputation/life threatening injuries
 - suspected spinal cord injuries
 - burns: adult > 20% total body surface area (TBSA), child > 10% TBSA
 - suspected respiratory tract burns
 - serious crush injury
 - major compound fractures or open dislocation
 - fracture to 2 or more - femur, tibia, humerus or fractured pelvis

and/or

Mechanism of injury

Ejection from vehicle
Motorcyclist impact > 30 kph
High speed motor vehicle collision > 60 kph
Vehicle roll over
Fatality in same vehicle

Prolonged extrication > 30 minutes
Pedestrian impact
Fall from height > 3 metres
Struck on head by falling object > 3 metres
Explosion

If patient meets **any** of the criteria in **either/or**
Vital signs
Injuries or

Mechanism of injury above consult your retrieval service urgently

3. Clinical assessment - secondary survey

- **F** - Perform **full** standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) and continue to monitor BP, HR, respiratory rate, oxygen saturation, BGL, conscious state. See [Glasgow coma scale \(GCS\)/AVPU](#), page 766

- **G - Give** pain relief to patient and comfort measures to patient and family
- **H - Obtain patient history** from patient/witnesses and perform head to toe assessment
 - time of symptom onset or injury, Glasgow coma scale (or loss of consciousness) immediately after the incident
 - circumstances and mechanism of injury - blunt or penetrating, velocity
 - duration of any altered level of consciousness from witnesses
 - first thing remembered by patient after injury
 - headache, nausea or vomiting, double or blurred vision, drowsiness
 - any neck pain, or weakness, numbness or pins and needles in arms or legs
 - any alcohol or drug consumption
 - medication history - is patient taking anticoagulation therapy e.g. aspirin, warfarin, clopidogrel
 - medical history - does the patient have any medical condition contributing to coagulopathy e.g. alcohol misuse, previous hospitalisations or surgery
 - allergies
 - when was the last food or drink
 - elicit other relevant information such as domestic violence
 - last menstrual period and actual or possible pregnancy (for women)
- Tetanus
 - check tetanus vaccination history. See [Tetanus immunisation, page 755](#)

Head to toe assessment²

- Observe
 - body position, posture, any guarding or self protection movements
 - remove all clothing as you move down, maintaining privacy. Do not let the patient get cold, cover with blanket after examination
 - look and feel for any abnormalities
 - note any unusual odours: alcohol, petrol, chemicals, vomitus, urine or faeces
 - use other diagnostic tools such as x-ray and ultrasound in consultation with MO/NP
- Eyes
 - assess pupils for size, equality and reactivity to light
 - check eye movements, double vision (if conscious)
 - determine gross visual acuity (check light perception, then hand motion and counting fingers at one metre)
 - inspect for periorbital bruising (raccoon's eyes) subconjunctival haemorrhage
- Skull, facial bones, ears and nose
 - inspect for deformities, haematomas, fractures, wounds, bleeding, ecchymosis (small haemorrhagic spots in the skin or mucous membrane), impaled object or fluid discharge from ears or nose
 - check for 'Battle sign' (bruising/haematoma behind the ear indicating base of skull fracture)
 - see [Head injuries, page 131](#)
 - oral cavity
 - look for broken teeth, wounds, jaw fracture/mobility
 - see [Fractured mandible/jaw, page 150](#)
- Neck, trachea and cervical spine - on MO/NP order only and if sufficient number of assistants
 - manually examine neck while maintaining the inline immobilisation of the patient's cervical spine e.g. immobilised by an assistant
 - look for deformity, tenderness, step in spine. Maintain cervical immobilisation if required
 - palpate trachea to determine position (midline, deviated)
 - if any findings see [Spinal injuries, page 137](#)

- Chest
 - inspect for wounds, bruising, local tenderness, subcutaneous emphysema, impaled object, oedema and scars
 - inspect chest movement on respiration and note any paradoxical breathing or use of accessory muscles
 - auscultate chest for air entry and added sounds (wheezes and crackles)
 - auscultate heart sounds for murmurs, friction rubs and muffled sounds
 - if any findings see [Chest injuries, page 127](#)
 - percuss chest and assess resonance - dull, resonant or hyper-resonant?
 - increasing respiratory distress and HR, with falling BP and falling GCS may indicate tension pneumothorax

Tension pneumothorax is a life threatening emergency and is a treatable cause of potential death in the severely injured patient. Check for bilateral air entry. Is there a fractured rib? Tension pneumothorax requires urgent treatment. Consult MO/NP unless circumstances do not allow. Perform chest decompression/needle thoracentesis. See [Chest injuries, page 127](#)

- Clavicles and shoulders
 - inspect for fractures, crepitus and deformities
- Abdomen
 - inspect for wounds, bruising including 'seat-belt sign', tenderness, rigidity, distention, lacerations, impaled objects, oedema and scars
 - auscultate for bowel sounds
 - palpate all four abdominal quadrants
 - perform FAST ultrasound scan if suitably trained and equipment available
 - urinalysis: test for blood
 - if any findings see [Abdominal injuries, page 139](#)
- Pelvis
 - inspect for wounds, bruising, deformity, tenderness, puncture wounds, fracture. See [Fractured pelvis, page 148](#)
 - if a fractured pelvis is clinically suspected, a pelvic binder should be applied and log roll should be avoided if possible, as it may exacerbate bleeding
- Perineum/genitalia
 - inspect for blood at the urethral meatus: if present do not pass a urethral catheter without MO/NP consultation
 - inspect for blood at the vagina and rectum
 - inspect penis for priapism (persistent and often painful erection)
 - Note inability to void despite pain and/or urge to void
- Limbs
 - check previously applied splint(s) if present. Do not remove if appropriately applied and neurovascular function is intact
 - inspect for tenderness, deformity, fracture, puncture wounds, avulsions, lacerations, impaled objects, oedema and scars
 - palpate pulses in all four limbs
 - check neurovascular function: colour, warmth, movement, sensation
 - check joints - range of movements and determine the motor strength of the limbs
 - if any findings. See [Fractures, dislocations and sprains, page 141](#)
- **I - Inspect** posterior surfaces. Caution: if there is evidence of head/cervical spine injury/pelvic fracture

- Back
 - log roll patient if clinically indicated with adequate assistance to inspect back
 - maintain cervical spine in-line immobilisation and support extremities with suspected injuries
 - for log roll technique. See [Spinal injuries, page 137](#)
 - inspect and palpate for deformity and tenderness along the cervical, thoracic and lumbar spine
 - assess sensation at perineum
 - digital rectal examination or PR is rarely indicated. Consult MO/NP³
- **J - Jot it down**
 - document findings of assessment fully
 - report abnormal findings to MO/NP

4. Management

- After providing immediate management keep patient nil by mouth and warm
- Provide analgesia
- See [Simple analgesia pull out](#)
- Patients with severe pain require adequate analgesia. Intravenous is the preferred route of administration of opioid analgesics for severely injured patients (burns, spinal injuries, chest injuries, abdominal injuries, major fractures). Opioid analgesia should only be given cautiously to patients with head injuries after discussion with MO/NP
- If not allergic, give morphine (preferable) or if allergic to morphine give fentanyl
- Give metoclopramide (adult) if nauseated or vomiting or other clinical indications
- For children with pain, early and appropriate doses of analgesia should be given including morphine or intranasal fentanyl with adequate reassessment and monitoring. Consult MO/NP for opioid analgesia in children with trauma and injuries
- Children should not receive metoclopramide (Maxolon®) or prochlorperazine (Stemetil®) because of the high risk of dystonic reactions. If an antiemetic is required for a child the MO/NP may advise ondansetron
- In some circumstances administration of methoxyflurane or nitrous oxide can be used for procedural management e.g. plaster application, painful dressing
- Collect blood for FBC, electrolytes, LFT, cross match and BGL
- Insert indwelling urethral catheter unless suspected urethral injury and/or blood present at urethral meatus. Continuous measurement of urine output
- Perform ECG
- Consider gastric tube in discussion with MO/NP
- Referring MO/NP will arrange evacuation as needed

Schedule	8	Morphine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL	IM/Subcut	Adult only 0.1 mg - 0.2 mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
		IV (IHW and IPAP may not administer IV)	Adult only Initial dose of 2.5 mg then 0.5 mg - 2.5 mg increments slowly, repeated every 5 minutes if required to a max. of 10 mg	
Provide Consumer Medicine Information: advise patient morphine can cause nausea and vomiting, and drowsiness				
Note: a reduced dose should be considered in patients with significant renal/liver disease. Use the lower end of the dose range in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				
5,6,7,8,15,23,24				

- If allergic to morphine give fentanyl. **Note:** fentanyl has a rapid onset of action

Schedule	8	Fentanyl		DTP IHW/SM R&IP
Authorised Indigenous Health Worker must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	100 microgram in 2 mL	IM/Subcut	Adult only 1.5 microgram/kg to a max. of 100 microgram	Stat Further doses on MO/NP order
		IV	Adult only 25 microgram increments slowly, repeated every 10 minutes if required to a max. of 100 microgram	
Provide Consumer Medicine Information: advise patient fentanyl can cause nausea and vomiting, and drowsiness				
Note: use with caution in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				
5,6,8,9				

- Give metoclopramide if nauseated or vomiting or other clinical indication

Schedule	4	Metoclopramide		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: tell your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Note: give IV slowly over 1 - 2 minutes				
Contraindication: in patients with epilepsy and Parkinson's disease				
Use in Pregnancy: Category A				
Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction e.g. oculogyric crisis develops give benztropine 2 mg IM or oral. Consult MO/NP. See Mental health behavioural emergencies, page 437				

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- For prevention or treatment of nausea and vomiting in children use ondansetron

Schedule	4	Ondansetron		DTP SM R&IP/IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Oral Disintegrating tablet (ODT) or Wafer	4 mg	Oral	Child > 6 months - 18 years 8 kg to < 15 kg dose 2 mg 15 kg to 30 kg dose 4 mg > 30 kg up to dose 8 mg	Stat Further doses on MO/NP order
Ampoule	4 mg/2 mL 8 mg/4 mL	IV Give slowly over 5 minutes	Child > 6 months - 18 years 0.1 mg/kg up to a max. of 4 mg	
Provide Consumer Medicine Information: ondansetron may worsen diarrhoea or cause constipation				
Note: for wafer or ODT place on top of the tongue to dissolve, then swallow				
Contraindication: in patients with congenital prolonged QT interval				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
11,12,13,14				

- For pain relief when appropriate

Schedule	4	Methoxyflurane	DTP IHW/SM R&IP	
Authorised Indigenous Health Worker must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Liquid (for inhalation)	3 mL	Self administered via inhalation device under observation	Child ≥ 6 years and Adult 3 mL	May be repeated after 20 minutes to total of 6 mL
Provide Consumer Medicine Information: pain relief after 6 - 8 breaths and continues for several minutes after use. Advise patient it may cause shivering (independent of temperature), nausea, vomiting. Patient should be fully recovered from the effects before driving a vehicle or operating machinery				
Note: the only safe method of administration is self administration at all times and children should not be assisted by parents or others. Use with caution in liver disease. Can lead to altered level of consciousness, use with caution in patients affected by alcohol or drugs. Health workers should be aware of the potential risk of exposure to the drug when attending to a patient using an inhaled anaesthetic				
Contraindication: in patients with a history of allergy to inhaled anaesthetics, renal impairment, respiratory depression, head injury, loss of consciousness, history of malignant hyperthermia				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
15,16,17				

5. Follow up

- As per findings. Reassess primary survey and manage any life saving interventions/management initiated in the primary survey
- Patients who are affected by drugs and/or alcohol should be encouraged to stay under observation until non affected or be discharged into the care of a responsible non affected adult who accepts this responsibility

6. Referral/consultation

- Consult MO/NP as soon as possible with any findings from examination
- Prepare patient for evacuation via air or road to facility with capability to address trauma and injuries
See [Criteria for early notification of trauma for interfacility transfer, page 120](#)



Chest injuries - adult/child

Recommend

- Do not remove any object sticking out of wound e.g. knife
- Suspect tension pneumothorax in all patients where there is unexplained respiratory distress or shock
- Tension pneumothorax is a life threatening emergency and is a treatable cause of potential death in the severely injured patient. See [Criteria for early notification of trauma for interfacility transfer, page 120](#)

Background

- Chest injuries include:
 - damage to the chest wall from:
 - broken ribs
 - flail chest where ribs have broken in two places leaving a broken 'island' of chest wall
 - if penetrating, an open chest wound
 - damage to blood vessels lining the chest wall causing:
 - blood to collect outside the lungs, inside the chest cavity (haemothorax)
 - damage to the lungs causing:
 - breathing difficulties
 - bruising of the lung tissue (lung contusion)
 - air to escape from the lungs into the chest cavity (pneumothorax)
 - air to collect in the pleural space, causing deviation of the mediastinum - this is called 'tension pneumothorax'
 - subcutaneous emphysema/surgical emphysema. This occurs when air spreads into the tissues

Related topics

[Trauma and injuries, page 118](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)

[Needle thoracentesis, page 130](#)

[Oxygen delivery systems, page 44](#)

[Shock, page 55](#)

1. May present with

- Isolated chest injury secondary to blunt or penetrating trauma
- Pain
- Increased HR, respiratory distress, cyanosis
- Hypotension/shock

2. Immediate management - primary survey and resuscitation

- Follow **ABCDE**. See [Trauma and injuries, page 118](#)
- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Give O₂ see [Oxygen delivery systems, page 44](#)
- Perform rapid clinical assessment +
 - O₂ saturation
- Insert largest possible bore IV cannula (14 G or 16 G)
- Consult MO/NP
- Begin secondary survey only after any life saving interventions/management initiated in the primary survey

3. Clinical assessment - secondary survey

- Follow **FGHIJ**. See [Chest injuries, head injuries, spinal injuries, abdominal injuries, page 118](#)
- Inspect for wounds, bruising or abrasions over chest
- Inspect chest movement on respiration e.g. uneven or paradoxical movement. Paradoxical movement is where an area of chest wall moves in while the rest of the chest moves out and vice versa. This indicates a 'flail chest' and multiple fractured ribs
- Auscultate the chest - is the air entry equal?
- Position of trachea - is it midline or to one side?
- The presence of local tenderness is adequate to diagnose possible fractured ribs. Do not spring rib cage
- Subcutaneous emphysema/surgical emphysema - under the skin of the chest wall, clavicle area or neck. It feels like bubbles or 'crackling'. If present, suspect serious injury and pneumothorax
- Perform chest x-ray if available
- Perform FAST ultrasound scan if suitably trained and equipment available
- Suspect the following injuries:

Differential diagnosis table**Non penetrating causes (no open wounds)**

Patient in pain and increasing respiratory distress	Increasing HR, falling BP, falling GCS, unequal chest movement, trachea deviated away from the affected side, decreased air entry and hyperresonance on percussion noted on affected side, distended neck veins	Suspect tension pneumothorax Consider performing needle thoracentesis
Patient in pain and some breathlessness but not increasing respiratory distress	May be unequal chest movement, decreased air entry and increased percussion noted on affected side	Suspect simple pneumothorax
Chest pain, coughing up blood, breathlessness, hypoxaemia	Increased HR, respiratory distress and crackles in chest. Often associated with haemothorax and pneumothorax	Suspect lung contusion
Patient in pain and respiratory distress with hypotension/shock	May be unequal chest movement, trachea may be deviated away from the affected side, may be decreased air entry and dull percussion on affected side	Suspect haemothorax
Patient in pain and respiratory distress with paradoxical movement of an area of the chest wall	This means part of the chest wall moves in when the patient breathes in, and out when patient breathes out	Suspect flail chest
Patient in pain worse on breathing in and coughing, not breathless	Localised chest wall, swelling and tenderness	Suspect broken rib

Penetrating (open) causes (including gunshot and stab wounds)

Patient in pain and respiratory distress	An obvious wound to the chest with or without an object sticking out	Possible haemothorax Do not remove any object sticking out of wound e.g. knife
Patient in pain and respiratory distress	Air sucking into chest. Cover with three sided occlusive dressing or proprietary dressing	Open chest wound

- Other possible complications include cardiac tamponade, aortic disruption, tracheo-bronchial disruption, oesophageal disruption

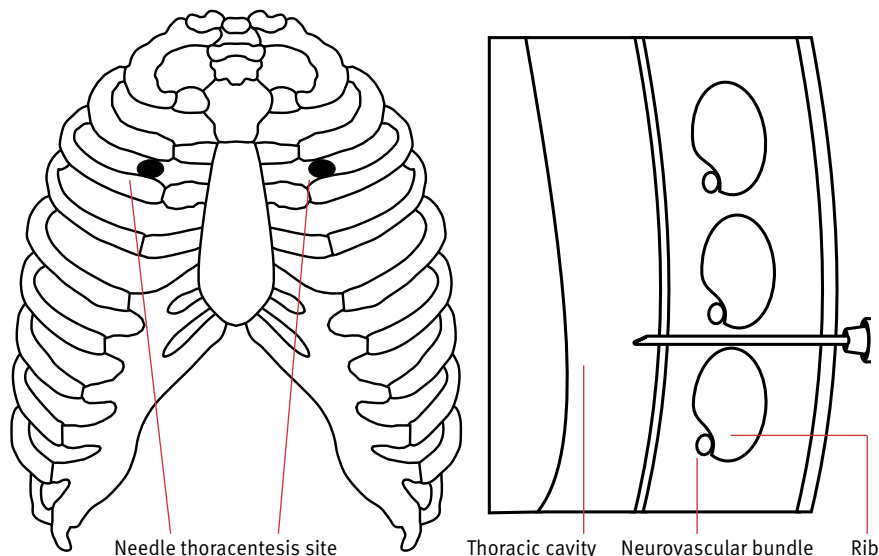
4. Management

- Consult MO/NP in all cases
- Give analgesia. See [Chest injuries, head injuries, spinal injuries, abdominal injuries, page 118](#)

Tension pneumothorax

- Tension pneumothorax is a life threatening emergency and is a treatable cause of potential death in the severely injured patient. Tension pneumothorax requires urgent treatment. Consult MO/NP as soon as circumstances allow

- perform **immediate decompression by needle thoracentesis**
- insert a 14 G IV cannula through upper chest wall (2nd intercostal space, midclavicular line) into thoracic cavity just above the upper edge of the rib below (see diagram)
- if tension pneumothorax is present, air will escape with a rush from the pleural space under pressure with an easing of respiratory distress
- if patient has only partly improved, or gets worse, check the cannula has not kinked or the tension pneumothorax may have recurred, or there may be a tension pneumothorax on the other side. Consult MO/NP as may need to try again on the other side
- MO/NP will insert a formal intercostal catheter prior to evacuation/hospitalisation and attach to Heimlich valve or Portex® ambulatory chest drainage system



Simple pneumothorax

- Monitor and await transfer
- MO/NP will insert a formal intercostal catheter prior to evacuation/hospitalisation

Open pneumothorax

- Promptly close the defect with a sterile occlusive dressing that is large enough to overlap the wound's edge. Tape it securely on three sides to provide a flutter-type valve effect¹⁸

Haemothorax

- Treat hypovolaemia, if respiratory distress ensues then treat as tension pneumothorax
- MO/NP will advise quantities and rates of IV fluids to be given. It is usual to start with sodium chloride 0.9% or Hartmann's solution and follow with blood
- The MO/NP will insert a formal intercostal catheter prior to evacuation/hospitalisation
- See [Shock, page 55](#)

Flail chest

- Continue to provide airway and ventilation support as per MO/NP instructions
- If large flail segment, may require intubation and ventilation by MO/NP prior to evacuation/hospitalisation in a facility with intensive care capability

Broken rib

- Consult MO/NP who will likely advise oral analgesia, and review next day if no other injury

Penetrating - open injuries

- Sometimes called open pneumothorax including gunshot and stab wounds:
 - do not remove any object sticking out of wound e.g. knife. Pack around with gauze soaked in sodium chloride 0.9% and secure
 - in the case of sucking chest wounds, seal the wound with an occlusive dressing taped on three sides or proprietary device designed for this purpose
- Consult MO/NP who will advise antibiotics/analgesia and arrange evacuation
 - MO/NP will insert a formal intercostal catheter prior to evacuation/hospitalisation in a facility with appropriate surgical capability
- Keep patient nil by mouth
- Keep patient warm

5. Follow up

- MO/NP will advise ongoing management
- Patients who are affected by drugs and/or alcohol should be encouraged to stay under observation until not affected or be discharged into the care of a responsible non affected adult who accepts this responsibility

6. Referral/consultation

- In all cases consult MO/NP
- Prepare patient for evacuation. See [Criteria for early notification of trauma for interfacility transfer](#), page 120

 Head injuries - adult/child**Recommend**

- Assume all head injuries have an associated neck injury
- Give opioids with caution to patients with head injuries
- Always
 - notify MO/NP immediately if altered level of consciousness
 - act on Glasgow coma scale (GCS) less than 15 or falling GCS
 - escalate immediately a drop of 2 or more in GCS since the last assessment interval
 - prepare for intubation if GCS is 8 or less and skilled staff and equipment available
- Patients (adult) with closed head injuries are assessed as high risk or low risk head injuries. The classification is used to assess for urgent transfer for CT scan if indicators for urgent transfer met
- See [Decision making for escalation and CT scanning](#), page 135
- Be wary of the patient who appears to be intoxicated - a head injury may co-exist

Background

- Blows to the head can cause damage to the brain without signs of injury on the outside. This is because the brain is fairly soft and is poorly anchored within the skull so that it can move. Injuries can be severe, often with internal bleeding, or mild and reversible sometimes called 'concussion'. A significant brain injury can occur without loss of consciousness

Related topics

-  Chest injuries, head injuries, spinal injuries, abdominal injuries, page 118
-  Assessment of the eye, page 326
-  Fractured mandible/jaw, page 150
-  Tetanus immunisation, page 755

- Subarachnoid haemorrhage (SAH), page 113
- DRS ABCD resuscitation/the collapsed patient, page 36
- Glasgow coma scale (GCS)/AVPU, page 766
- Oxygen delivery systems, page 44

1. May present with

- Isolated head injury secondary to blunt (closed) or penetrating (open) trauma
- Headache, nausea and vomiting, blurred or double vision
- Confused, drowsy, unconscious or fitting
- Increased HR and BP

2. Immediate management- primary survey and resuscitation

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Follow **ABCDE**. See [Chest injuries, head injuries, spinal injuries, abdominal injuries, page 118](#)
- Give O₂ to maintain O₂ saturation > 93% adult or > 95% child. See [Oxygen delivery systems, page 44](#)
- Assume cervical spine injury - maintain cervical spine in-line immobilisation using cervical spine immobilisation method/device
- Perform rapid clinical assessment +
 - conscious state. See [Glasgow coma scale \(GCS\)/AVPU, page 766](#)
 - pupil size and reaction
- Insert largest bore IV cannula possible (14 G or 16 G)
- Consult MO/NP
- Maintain temperature
- If GCS 8 or less, patient will need intubation and ventilation by MO/NP prior to evacuation/hospitalisation in an appropriate facility with intensive care and neuro-surgical capability. These patients are unable to control their airway and are at risk from aspiration. Provide airway, breathing and circulation support until MO/NP arrives
- **Begin secondary survey only after any life saving interventions/management initiated in the primary survey**

3. Clinical assessment - secondary survey

- Follow **FGHIJ**. See [Chest injuries, head injuries, spinal injuries, abdominal injuries, page 118](#)
- Recommend use of clinical pathways
 - **adults** - <https://www.health.qld.gov.au/car/pathways/docs/head-injury.pdf>
 - **children** - <https://www.health.qld.gov.au/car/pathways/docs/head-injury-child.pdf>
- Obtain emergency patient history (from witnesses if possible):
 - time of symptom onset or injury, GCS (or loss of consciousness) immediately after the incident?
 - circumstances and mechanism of injury - blunt or penetrating, velocity of patient or objects
 - duration of any altered level of consciousness
 - first thing remembered by patient after injury
 - headache, nausea or vomiting, double or blurred vision, drowsiness
 - any neck pain, weakness, numbness or pins and needles (arms or legs)

- any alcohol or drug consumption
- medication history - is patient taking anticoagulation therapy e.g. aspirin, warfarin, clopidogrel
- medical history - does the patient have any medical condition contributing to coagulopathy e.g. alcohol misuse
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Check pupil size and reaction to light:
 - assess the pupil size
 - are both the pupils the same size?
 - see if the pupils get smaller when you shine a light on them
 - do both pupils react equally?
- If a patient with a head injury is intoxicated it is important not to assume that physical signs are caused by intoxication alone
- Inspect and palpate for:
 - a depressed skull fracture - a boggy swelling of scalp
 - open wound with underlying skull fracture (compound) including gunshot or stab wounds
- Do not remove any object sticking out of wound, e.g. knife. Pack around with gauze soaked in sodium chloride 0.9% and secure
- Check for signs of skull fracture e.g.:
 - bruising around the eyes 'raccoon eyes'
 - bruising behind the ears 'Battle's sign'
 - clear or bloodstained fluid from the ears, nose, mouth
 - blood in the ear or behind the eardrum
 - subconjunctival haemorrhage that extends behind the eyeball
- Check for a facial fracture:
 - nose - flattening or angulation, occlusion of nostrils, septal haematoma
 - orbit - there may be a palpable step and numbness under the eye and/or restriction of eye movement and double vision
 - numbness of the cheek or teeth
 - face - the bone holding the upper teeth (maxilla) may be able to be moved when held by thumb and forefinger relative to the skull steadied by the other hand
 - jaw fracture - suggestive if teeth do not close properly or unable to open mouth wide
- See [Glasgow coma scale \(GCS\)/AVPU](#), page 766

4. Management

- Consult MO/NP as soon as possible
- If open/penetrating head injury MO/NP will arrange urgent evacuation
- Monitor observations including BP, GCS at a minimum of half hourly for 6 hours in consultation with MO/NP. Notify MO/NP immediately if altered level of consciousness
- Act on altered conscious score as per the CEWT and Q-ADDS or other local early warning and response tools
- If there is a compound or basal skull fracture the MO/NP will order antibiotics. See [Meningitis](#), page 644
- Aggressively manage any fall in BP. Maintain BP as advised by MO/NP
- Keep patient warm
- If there is a rapid deterioration in GCS of 2 or more, and/or if one pupil becomes fixed and dilated, suggestive of expanding intracranial haemorrhage, the MO/NP may order IV mannitol 20% or sodium

chloride 3%

- Give opioids with caution to patients with head injuries
- If the skin is broken, check tetanus vaccination status. Administer tetanus containing vaccine/immunoglobulin as appropriate. See [Tetanus immunisation, page 755](#)

5. Follow up

- **Urgent evacuation for CT scanning in adults and children with high risk factors**
- See [Decision making for escalation and CT scanning, page 135](#)
- **Consider transfer for CT scanning in children with intermediate risk factors**
See [Decision making for escalation and CT scanning, page 135](#)
- **Adults and children with low risk factors** need a minimum of 6 hours observation. After this time and if GCS is 15, in consultation with MO/NP, patient may be discharged into care of responsible person who should be given appropriate head injury instructions. See [Advice to patients who have received an injury to the head, page 134](#)
- Patients who are affected by drugs and/or alcohol should be encouraged to stay under observation until non-affected or be discharged into the care of a responsible non-affected adult who accepts this responsibility
- If any alteration in condition reassess risk and consult MO/NP
- Review next day and at next MO/NP clinic

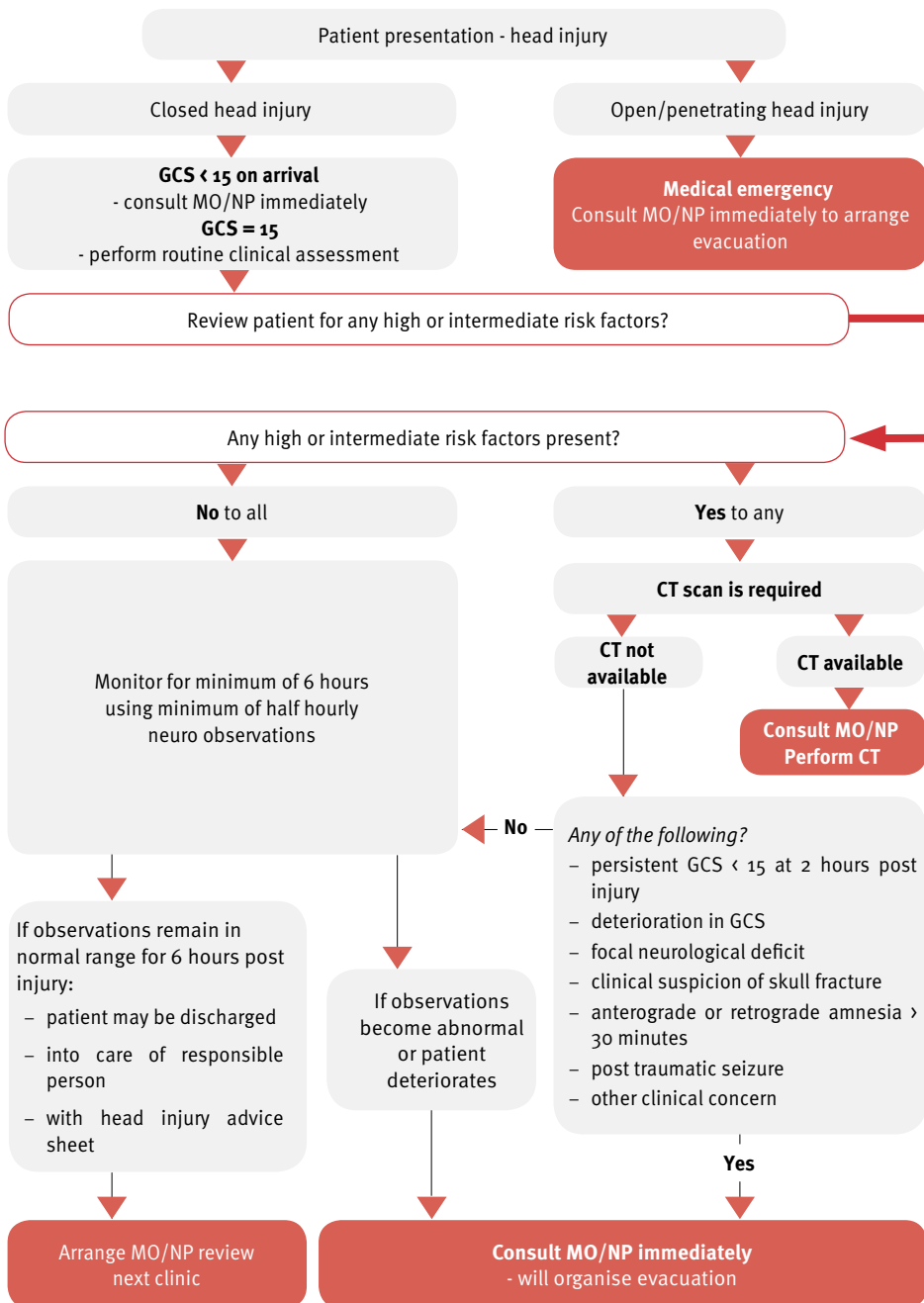
6. Referral/consultation

- Consult MO/NP with any findings above or if at high risk of severe injury because of circumstances
- See [Criteria for early notification of trauma for interfacility transfer, page 120](#)
- Referral to occupational therapist for post traumatic amnesia test (PTA)

Advice to patients who have received an injury to the head¹⁹

- Rest quietly for the day
 - Use 'ice packs' over swollen or painful areas. Wrap ice cubes, frozen peas or a sports ice pack in a towel. Do not put ice directly on the skin
 - Take simple pain killers (such as paracetamol) for any headache. Check the packet for the right dose and use only as directed
 - If an injured patient is discharged in the evening, make sure they are woken several times during the night. Set the alarm. Ensure the injured patient walks to the toilet or does an activity that allows you to assess their coordination
 - Do not let the injured patient drive home
 - Do not leave them alone for the next 24 hours
 - Do not let them drink alcohol for at least 24 hours
 - Do not let them take sedatives or other medication unless instructed. Take simple pain killers as instructed
 - Return to the clinic immediately if the patient has repeated vomiting, 'blacks out' or a seizure (fit), or cannot be woken or is not responsive
 - Patient to return to clinic if they have any symptoms they or carer are concerned about
- Give written information:
 - for children available at: https://www.health.qld.gov.au/improvement/networks/docs/ed-child_minor_hi.pdf
 - for adults or children available at: https://www.health.qld.gov.au/caru/networks/docs/ed-minor_head_injury.pdf

Decision making for escalation and CT scanning - adult/child^{20,21}



Head injury 'high risk' factors - adult²⁰

Age over 65 years	On anticoagulant/antiplatelet therapy
Known coagulopathy e.g. liver disease, factor deficiency	Loss of consciousness > 5 minutes
Persistent GCS < 15 at 2 hours post injury	Deterioration in GCS
Focal neurological deficit	Clinical suspicion of skull fracture
Persistent vomiting	Persistent severe headache
Persistent abnormal level of alertness, behaviour and/or cognition	Known previous neurosurgery and/or neurological impairment
Unwitnessed head injury	Multi-system trauma
Significant mechanism of injury	Delayed presentation or re-presentation
Intoxicated (alcohol and/or other drugs)	Delayed onset of symptoms
Post traumatic seizure ¹	Multiple co-morbidities or combination of worrying factors
Dangerous mechanism of injury	

Head injury clinical features - child²¹**Intermediate risk factors****High risk factors**

Age	< 1 year	
Witnessed loss of consciousness	< 5 minutes	> 5 minutes
Anterograde or retrograde amnesia (where assessable)	Possible	> 5 minutes
Behaviour	Mild agitation or altered behaviour	Abnormal drowsiness
Episodes of vomiting without other cause	3 or more	
Seizure in non-epileptic patient	Impact only	Yes
Non-accidental injury is suspected/parental history inconsistent with injury	No	Yes
History of coagulopathy, bleeding disorder or previous intracranial surgery	No	Yes
Co-morbidities	Present	Present
Headache	Yes	Persistent or increasing
Motor vehicle accident (pedestrian, cyclist or occupant)	< 60 kph	> 60 kph
Fall	1 - 3 metres	> 3 metres
Force	Moderate impact or unclear mechanism	High speed/heavy projectile or object
Glasgow coma scale	14 - 15	< 14
Focal neurological abnormality	Nil	Present
Injury	Haematoma, swelling or laceration > 5cm	Tense fontanelle in children < 1 year of age Penetrating injury Suspected depressed skull fracture

Spinal injuries - adult/child

Recommend

- Suspect cervical spine (neck) injuries in anyone involved in a motor vehicle accident, a dive into shallow water, motor bike accident, sport injury, fall from height, sudden acceleration/deceleration, fall in the elderly, anyone with a head injury and in anyone with an injury above the clavicle (collar-bone) or who has a history of pins and needles of arms/legs, no matter how transient
- In a patient with thoracolumbar injuries suspect spinal injuries and treat the whole spine
- Treat as though there is a cervical spine injury if there is any possibility of one, as they are easily and often missed which can have serious consequences
- Any patient who has any midline cervical spine pain or tenderness following injury, requires cervical spine x-rays including C7 - T1 space (anteroposterior, lateral, and peg views, all of C7 must be visualised) to exclude cervical spine fracture or slip
- See [Criteria for early notification of trauma for interfacility transfer, page 120](#)

Related topics

 [Chest injuries, head injuries, spinal injuries, abdominal injuries, page 118](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Head injuries, page 131](#)

1. May present with

- History of injury
- Isolated spinal injury:
 - spinal pain, tenderness
 - muscular weakness or paralysis of the arms or legs, numbness or pins and needles in arms or legs, no matter how transient
 - weak/shallow (diaphragmatic) breathing
 - 'neurogenic hypotension' - low BP with a normal HR
 - loss of bladder or bowel control, urinary retention
 - priapism (persistent and painful erection)

2. Immediate management - primary survey and resuscitation

- Follow **ABCDE**. See [Chest injuries, head injuries, spinal injuries, abdominal injuries, page 118](#)
- Maintain cervical spine in-line immobilisation
- Give O₂ to maintain saturation > 93% adult or > 95% child. If not maintained consult MO/NP. See [Oxygen delivery systems, page 44](#)
- Perform rapid clinical assessment +
 - conscious state. See [Glasgow coma scale \(GCS\)/AVPU, page 766](#)
 - O₂ saturation
 - peripheral perfusion
 - in particular note efficacy of breathing
- Insert large bore IV cannula (14 G or 16 G)
- Do not move patient unless absolutely necessary or MO/NP orders and sufficient assistants available to immobilise spine and log roll patient. See [Log roll, page 138](#)
- It is preferable for the patient to be stabilised and evacuated from the scene rather than transported

in less than ideal circumstances. Lie flat on back on a hard surface. Maintain head in neutral position, neck in alignment with body, and maintain cervical spine immobilisation using a cervical spine immobilisation device/method

- Consult MO/NP as soon as possible

Log roll

If necessary to move patient or examine patient's spine on MO/NP orders:

- Minimum of three, preferably five people are required
- One person should control patient's head and neck using a cervical spine immobilisation device or method. This person should also be the team leader for the log roll and give instructions to the rest of the team
- Log roll the patient maintaining spinal alignment, especially avoiding flexion and rotation, keeping the patient's nose in line with the belly button at all times

Begin secondary survey only after any life saving interventions/management initiated in the primary survey

3. Clinical assessment - secondary survey

- Follow **FGHIJ**. See [Chest injuries, head injuries, spinal injuries, abdominal injuries, page 118](#)
- Obtain emergency patient history including circumstances and mechanism of injury - blunt or penetrating, velocity
- Perform comprehensive trauma survey. If indicated see [Chest injuries, head injuries, spinal injuries, abdominal injuries, page 118](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - pay particular attention to respirations and use of respiratory muscles
- Record movement/strength of arms and legs
- Check for numbness/sensation. Note the body level where the numbness starts
- **Note:** evidence of loss of bladder or bowel control, urinary retention
- Do not check cervical or thoracolumbar spine for tenderness or a step defect unless MO/NP orders and sufficient assistants are available to immobilise spine and log roll patient. See [Log roll, page 138](#)

4. Management

- Consult MO/NP
- Give analgesia for pain as required. See [Chest injuries, head injuries, spinal injuries, abdominal injuries, page 118](#)
- Keep patient nil by mouth
- Keep patient warm
- Prepare patient for evacuation
- The MO/NP may ask for the patient to be catheterised

5. Follow up

- Any patient who has **any** midline cervical spine pain or tenderness following injury requires cervical spine immobilisation and x-rays including C7 - T1 space (all of C7 must be visualised) to exclude cervical spine fracture or slip

6. Referral/consultation

- Consult MO/NP with any findings above or if at risk of serious injury because of circumstances
- See [Criteria for early notification of trauma for interfacility transfer, page 120](#)



Abdominal injuries - adult/child

Recommend

- Urgently evacuate all patients with hypotension/shock as a result of abdominal injury to an appropriate facility with surgical capability, as abdominal bleeding may be the cause
- If the abdomen is tender or if patient has altered level of consciousness assume significant injury²²
- See [Criteria for early notification of trauma for interfacility transfer, page 120](#)

Background

- Blunt or non-penetrating abdominal trauma (e.g. after a fall from a horse, seat belt injury or punch to the abdomen) can cause serious bleeding from ruptured spleen, liver or kidneys and serious injury to abdominal viscera e.g. bowel perforation, bowel infarction. FAST ultrasound scan can assist if available and staff suitably trained
- Penetrating wounds, including gunshot and stab wounds, can also perforate the bowel and cause serious infection. Associated damage to the chest can occur with any wound above the umbilicus
- If mechanism of injury indicates high forces - closely monitor for abdominal injuries. Be aware that abdominal injuries are often overshadowed by more apparent external and orthopaedic injuries and can be missed¹⁸

Related topics

- [Trauma and injuries, page 118](#)
- [Chest injuries, page 127](#)
- [Fractured pelvis, page 148](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Oxygen delivery systems, page 44](#)

1. May present with

- Isolated abdominal injury secondary to blunt or penetrating trauma
- Increased HR/respiratory rate, hypotension/shock
- Back or shoulder pain
- Pain

2. Immediate management - primary survey and resuscitation

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Follow **ABCDE**. See [Trauma and injuries, page 118](#)
- Give O₂ to maintain O₂ saturation > 93% adult or > 95% child. If not maintained consult MO/NP. See [Oxygen delivery systems, page 44](#)
- Perform rapid clinical assessment +
 - conscious state. See [Glasgow coma scale \(GCS\)/AVPU, page 766](#)
- Insert 2 largest bore IV cannulas (14 G or 16 G)
- It is normal to start with IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate. In an adult, the aim is to keep the:

- HR < 120/min
- maintain BP as advised by MO/NP
- urine output > 0.5 mL/kg/hour
- Consult MO/NP as soon as possible

Begin secondary survey only after any life saving interventions/management initiated in the primary survey

3. Clinical assessment - secondary survey

- Follow **FGHIJ**. See [Trauma and injuries, page 118](#)
- Obtain emergency patient history - circumstances of the injury, time of occurrence and method of injury - blunt or penetrating
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note particularly signs of shock including:
 - low BP
 - high HR
 - weak pulse
 - high respiratory rate
 - postural HR and BP changes
 - pale, clammy (cool and moist) skin
 - prolonged capillary refill > 2 seconds
 - altered conscious state
 - back or shoulder pain
- Perform urinalysis for blood
- Inspect the abdomen - look for wounds, bruising or abrasions over abdomen including bruising caused by a seat belt
- Auscultate (listen) to the abdomen for any bowel sounds
- Percuss all four quadrants of the abdomen
- Gently palpate (feel) the abdomen for tenderness or rigidity
- Inspect for signs of pelvic instability - tenderness of symphysis pubis, irregular angulation of legs
- Note if any blood oozing from the urethra
- Check chest expansion and air entry
- With consent do pregnancy test in women of childbearing age. Pregnant women with abdominal injuries are at high risk from placental abruption and should have an obstetric assessment as soon as possible
- Perform FAST ultrasound scan if suitably trained and equipment available

4. Management

- Give analgesia. See [Trauma and injuries, page 118](#)

Blunt or non-penetrating injury:

- Consult MO/NP who will advise IV fluid quantities and rate and arrange evacuation/hospitalisation in an appropriate facility with surgical capability. If hypotensive/shocked with intra-abdominal injury in the absence of head injury - fluid resuscitation may be conservative. Excessive fluid resuscitation may dilute clotting factors and dislodge clots resulting in fatal intra-abdominal haemorrhage

Penetrating wound including gunshot and stab wounds:

- Do not remove any object sticking out of wound e.g. knife. Pack around with gauze soaked in sodium chloride 0.9% and secure, as may dislodge haematoma or damage vessels
- Pack open wound with sodium chloride 0.9% soaked pack
- Do not replace exposed bowel or omentum. Cover with sodium chloride 0.9% soaked packs
- Consult MO/NP who will advise IV fluid quantities/rate and antibiotics, and arrange evacuation/hospitalisation in an appropriate facility with surgical capability
- Keep patient nil by mouth
- Keep patient warm
- MO/NP may advise to pass nasogastric tube if easy and no signs of facial or basal skull fractures. Allow free drainage and aspirate periodically

5. Follow up

- If no findings as above, in consultation with MO/NP the patient may be allowed home
- Review the next day and consult MO/NP if the patient has any symptoms, an increased HR, increased temperature or any abdominal findings
- Advise the patient and carer(s) to return to the clinic immediately if they have any symptoms they are concerned about e.g. increase in pain, increased heart rate, swelling of abdomen
- Patients who are affected by drugs and/or alcohol should be encouraged to stay under observation until non-affected or be discharged into the care of a responsible non-affected adult who accepts this responsibility

6. Referral/consultation

- Consult MO/NP with any findings as above or if at high risk of serious injury because of circumstances
- See [Criteria for early notification of trauma for interfacility transfer, page 120](#)

Fractures, dislocations and sprains**Simple, compound, pelvis, mandible/jaw - adult/child****Recommend**

- Remember with pelvic or long bone fractures there can be significant blood loss into tissues
- Always examine for other injuries
- Check pulses and sensation, distal to limb fractures, as the blood or nerve supply of the limb may be damaged by the fracture. Repeatedly monitor circulation
- The aim of management is adequate splinting and immobilisation to avoid long term disability¹
- Use room temperature tap water for wetting plaster of paris

Background

- Fractures (buckle or break in the bone) often occur following direct or indirect injury e.g. twisting. Clinically fractures are either:
 - closed, where the skin is intact, or
 - compound where there is a break in the overlying skin
- Dislocation is a complete disruption of a joint¹. It often results from injuries away from the affected joint e.g. elbow dislocation after falling on an outstretched hand
- Sprain is a partial disruption of a ligament or capsule of a joint¹

Simple fracture of limbs - adult/child

Related topics

 [Trauma and injuries, page 118](#)

1. May present with

- History of injury
- Pain
- Loss of function
- Tenderness, swelling, bruising and deformity
- Asymmetry with the other side of the body

2. Immediate management

- Stop any external haemorrhage by pressure bandaging or direct pressure
- Immobilise the affected area
- Provide pain relief
- With pelvis or long bone fractures, insert IV cannula. It is usual to start with sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate

3. Clinical assessment

- Obtain complete patient history including circumstances and method of injury
 - medication history - ask about anticoagulation use e.g. warfarin
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - examine and record colour, warmth, movement and sensation distal to the fracture site of injured limb(s)
- Perform physical examination - carefully examine:
 - all places where it is painful
 - is the limb out of shape? Compare one side with the other
 - any wounds or swelling
 - colour of the whole limb, especially paleness or blue colour
 - are the peripheral pulses palpable? Is the limb warm?
 - skin over the fracture. Does it look normal or damaged, or is it stretched and pale?
 - if the limb is swollen, is it throbbing or getting bigger?
 - check range of movement
 - joint function, above and below the injury site - compress gently from end to end - the patient may feel pain¹
 - if there is a fracture but the mechanism of injury seems minor or trivial, suspect a pathological fracture. This is a fracture through a diseased area of bone, e.g. osteoporosis or cancer, and will need further investigation
 - in the elderly always examine carefully for fractures and other injuries after a fall

4. Management

- Remove any constrictions on the limb, such as rings and watches
- Check colour, pulses and sensation before and after doing anything to the injured limb

- Consult MO/NP urgently if:
 - the limb is deformed and skin over the fracture site is stretched and pale, the limb will need straightening or the skin will break down and make the fracture compound
 - pulses or sensation are absent, weak or disappear
- Splint the site of the fracture/dislocation to reduce pain
- See [Splinting for limb injuries using plaster back slab, page 146](#)
- Elevate the limb - a sling for arm injuries, on pillows for leg injuries
- If in doubt over an injury, treat as a fracture
- Patients with severe pain require adequate analgesia. Intravenous is the preferred route of administration for opioid analgesics for severely injured patients, if not allergic, give morphine (preferable) or if allergic to morphine give fentanyl. Contact MO/NP for analgesia order in children
- Give metoclopramide (adults) if nauseated or vomiting. Children should not receive metoclopramide (Maxolon®) or prochlorperazine (Stemetil®) because of the high risk of dystonic reactions. If an antiemetic is required for a child the MO/NP may advise ondansetron
- If requires operative treatment keep nil by mouth
- Consider compartment syndrome where pain is severe and unrelieved by splinting and elevation or two doses of analgesia - consult MO/NP. See [Compartment syndrome, page 154](#)
- Consider sprain (soft tissue) injury if no fracture. See [Sprains, page 152](#)
- See [Simple analgesia pull out](#)

Schedule	8	Morphine	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL	IM/Subcut	Adult only 0.1 mg - 0.2 mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
		IV (IHW and IPAP may not administer IV)	Adult only Initial dose of 2.5 mg then 0.5 mg - 2.5 mg increments slowly, repeated every 5 minutes if required to a max. of 10 mg	

Provide Consumer Medicine Information: advise patient morphine can cause nausea and vomiting, and drowsiness

Note: a reduced dose should be considered in patients with significant renal/liver disease. Use the lower end of the dose range in patients > 70 years

Use in Pregnancy: Category C

Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See [Toxicology/opioids, page 246](#)

2,3,4,5,18,19

- If allergic to morphine give fentanyl. **Note:** fentanyl has a rapid onset of action

Schedule	8	Fentanyl		DTP IHW/SM R&IP
Authorised Indigenous Health Worker must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	100 microgram / 2 mL	IM/Subcut	Adult only 1.5 microgram/kg to a max. of 100 microgram	Stat Further doses on MO/NP order
		IV	Adult only 25 microgram increments slowly, repeated every 10 minutes if required to a max. of 100 microgram	
Provide Consumer Medicine Information: advise patient fentanyl can cause nausea and vomiting, and drowsiness				
Note: use with caution in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				
				2, 3, 5, 6

- Give metoclopramide if nauseated or vomiting

Schedule	4	Metoclopramide		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: tell your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Note: give IV slowly over 1 - 2 minutes				
Contraindication: in patients with epilepsy and Parkinson's disease				
Use in Pregnancy: Category A				
Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction e.g. oculogyric crisis develops give benztropine 2 mg IM or oral. Consult MO/NP. See Mental health behavioural emergencies, page 437				

- For prevention or treatment of nausea or vomiting in children, give ondansetron

Schedule	4	Ondansetron		DTP SM R&IP/IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Oral Disintegrating tablet (ODT) or Wafer	4 mg	Oral	Child > 6 months - 18 years 8 kg to < 15 kg dose 2 mg 15 kg to 30 kg dose 4 mg > 30 kg up to 8 mg	Stat Further doses on MO/NP order
Ampoule	4 mg/2 mL 8 mg/4 mL	IV Give slowly over 5 minutes	Child > 6 months - 18 years 0.1 mg/kg up to a max. of 4 mg	
Provide Consumer Medicine Information: ondansetron may worsen diarrhoea or cause constipation				
Note: for wafer or ODT place on top of the tongue to dissolve, then swallow				
Contraindication: in patients with congenital prolonged QT interval				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
8,9,10,11				

- X-rays (if available)
 - if a patient is to be evacuated they usually do not need x-ray locally, as it can be done at the receiving hospital
 - usually an x-ray is needed only if it will change what you do for the patient e.g. to decide whether they are evacuated or not
 - x-rays can be helpful where the diagnosis is difficult, but a normal x-ray does not always exclude a fracture
- Crush or impacted fractures do not have a typical appearance on x-ray and may be difficult to see
- After a fall on an outstretched hand, the scaphoid (of wrist) is particularly at risk. Fractures here are not often seen on normal wrist x-rays, and may not be visible for 7 - 10 days even on special x-rays. After such a fall, all people with tenderness on the wrist at the base of the thumb should be discussed with the MO/NP and a follow up x-ray arranged. Immobilisation of limb should be considered until check x-ray is done
- In children normal growth plates can mimic fractures or be damaged and associated fractures missed

5. Follow up

- All fractures and dislocations should be reviewed at 24 hours. Record and report colour, sensation and pain in limb¹
- If pain has not improved, a complication should be considered¹
- If pain and swelling persist in a patient with a sprain beyond a week then suspect a fracture
- Provide patient/carer with plaster advice information sheet
- Patients with fractures who are not evacuated/hospitalised should be seen by an MO/NP within a week

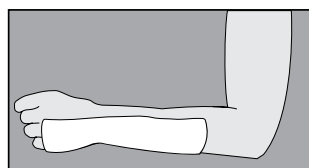
- Advise patient that fractures take at least 4 - 6 weeks to heal

6. Referral/consultation

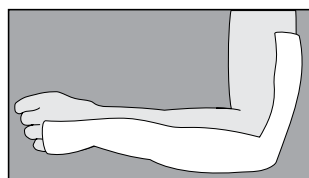
- Consult MO/NP on all occasions for management of individual fractures
- Stiffness of joints is a common problem with immobilisation in plaster/slings¹. Refer to physiotherapist where possible

Splinting for limb injuries using plaster back slab

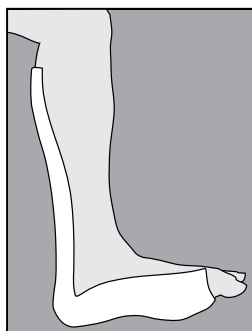
- The plaster splint for a limb is a partial cast used:
 - as a temporary splint, usually for less than 10 days
 - in acute trauma to immobilise an injured part of an arm or leg whilst also accommodating swelling. Crêpe bandage should be tightened when swelling subsides or new splint applied
 - for some soft tissue injuries
 - Note that short arm plaster back slabs are for injuries to the wrist or the very end of the forearm. Any injuries involving the hand may require a modified short arm plaster. Discuss with MO/NP
 - long arm plaster back slabs are for injuries involving the elbow and forearm except for the end near the wrist. Discuss position with MO/NP
 - short leg plaster back slabs are for injuries to the ankle and foot
 - long leg plaster back slabs are for injuries involving the part of the lower leg above the ankle and the knee. Discuss position with MO/NP
- Materials
 - plaster of paris of appropriate width e.g. 7.5 or 10 cm, for short arms/wrists, 15 or 20 cm for long arm/long leg. Plaster must not fully encircle the limb
 - non-compression cotton stockinette e.g. Protouch®
 - undercast cotton padding of appropriate size e.g. Webriil®, Velband®
 - crêpe bandage
 - sling



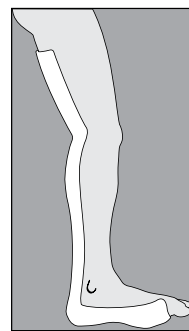
Short arm plaster back slab



Long arm plaster back slab



Short leg plaster back slab



Long leg plaster back slab

Technique for arm plaster back slab, use same principle for leg

- Ensure rings and jewellery are removed from injured limb
- Measure and fit a length of non-compression cotton stockinette from half way up the middle finger to just below elbow. Width should be 2 - 3 cm more than the width of the distal forearm

- Wrap cotton padding over top for the full length of the stockinette - 2 layers, 50% overlap
- Measure a length of plaster 1 cm shorter than the padding/stockinette at each end. Fold the roll in about ten layers to the same length
- Immerse the layered plaster in a bowl of room temperature tap water¹² holding on to each end, gently squeeze out the excess water
- Lightly mould the slab to the contours of the arm and hand in a neutral position
- Do not apply pressure over bony prominences. Extra padding can be placed over bony prominences if applicable
- Wrap crêpe bandage firmly around plaster back slab. Fold back cotton padding and non-compression cotton stockinette over the end of the plaster back slab. The arm is placed in a sling

Plaster cast instructions to patient

- Instruct patient that plaster does not dry for 24 - 48 hours, so to prevent breaking during this time not to apply any force to plaster¹
- Keep plaster clean and dry and cover with plastic bag during bath or shower
- Apply arm sling for at least 24 hours
- Elevate limb above the level of the heart, when resting during the first 24 hours
- Do not insert anything under plaster to relieve itching
- Return for injury and plaster review in 24 hours or immediately if
 - swelling or blueness of fingers or toes
 - unable to move fingers or toes after elevation
 - numbness or loss of sensation after elevation
 - severe pain that cannot be relieved by elevation
 - plaster becomes cracked or wet, loose or badly damaged for reapplication



Compound fractures - adult/child

Recommend

- Reduce fracture as soon as possible
- Provide antibiotic cover to prevent infection in the bone
- Evacuate to facility with appropriate surgical capability

Background

- There does not have to be bone visible from wound to be classified as a compound fracture

Related topics

- [Trauma and injuries, page 118](#)
- [Fractures, dislocations and sprains, page 141](#)
- [Tetanus immunisation, page 755](#)

1. May present with

- History of injury
- Broken bone with break in the overlying skin

2. Immediate management

- Stop any external bleeding by external pressure/pressure bandage

- Provide pain relief. See [Simple fracture of limbs, page 142](#)
- Immobilise the affected area. Apply pelvic binding if required for pelvic fracture. See [Fractured pelvis, page 148](#)
- If pelvis or long bone fractures, insert IV cannula. It is usual to start with sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate
- Consult MO/NP as soon as possible

3. Clinical assessment

- See [Simple fracture of limbs, page 142](#)

4. Management

- See [Simple fracture of limbs, page 142](#) and in addition:
 - do not suture any wounds
 - clean wounds by irrigating copiously with sodium chloride 0.9%. Cover with a sodium chloride 0.9% soaked dressing
 - check tetanus status. See [Tetanus immunisation, page 755](#)
 - if in doubt whether there is a fracture underlying a wound, x-ray if available
 - consult MO/NP who will advise:
 - IV fluid quantities and rate. It is usual to start with sodium chloride 0.9% or Hartmann's solution
 - IV antibiotics if the wound is contaminated, extensive or there is dead tissue
 - evacuation/hospitalisation in an appropriate facility with surgical capability

5. Follow up

- As per MO/NP advice

6. Referral/consultation

- Consult MO/NP on all occasions
- All compound fractures need antibiotics, and may need surgery for cleaning and the removal of dead tissue

Fractured pelvis - adult/child

Recommend

- Always examine for other injuries as fracture of the pelvis takes a large amount of force, and there are likely to be other injuries, both internal and external
- If unstable pelvic fracture, wrap sheet or binder around pelvis, tighten and secure sheet e.g. with safety pins, sponge holding forceps. Apply early¹³. This will help with pain on movement, decrease potential for further displacement and may reduce risk of haemorrhage

Background

- Patients with unstable pelvic fractures may experience internal bleeding of over 2 litres of blood leading to shock and loss of consciousness
- Fractures to the pelvis are either stable (a single fracture) or unstable (break at two sites) or associated with other fracture¹

Related topics

 [Trauma and injuries, page 118](#)
 [Fractures, dislocations and sprains, page 141](#)

[Oxygen delivery systems, page 44](#)
[Shock, page 55](#)

1. May present with

- As part of [Trauma and injuries, page 118](#)
- History of fall, especially in the elderly
- Pain around the hips, especially on moving, or when pressing the bony parts of the hips and groin
- Abnormal positioning of legs
- Abnormal neurology (unilateral)
- Abdominal pain and tenderness
- Hypotension/shock
- Blood out of the urethra or in the urine

2. Immediate management

- Give O₂ to maintain O₂ saturation > 93% adult or > 95% child. If not maintained consult MO/NP. See [Oxygen delivery systems, page 44](#)
- Insert largest possible IV cannula (14 G or 16 G)
- It is usual to start with sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate
- Pelvic binding should be applied as soon as possible and prior to x-ray¹⁴

3. Clinical assessment

- Obtain complete patient history including circumstances of injury
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - pain score
 - inspect for blood at urethral opening especially in males
 - collect urine - check for obvious blood/blood on dipstick
 - Pay particular attention to signs of shock e.g. Low BP, fast HR, poor capillary refill. See [Shock, page 55](#)
- Perform physical examination:
 - inspect for signs of pelvic instability - tenderness of symphysis pubis, irregular angulation of legs

4. Management

- Consult MO/NP
- Give analgesia. See [Simple fracture of limbs, page 142](#)
- If stable pelvic fracture¹, MO/NP may advise:
 - give analgesia
 - bed rest as pain symptoms dictate
 - attempt walking with aid as soon as comfortable
- If unstable pelvic fracture. MO/NP may:
 - order x-ray if available
 - organise evacuation/hospitalisation in an appropriate facility

- only ask the patient be catheterised if proved no bladder injury (no blood out of the urethra or in the urine and normal findings on rectal examination if indicated)
- apply pelvic binding if not already done. Use pelvic sling or wrap sheet or binder around pelvis and tighten. Secure sheet e.g. with safety pins, sponge holding forceps. This procedure can be very painful

5. Follow up

- As per MO/NP advice

6. Referral/consultation

- Urgent consult with MO/NP on all occasions of suspected fractured pelvis

Fractured mandible/jaw - adult/child

Recommend

- Consider associated cervical spine injury with all jaw injuries
- Be aware of risk of airway obstruction from bleeding or extensive swelling from fractures to the jaw
- Multiple fractures of the jaw are common e.g. bilaterally after a blow to one side only

Related topics

-  [Trauma and injuries, page 118](#)
-  [Trauma to teeth, page 307](#)
-  [Tetanus immunisation, page 755](#)
-  [Spinal injuries, page 137](#)

[Acute upper airway obstruction and choking, page 64](#)
[Head injuries, page 131](#)

1. May present with

- As part of [Trauma and injuries, page 118](#)
- History of punch/fight
- Any blow to the jaw
- Pain, swelling and tenderness along the jaw
- Bleeding from the mouth
- Pain and movement of fragments on opening the mouth
- Unable to open mouth widely
- Teeth do not close properly
- Broken/loose teeth

2. Immediate management

- See [Acute upper airway obstruction and choking, page 64](#)

3. Clinical assessment

- Obtain complete patient history including circumstances of injury
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - check the patient's airway and bite

- ask the patient to clench their teeth together and observe whether they 'fit together' as usual. If not, this is malocclusion, and a fracture is likely
- if patient unable to maintain bite on tongue depressor (or similar object) whilst twisted, they are likely to have a fracture¹
- Inspect for a visible and/or palpable step in the jaw. This may be on the outside, or as a step in the teeth on the inside
- Lacerations inside or outside the mouth make this a compound fracture. The mouth has so many bacteria, that even the smallest cut or bleeding associated with a fracture should be considered compound
- Check cervical spine for pain or tenderness. See [Spinal injuries, page 137](#)
- Are there avulsed (torn away), displaced or broken tooth/teeth secondary to injury? Never discard tooth/teeth. See [Trauma to teeth, page 307](#)

4. Management

- Consult MO/NP who will advise:
 - diet - either nil to eat or drink, or clear fluids only, depending on severity and urgency of evacuation/surgery
 - analgesia - oral or parenteral
 - antibiotics if compound (any wound or bleeding) - oral amoxycillin or IM penicillin, add metronidazole if large wound
- If possible replace permanent teeth/tooth, wash if dirty without touching root. Never discard tooth
- Check tetanus immunisation status

5. Follow up

- If not evacuated/hospitalised, the patient should be with a responsible adult for at least the first 24 hours due to the potential risk to the airway from bleeding and swelling
- Review next day

6. Referral/consultation

- Consult MO/NP on all occasions of suspected fractured mandible/jaw
- Dental or faciomaxillary assessment is usually necessary, and the patient often requires repair by wiring or internal fixation



Dislocations - adult/child

Recommend

- Realign/reduce dislocation as soon as possible as the limb will become compromised
- Consult MO/NP. Minor dislocations may be realigned locally

Related topics



[Trauma and injuries, page 118](#)



[Fractures, dislocations and sprains, page 141](#)

1. May present with

- History of injury

- As part of [Trauma and injuries, page 118](#)
- Pain, swelling and deformity of the joint
- Unwilling to move the joint. In upper limb dislocations, the patient often walks in supporting the limb with the opposite one

2. Immediate management

- Provide analgesia/sedative to assist realignment. See [Simple fracture of limbs, page 142](#)

3. Clinical assessment

- Obtain complete patient history, including circumstances of injury
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - examine and record colour, pulses, sensation and temperature of the limb
- Perform physical examination:
 - inspect and palpate movement of joints above and below the affected joint
 - examine bones above and below the joint for tenderness that may suggest fracture
 - inspect and palpate for other injuries

4. Management

- Support the dislocated area using pillows, sling or bandaging if possible
- Give analgesia if not previously given. See [Simple fracture of limbs, page 142](#)
- Consult MO/NP who will advise if dislocation can be realigned locally
- If dislocation is to be realigned locally:
 - x-ray before and after manipulation. Look for associated fractures
 - examine pulses and sensation before and after manipulation and continue to monitor circulation
 - for shoulder dislocations, specifically check sensation over deltoid muscle prior to reduction, as this nerve can be damaged during reduction
- Keep patient nil by mouth until reduction is achieved
- Insert IV cannula
- Be aware that after realignment patient's pain will lessen dramatically. This may accentuate sedation and respiratory depression caused by analgesics. See [Simple analgesia pull out](#)

5. Follow up

- If realigned locally - as per MO/NP orders

6. Referral/consultation

- Consult MO/NP on all occasions. Dislocations will require full review - refer to next MP/NP clinic

Sprains/soft tissue injury - adult/child

1. May present with

- History of injury
- Pain
- Swollen joint
- Unable to weight bear
- No fracture seen on x-ray

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - examine and record colour, warmth, movement and sensation of hands and feet of injured limb(s)
- Perform physical examination. See [Simple fracture of limbs, page 142](#)

4. Management

- For mild and moderate sprains¹
 - **R** Rest the injured part for 48 hours, depending on disability
 - **I** Ice pack for 20 minutes every 2 - 4 hours when awake for the first 48 hours then cease
 - **C** Compression bandage e.g. crêpe bandage
 - **E** Elevate to hip level to minimise swelling (ankle sprain)
- Analgesia e.g. paracetamol
- Review in 48 hours and then in 7 days
- Strap/bandage
- For ankle sprain, use partial weight bearing crutches for 48 hours or until standing is no longer painful, then encourage full weight bearing and full range of movement
- For severe sprain:
 - as above
 - MO/NP may advise temporary splint e.g. plaster of paris until review
 - consult MO/NP/Physiotherapist if available
- Avoid HARM (heat, alcohol, running, massage) for 48 hours
- See [Simple analgesia pull out](#)

5. Follow up

- For mild/moderate sprains review patient in 48 hours and again in one week to check progress. Consult MO/NP if required
- For severe sprain consult MO/NP

6. Referral/consultation

- In mild/moderate sprains - if pain free movement not achieved in 6 weeks refer to MO/NP/Physiotherapist if available

Compartment syndrome - adult/child

Recommend

- Urgent evacuation to facility with appropriate surgical capability
- Be suspicious of compartment syndrome in patients with: tense compartments whose contralateral limb can not be clinically compared; distracting injuries or altered level of consciousness¹⁵

Background

- Compartment syndrome is caused by bleeding or oedema leading to increased pressure in a closed muscle compartment surrounded by fascia, interosseous membrane and bone. The syndrome leads to muscle and nerve ischaemia and the release of potentially lethal potassium and hydrogen ions and myoglobin. Compartment syndrome can lead to muscle necrosis, limb amputation, acute renal failure, and death¹⁵
- Compartment syndrome can be caused by crush injuries, closed fractures, snakebite, electric shock, burns, exercise and hyperthermia¹⁵

Related topics

 [Trauma and injuries, page 118](#)
 [Tetanus immunisation, page 755](#)

 [Compound fractures, page 147](#)

1. May present with

- Pain disproportionate to injury
- Severe pain on distal movement of limb e.g. great toe
- In conjunction with crush injury to arm or leg
- Often is associated with lower limb (tibial) fractures

2. Immediate management

- Rest, ice and elevate the limb
- Consult MO/NP urgently
- Splint limb without applying any circumferential casts, splints or dressings that may increase compartment pressure¹⁵
- Remove any circumferential items¹⁵
- The severe pain is due to limb ischaemia and requires urgent surgical treatment
- Insert IV cannula

3. Clinical assessment

- See [Simple fracture of limbs, page 142](#)
- Look for signs of compartment syndrome - is patient able to actively extend their great toe?
- Patient experiences severe pain on passive extension or flexion of great toe by examiner
- In the arm, movement of any finger causes severe pain
- Are peripheral pulses present? Peripheral pulses may or may not be palpable
- May affect arm or leg compartments
- Any altered sensation distal to injured area?

4. Management

- Consult MO/NP urgently
- If not allergic, give morphine (preferable) or if allergic to morphine give fentanyl. Contact MO/NP for analgesia for children
- Give metoclopramide (adult) if nauseated or vomiting
- Children should not receive metoclopramide (Maxolon[®]) or prochlorperazine (Stemetil[®]) because of the high risk of dystonic reactions^{7,8}. If an antiemetic is required for a child the MO/NP may advise ondansetron
- Arrange urgent evacuation for surgical release

Schedule	8	Morphine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL	IM/Subcut	Adult only 0.1 mg - 0.2 mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
		IV (IHW and IPAP may not administer IV)	Adult only Initial dose of 2.5 mg then 0.5 mg - 2.5 mg increments slowly, repeated every 5 minutes if required to a max. of 10 mg	
Provide Consumer Medicine Information: advise patient morphine can cause nausea and vomiting, and drowsiness				
Note: a reduced dose should be considered in patients with significant renal/liver disease. Use the lower end of the dose range in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				
2,3,4,5,18,19				

- If allergic to morphine, give fentanyl. **Note:** fentanyl has rapid onset of action

Schedule	8	Fentanyl		DTP IHW/SM R&IP
Authorised Indigenous Health Worker must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	100 microgram / 2 mL	IM/Subcut	Adult only 1.5 microgram/kg to a max. of 100 microgram	Stat Further doses on MO/NP order
		IV	Adult only 25 microgram increments slowly, repeated every 10 minutes if required to a max. of 100 microgram	
Provide Consumer Medicine Information: advise patient fentanyl can cause nausea and vomiting, and drowsiness				
Note: use with caution in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				

2,3,5,6

- If nauseated or vomiting and not allergic give metoclopramide

Schedule	4	Metoclopramide		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: tell your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Note: give IV slowly over 1 - 2 minutes				
Contraindication: in patients with epilepsy and Parkinson's disease				
Use in Pregnancy: Category A				
Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction e.g. oculogyric crisis develops give benztropine 2 mg IM or oral. Consult MO/NP. See Mental health behavioural emergencies, page 437				

7

- or prevention or treatment of nausea and vomiting in children, give ondansetron

Schedule	4	Ondansetron		DTP SM R&IP/IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Oral Disintegrating tablet (ODT) or Wafer	4 mg	Oral	Child > 6 months - 18 years 8 kg to < 15 kg dose 2 mg 15 kg to 30 kg dose 4 mg > 30 kg up to 8 mg	Stat Further doses on MO/NP order
Ampoule	4 mg/2 mL 8 mg/4 mL	IV Give slowly over 5 minutes	Child > 6 months - 18 years 0.1 mg/kg up to a max. of 4 mg	
Provide Consumer Medicine Information: ondansetron may worsen diarrhoea or cause constipation				
Note: for wafer or ODT place on top of the tongue to dissolve, then swallow				
Contraindication: in patients with congenital prolonged QT interval				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

8,9,10,11

5. Follow up

- As per MO/NP advice

6. Referral/consultation

- Consult MO/NP on all occasions of suspected compartment syndrome

Acute wounds

Acute wounds - adult/child

Recommend

- Examine all wounds for foreign bodies, bony injuries, damage to vessels, nerves and tendons, and for injury to surrounding structures
- Do not remove any large penetrating objects. Consult MO/NP
- Never use lignocaine with adrenaline in or near fingers, toes, ears, nose, penis, scotum
- Never shave/cut eyebrow when repairing wound

Background

- The aim of proper wound care is to achieve healing without infection, scarring and deformity

Specific terms

- **primary closure** is the cleaning and repair of wounds within 6 - 8 hours after injury. This usually leads to the best outcome, with least scarring
- **delayed primary closure** is the delay of repair for a few days to allow for proper cleaning, usually seen in dirty or complex wounds
- **healing by secondary intention** is leaving the wound to heal naturally, where the only intervention would be proper cleaning, appropriate dressings and/or antibiotics if indicated for infection. There is no formal closure of the wound e.g. with sutures. Scarring may be more extensive when this method is required
- **debridement** is the removal of dead and dying tissue from in and around a wound, usually with a scalpel or scissors. The longer the delay before repair, the greater amount of dead tissue will be present. Delayed primary closure involves debridement before closure. Any necrotic tissue in a wound will delay its healing¹

Related topics

 Trauma and injuries, page 118	Chronic wounds, page 397
 Chest injuries, page 127	Shock, page 55
 Tetanus immunisation, page 755	Head injuries, page 131
 Marine lacerations, page 168	Burns, page 178
 Bacterial skin infections, page 360	
 Human (tooth-knuckle) and animal bites, page 171	
 Abdominal injuries, page 139	
 Compound fractures - adult/child, page 147	

1. May present with

- As part of [Trauma and injuries, page 118](#)
- Isolated wound secondary to blunt or sharp trauma

2. Immediate management

- Control any major bleeding by applying direct pressure and/or pressure bandaging. See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Consider using a tourniquet in cases of uncontrolled, catastrophic limb haemorrhage and consult MO/NP as soon as possible after applied²
- Suturing the wound or using hair as a tie² is very effective at stopping bleeding, especially small scalp wounds
- If blood loss is heavy or continuing or there is hypotension/shock, insert largest possible IV cannula (14 G or 16 G). See [Shock, page 55](#)
- It is usual to start with IV sodium chloride 0.9% or Hartmann's solution 10 - 20 mL/kg²⁰. MO/NP will advise quantities and rate. In an adult the aim is to keep:
 - HR < 120 bpm - related to age
 - systolic BP > 90 - 100 mmHg as per MO/NP advice
 - urine output > 0.5 mL/kg/hour. See [Trauma and injuries, page 118](#)

3. Clinical assessment

- Take patient history including circumstances of injury:
 - how and when did the injury happen?
 - type of injury/wound and time until presentation (will impact on the management and healing of the wound)
 - where did the injury occur? Dirt, oil, water and other environmental hazards will all affect healing

- does the patient have peripheral vascular disease - diabetes, smoking, steroid medicines which may affect healing?
- When was the last tetanus vaccination? See [Tetanus immunisation, page 755](#)
- In medication history ask patient if they are on aspirin, warfarin/other anticoagulants or have any bleeding disorder
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - site of injury
 - could there be a foreign body? Suspect one if the injury involved:
 - stepping on anything e.g. glass, wood/sticks, metal, fish barbs, bones, some grasses
 - projectiles thrown by machinery
 - assault with knives, bottles, glass, spears, arrows etc.
 - a limb going through glass such as windscreen injuries
 - try to determine the direction of entry. This will help track the wound
 - explore the wound with a small probe or forceps - can often feel foreign body before seeing it. This will need to be done after local anaesthetic
 - do not explore deep wounds with spurting blood or near large vessels e.g. neck, groin, armpits. Consult MO/NP
 - how long and how deep is the wound?
 - is it still bleeding? Oozing dark blood suggests venous bleeding. Spurting blood is from a severed artery
 - is there visible damage or division of structures e.g. tendons, nerves, bone?
 - is there any skin or tissue loss?
 - inspect the local structures and surrounding area. With wounds on the limbs there is risk of damage to tendons, nerves and vessels which will affect function further down the limb:
 - check colour, warmth and pulses below the wound
 - check sensation around and below the wound (do this before putting in any anaesthetic)
 - get the patient to move the joints above and below the wound. Pain in the wound or in the muscles suggests tendon or muscle injury. With arm and hand injuries, assess the tendons of the hand through range of movement of any underlying tendons:
 - extensors: straighten the fingers against resistance
 - flexors: make a fist
 - thumb: raise it to the ceiling (palm up), and also make an 'O' with the little finger, both against resistance
 - is there bony tenderness to suggest an underlying fracture?
 - is there increasing swelling to suggest bleeding into the tissues?
- X-ray, if available
 - if in doubt whether there is a fracture underlying the wound. Needs to be treated as a compound fracture. See [Compound fractures, page 147](#)
 - to help localise a foreign body. Metal, bones and most glass are radio-opaque. However some glass is not, and nor is wood, grass, plastic, stone. 'No foreign body on x-ray' does not exclude a foreign body in the wound, unless you are sure it would be radio-opaque
 - if in a facility where available, ultrasound with small parts probe is best
- With wounds to the chest and abdomen, be wary of penetration through the body wall. If this is possible, or you are concerned, consult MO/NP. See [Chest injuries, page 127](#) and/or [Abdominal injuries, page 139](#)
- Document findings carefully

4. Management

- Consult MO/NP if damaged or divided tendons, nerves and vessels. Will need evacuation/surgery
- Analgesia: oral paracetamol. See [Simple analgesia pull out](#)
- Local anaesthesia, usually after basic wound cleaning:
 - 1% plain lignocaine is used in most wounds. Warn the patient it will hurt as it goes in. Inject via the wound and under the skin e.g. don't go through normal skin, it hurts more
 - 1% lignocaine with adrenaline: very useful for wounds on the trunk and scalp, as the anaesthesia lasts longer and the adrenaline cuts down bleeding. However, it should never be used in or near fingers, toes, ears, nose, penis

Schedule	4	Lignocaine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	1% 50 mg/5 mL	Subcutaneous	Adult and child ≥ 12 years and/or > 50 kg up to max. of 3 mg/kg/dose to a total max. infiltration of 200 mg Child up to max. of 3 mg/kg/dose based on actual body weight except in obese children the max. dose should be based on ideal body weight	Stat Consult MO/NP for further doses
Provide Consumer Medicine Information: if performing a digital block advise patient about onset and duration of action, and how to avoid injury to anaesthetised area				
Note: use the lowest dose necessary. Determine child's ideal weight on 50 th centile on an appropriate weight - for - age percentile chart available from http://www.rch.org.au/childgrowth/Growth_Charts Ask patient to report any drowsiness, dizziness, blurred vision, vomiting or tremors				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
3,4,24,25				

Schedule	4	Lignocaine with Adrenaline		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	1% lignocaine (10 mg/mL) with 1:200,000 adrenaline (5 microgram /mL)	Subcutaneous	Adult and child ≥ 12 years up to max. of 7 mg lignocaine/kg/ dose actual or ideal body weight whichever is less. If obese use ideal body weight. Total max. infiltration of 200 mg lignocaine if multiple injection sites	Stat Consult MO/ NP for further doses
Provide Consumer Medicine Information: advise patient about onset and duration of action, and how to avoid injury to anaesthetised area. Report any drowsiness, dizziness, blurred vision, vomiting or tremors				
Note: use the lowest dose necessary. Do not use in a penile block or near other terminal arteries e.g. fingers, toes, ears and nose. Avoid use in patients with Raynaud's phenomenon or other peripheral vascular disease. Determine child's ideal weight on 50 th centile on an appropriate weight - for - age percentile chart available from http://www.rch.org.au/childgrowth/Growth_Charts				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

3,4,24,25

3,4,24,25

Preparation for wound repair

- Remove rings, watches etc. from the affected limb
- Use a sterile field
- Clean the wound thoroughly using sodium chloride 0.9%. Antiseptic can be used for the surrounding skin. If there is a lot of dirt, grass or contamination, running tap water is very effective
- Deeper wounds need irrigation to get dirt out. Use a blunt drawing up needle or 18 G cannula, without the stylet, or a 20 mL syringe and squirt sodium chloride 0.9% into the wound. Repeat this a number of times. Use PPE. The patient will need local anaesthetic or pain relief before you do this.
- If prophylactic antibiotics are required give at time of wound closure
- Do not close wounds that are:
 - over 8 - 12 hours old - this is not absolute. Consult MO/NP
 - dirty, contaminated or infected
 - over compound fractures
 - bites. Consult MO/NP
 - tooth/knuckle injuries
 - marine (coral cuts etc.)

Wound closure

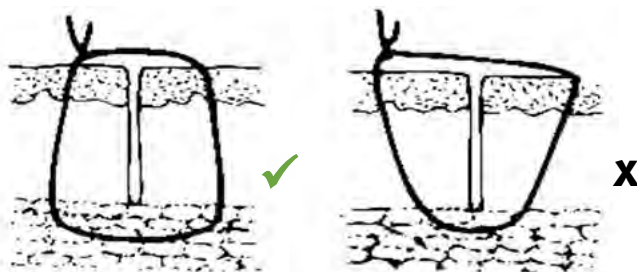
There are 5 main options for wound treatment and closure

- Leave it open to the air:
 - for grazes and very superficial cuts in clean dry areas of the body
- Simple dressings:

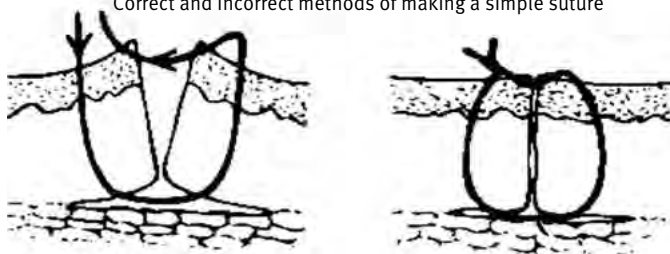
- for grazes and small cuts in moist areas (groins, armpits etc.) and areas of the body prone to getting dirty
- Adhesive skin strips e.g. Steristrips®:
 - good for children, small lacerations, some facial wounds and finger lacerations, skin tears in the elderly and especially for wounds over the shin, even large ones
 - don't work well in larger wounds > 2 - 3 cm or gaping wounds, those under tension, or wounds in very mobile parts of the body e.g. joints. Don't use them if they are likely to get wet or rub off. Suture instead
 - 3M Cavilon® skin barrier wipe on the skin helps them stick
- Sutures:
 - nylon or silk sutures are used for the skin:
 - 5/0 or 6/0 for the face
 - 4/0 or 5/0 for hands
 - 3/0 for the back, soles and sometimes scalp and calf
 - absorbable sutures e.g. Vicryl rapide®, can be used for deeper layers, mucosa of the mouth and vagina
 - sutures cause a normal pink foreign body inflammation around the wound. This is lessened with synthetic sutures
- Tissue adhesive (skin glue) e.g. Dermabond® or Histoacryl®
 - skin glue is typically used in areas where:
 - 5/0 or 6/0 non absorbable sutures are used e.g. face, torso and extremities
 - the wound is less than 3 cm in length with edges easily held together
 - the wound is an uncontaminated superficial wound
- After repairing the wound, elevation is very important to lessen pain, swelling and risk of infection

Suturing

- The aim is to eliminate dead space in the wound, evert the skin edges (like puckered lips) and bring skin edges together with the minimum of tension
 - clean and debride the wound first. Take your time
 - hair can be removed from the wound edges with scissors or a scalpel blade, but keep it to a minimum - approximately 1 cm. Never remove eyebrows
 - do not suture a wound that needs a lot of tension to bring it together e.g. where there has been tissue loss. Keep it clean and consult MO/NP
 - enter the skin with the needle about 5 mm from the wound edge. Go straight down, across, then straight up and exit the skin about 5 mm from the wound's other edge
 - place the first suture halfway along the wound, and continue to divide the wound in half with the other sutures. This will bring the edges together well. The first suture makes it easier to put all the rest in, but it may lose tension when the others are completed. If so, take it out and re-insert suture
 - when suturing a 'V' or 'Y' shaped wound, align the point of the 'V' first
 - if the wound crosses wrinkles or skin creases, these must be lined up as well as possible
 - don't be afraid to take sutures out again if they are in the wrong place
 - if you are not happy repairing any wound, don't do it². Consult MO/NP



Correct and incorrect methods of making a simple suture



Making a vertical mattress suture²

Removal of sutures

- Scalp 6 days
- Face 3 - 5 days
- Hands, arms 7 - 10 days
- Trunk and legs 10 - 14 days
- Some or all sutures may come out sooner if the wound becomes infected and later if the wound does not look and feel firm yet. It may help to apply adhesive skin strips e.g. Steristrips[®] after removal

Special lacerations

- Face
 - only repair these if you are confident of getting a good result, as cosmetic outcome is very important. They should be repaired within 6 - 8 hours of injury. A dressing on the repaired wound is not always necessary. Be aware that there may be damage to facial nerves
- Inside the mouth
 - these heal very well without sutures, unless there is full thickness penetration of the cheek, in which case they need specialised repair, consult MO/NP. It will look grey and sloughy after a few days, but mouth rinses after each meal will help to keep it clean and it should be healed within a week
- Lips
 - lips swell enormously when wounded. Lips often only need suturing if there is gross displacement of large flaps. Small lacerations will heal without sutures as for wounds inside the mouth
 - **Note:** if the wound crosses the edge of the lip onto normal skin (the vermillion border) it needs to be realigned exactly to avoid an unsightly cosmetic result
- Eyelid
 - if these are full thickness they need specialised repair. Consult MO/NP

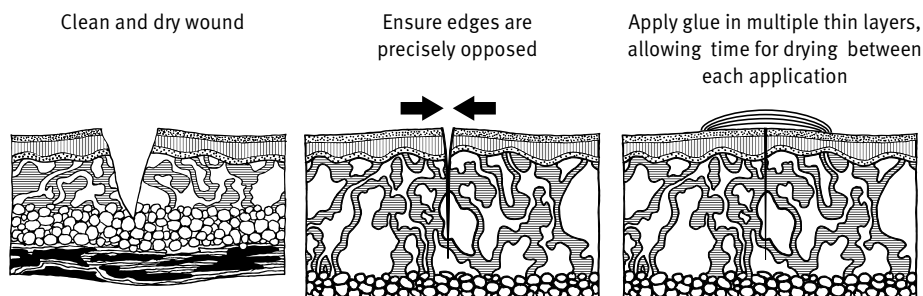
- Fingers
 - finger lacerations - check for tendon and nerve damage
 - fingers swell after injury so ensure rings are taken off
 - sutures will pull out of the tissue as the finger enlarges, so keep sutures to a minimum. Alternatively, use Steristrips®
 - most finger lacerations can be treated without sutures. Use Steristrips® carefully to keep wound edges approximated. Circumferential or tightly tensioned Steristrips® can cause vascular occlusion
 - apply a non-adherent dressing e.g. Melolin®, and bandage the whole finger so that it stays straight (if the finger is straight, the wound edges will stay together and it will heal). Review in 2 - 3 days
- Finger tips
 - cuts to the finger tips often leave a flap of skin, which may or may not come off
 - skin flap not lost
 - reapply the flap over the wound and secure it loosely with Steristrips®. Cover with a non-adherent dressing, and bandage the finger to keep it straight. Review in 2 - 3 days. Hopefully the flap will 'take' and act as a graft onto the wound. More often the flap will die off, but at least it covers the wound well until it heals
 - skin flap lost
 - fingers regenerate skin very well, especially in children. Clean the wound and apply a vaseline gauze type dressing. If possible follow that with an absorbent foam dressing or a non-adherent dressing, then bandage the finger. Review daily. If large wounds (over 1 sq. cm) consult MO/NP
- Crush injuries
 - e.g. finger caught in a door - the finger is often lacerated. Leave the nail on if at all possible. Clean and dress the finger, and review daily. Consult MO/NP and x-ray to look for an underlying fracture, which should be treated as a compound fracture. See [Compound fractures, page 147](#)
- Amputations
 - surgical repair may be possible
 - clean the stump, and apply a simple sodium chloride 0.9% dressing to keep it moist
 - put the amputated part in a clean plastic bag and seal it. Put this bag in a mix of crushed ice and water (the amputated part should not get wet or frozen) for transport
 - consult MO/NP who will arrange evacuation/hospitalisation in an appropriate facility
 - don't forget to send the amputated part with the patient

Skin glue

- A tissue adhesive glue can be used successfully to close superficial, smooth and clean wounds. Skin glue is typically used in areas where:
 - 5/0 or 6/0 non absorbable sutures are used e.g. face and extremities
 - the wound is less than 3 cm in length with edges easily held together
 - the wound is an uncontaminated superficial wound
 - skin glue should **not** be used in the following:
 - mucosal surfaces, mucocutaneous junctions, hands, feet, or joints
 - areas where wound is under tension
 - areas of high or prolonged moisture or dense hair or
 - in patients who have:
 - peripheral vascular disease
 - diabetes
 - prolonged corticosteroid use
 - a sensitivity to formaldehyde

Note: skin glue should never be placed in the wound or subcutaneously as it can cause necrosis or foreign body reaction and tattooing. Avoid contact around eyes. Eye should be padded to avoid any glue dripping in the eye or onto the eye lashes⁶

- Application method (see diagram)
 - approximate the skin edges (no dead space) and paint the wound line with a small amount of glue
 - apply the glue in multiple thin layers (at least 3), allowing time for drying between each application. Skin glue generates heat and may be uncomfortable if applied too thickly
 - avoid introducing any glue into wound or gluing yourself (including gloves or equipment) to the patient
 - continue to hold the wound edges together for at least 30 seconds after applying the glue. This method prevents pooling or running of the glue
 - subsequent layers can be applied over the top of the initial layer
 - if gluing the forehead or in the vicinity of the eye, the eye should be padded to avoid any glue dripping into the eye or onto eyelashes
 - skin glue does not require removal - sloughs off in 5 - 10 days⁶

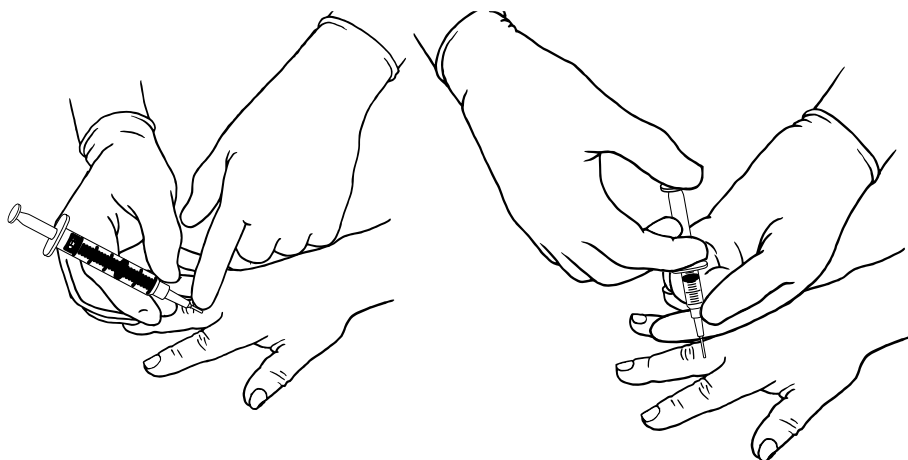


Antibiotics

- Are not needed for recent clean wounds, especially if cleaned properly
- Should be used for:
 - compound fractures. See [Compound fractures - adult/child, page 147](#)
 - marine wounds. See [Marine lacerations, page 168](#)
 - bites. See [Human \(tooth-knuckle\) and animal bites, page 171](#)
 - established infection. See [Bacterial skin infections, page 360](#)

Digital nerve block

- Digital nerves run along each side of the phalanx. By infiltrating lignocaine around the nerves, the digit is anaesthetised. Thumbs and great toes can be more difficult to anaesthetise
 - technique (see diagram)
 - use 1% plain lignocaine. Never use lignocaine with adrenaline
 - use a sterile field
 - clean the digit with alcohol antiseptic
 - infiltrate the lignocaine near the digital nerve on each side of the dorsum of the finger, avoiding the joint. Keep infiltration as close to the bone as possible
 - use approximately 1 - 2 mL of lignocaine on each side (thumbs and great toes may require more)
 - draw back regularly to avoid injecting into a blood vessel
 - wait at least 5 minutes for the anaesthetic to take effect

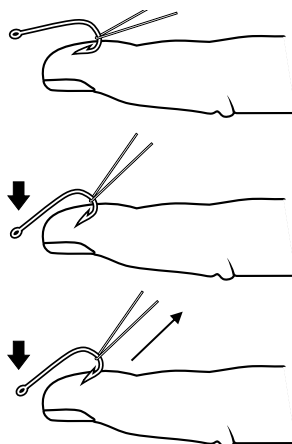


Removal of small embedded fish hook

- Large hooks may require surgical intervention. Consult MO/NP
- If ocular involvement consult MO/NP immediately

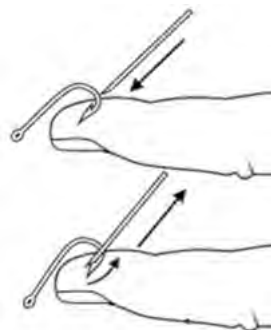
Method 1.

- A length of string or fishing line tied in a loop is looped around the bend in the hook as shown
- A quick, firm tug on the loop of string is necessary to dislodge the hook
 - in most cases local anaesthesia is unnecessary
 - local anaesthesia may be necessary if the hook is awkwardly placed e.g. the finger is encircled by the bend in the hook making placement of the loop difficult

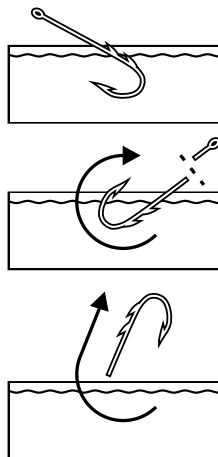


Method 2.

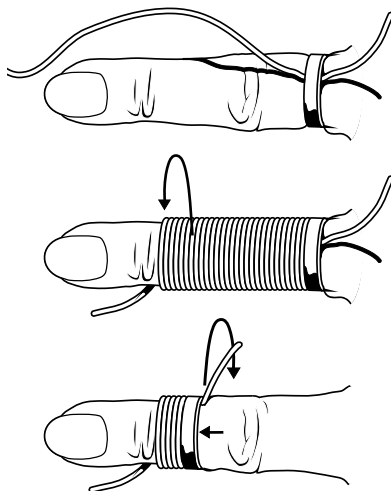
- Insert a hypodermic needle (18 G or larger) along the barbed side of the hook, with the bevelled part of the point towards the inside of the hook's curve
- Pull gently on the shank to disengage the barb inside of the hook's curve
- Then push the needle gently downwards until its hole locks over the barb
- Rotate the hook shank slightly downward and the hook curve upwards until the needle and hook are removed through the original wound

**Method 3.**

- Always have needle holding forceps holding at least one end of the hook, so as not to lose the hook
- Grip the hook with needle holding forceps advancing the hook through the tissue until the barb end of the hook penetrates through the skin at a separate location
- Cut the eye off the hook with a pair of wire cutters. Always protect the eyes of patients/staff and others before cutting the hook
- Grip the barbed end of the hook with needle holding forceps and guide the hook out²

**Removal of tight ring²**

- Using 3/0 nylon suture material or other strong fibre e.g. string, dental floss or thin elastic
 - feed one end of fibre or elastic under ring (a paper clip makes a good hook)
 - holding the end that was threaded under the ring, wind the rest of the fibre or elastic firmly and closely around the finger
 - keep tension on the fibre or elastic
 - unwind the fibre or elastic by pulling the end that was threaded under the ring towards end of the finger
 - several repetitions of the process may be required
 - if unsuccessful use ring cutter



5. Follow up

- All lacerations should be reviewed after 1 - 2 days, and again after 5 - 7 days

6. Referral/consultation

- Consult MO/NP as above and if:
 - tendons, nerves and vessels are involved
 - any wound is not healing
 - infection does not settle. See [Bacterial skin infections, page 360](#)



Marine lacerations - adult/child

Background

- Wounds sustained in salt water e.g. coral cuts, are prone to infection with a wide range of organisms

Related topics



[Acute wounds, page 157](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)



[Toxinology/bites and stings, page 258](#)



[Tetanus immunisation, page 755](#)

1. May present with

- Cut/laceration(s) from coral, oysters, bottles on the beach, sharp objects in fresh water or salt water
- Fish stings
- Foreign body - embedded stingray barb, fish spine (from bullrout, catfish, stonefish), glass
- Fever, cellulitis

2. Immediate management

- If associated with envenomation may require resuscitation
- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)

3. Clinical assessment

- See [Acute wounds, page 157](#)

4. Management

- Consult MO/NP if:
 - any marine lacerations, stings or wounds that cannot be adequately cleaned - which may require excision of tissue or foreign body
 - suspected tendon or joint involvement
 - wounds over chest or abdomen
 - wound not healing
 - patient is diabetic
 - patient has liver disease
- Give analgesia if required. See [Simple analgesia pull out](#)
- Thorough wound cleaning is essential. See [Acute wounds, page 157](#)

- Take wound swab for MC/S to guide subsequent treatment prior to commencing antibiotics. See [How to collect a wound swab/culture, page 401](#)
- Do not suture. Allow to heal by secondary intention, unless a large wound in which case consult MO/NP as delayed primary closure may be required
- May require incision of wound and removal of foreign body
- Close supervision is required as infection may spread rapidly. Instruct patient to return if any signs of infection - redness, swelling, increase in pain
- Check tetanus status. See [Tetanus immunisation, page 755](#)
- If marine laceration is infected:
 - if mild case treat as per cellulitis. See [Cellulitis/erysipelas, page 370](#)
 - if a pathogen has been identified through pathology treat as per sensitivities
 - if a contaminated wound consult MO/NP who may prescribe ciprofloxacin²³ plus clindamycin if patient not allergic

Schedule	4	Ciprofloxacin		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	250 mg 500 mg	Oral	Adult and child ≥ 12years 500 mg bd Child < 12 years 12.5 mg/kg/dose up to a max. of 500 mg bd	7 days
Provide Consumer Medicine Information: take on an empty stomach - either 1 hour before, or 2 hours after meals. Drink plenty of fluids. Consumption of dairy products, iron or calcium supplements will reduce absorption of ciprofloxacin - do not take within 2 hours of a ciprofloxacin dose. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the ciprofloxacin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: reduce dose if CrCl < 30 mL/minute. Interacts with warfarin - monitor INR. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by ciprofloxacin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: if allergic to ciprofloxacin or other quinolones, G6PD deficiency, pregnant				
Use in Pregnancy: Category B3. Consult MO/NP for advice				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
				6,7,23

- Plus

Schedule	4	Clindamycin		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	150 mg	Oral	Adult and child ≥ 12 years 450 mg tds Child < 12 years 10 mg/kg/dose tds to a max. of 450 mg tds	7 - 10 days
Provide Consumer Medicine Information: take with a full glass of water. Take until course completed unless advised by your health professional to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the clindamycin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by clindamycin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Administration tips: There is no oral liquid, however a 50 mg/mL clindamycin solution can be made before each dose by:				
• dissolving the contents of 1 capsule in 2 mL water • draw this solution into a syringe and make the volume up to 3 mL • discard any excess solution so that the required dose remains in the syringe • mix the dose in juice or soft food to disguise the taste before giving				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
				8,9,23

5. Follow up

- All marine lacerations should be monitored closely as infection may spread rapidly - instruct patient to return if any signs of infection e.g. redness, swelling, increase in pain
- Review at a minimum 1 - 2 days and again after 5 - 7 days, or earlier if necessary

6. Referral/consultation

- Consult MO/NP as above and if:
 - tendons, nerves and vessels are involved
 - any wound is not healing
 - infection
 - wound over chest or abdomen

Human (tooth-knuckle) and animal bites - adult/child

Recommend

- Consider dog and cat bites to be usually infected. Human bites are **always** infected especially bites wounding the hands

Background

- A tooth-knuckle injury is usually a bite injury from a punch in the mouth. The wound is very close and risks damage to bones, joints, tendons, with a high risk of infection causing osteomyelitis or septic arthritis. **These can be very serious** and end up in an amputation. If there is tendon involvement or bony tenderness consider a fracture to be present and consult MO/NP

Related topics

 [Acute wounds, page 157](#)

 [Tetanus immunisation, page 755](#)

1. May present with

- History of fight/punch/bite
- Injury to hand/knuckles
- Evidence of human or animal bite to some part of patient's body
- Bat bite/scratch. See [Bat bite/scratch, page 176](#)

2. Immediate management

- Attend to any bleeding. See [Acute wounds, page 157](#)

3. Clinical assessment

- See [Acute wounds, page 157](#)

4. Management

- Consult MO/NP for all tooth-knuckle injuries
- Low risk wounds:
 - antibiotics may not be necessary for:
 - mild wounds not involving bones, joints, tendons
 - wounds that can be adequately debrided and irrigated
 - that are seen within 8 hours¹¹
- High risk wounds:
 - wounds having a high risk of infection include:
 - wounds with delayed presentation (8 hours or more)
 - puncture wounds unable to be debrided adequately
 - wounds on hands, feet or face
 - wounds with underlying structures involved e.g. bones, joints, tendons
 - wounds in the immunocompromised patient¹¹
- Consult MO/NP if presentation is delayed or infection established (swelling, decreased range of movement, or pus). Patient may need IV antibiotics e.g. ceftriaxone and oral metronidazole, and likely evacuation/surgical drainage
- Assess need for tetanus prophylaxis. See [Tetanus immunisation, page 755](#)

- Take wound swab. See [How to collect a wound swab/culture, page 401](#)
- Thorough wound cleaning is essential. See [Acute wounds, page 157](#)
- Debride dead tissue and irrigate copiously
- Do not suture. Allow to heal by secondary intention
- Elevate and immobilise affected limb
- Larger wounds may need delayed primary closure. Consult MO/NP
- Review daily and dress with non-adherent dressing e.g. Melolin®
- If not allergic treat high risk wounds or mild infections with amoxycillin/clavulanic acid

Schedule	4	Amoxycillin/clavulanic acid		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	875 mg/125 mg	Oral	Adult and child ≥ 12 years 875 mg/125 mg bd	5 days
Suspension	400 mg/57 mg per 5 mL		Child > 2 months - < 12 years 22.5 mg + 3.2 mg/kg/dose bd up to a max. of 875 mg/125 mg bd (Calculate dose based on the amoxicillin component)	
Provide Consumer Medicine Information: take medicine with food. Take until course completed unless advised by your health profession to stop. Patients should report development of diarrhoea immediately to their health professional. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware of cross-reactivity between penicillins, cephalosporins and carbapenems. Interacts with warfarin - monitor INR. Consult MO/NP for children < 2 months of age or patients with severe renal impairment. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: if history of severe or immediate allergic reaction to a penicillin				
Use in Pregnancy: Category B1. If pregnant consult MO/NP				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

11,12,13,14

11,12,13,14

- If lack of adherence is anticipated or delay in commencing oral antibiotics treat with IM procaine penicillin followed by amoxycillin/clavulanic acid as above¹¹

Schedule	4	Procaine penicillin		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Pre-filled syringe	1.5 g	IM	Adult 1.5 g Child 50 mg/kg/dose to a max. of 1.5 g	Stat
Provide Consumer Medicine Information: patients should report development of diarrhoea immediately to their health professional. Tell your health professional if you get severe pain in the muscle where the injection was given, or if you get a sore white mouth or tongue				
Note: use a concentration of 442 mg/mL when measuring part doses - refer to product information. Interacts with warfarin - monitor INR. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillins. If the patient develops severe diarrhoea contact the MO/NP immediately. Prolonged use of penicillins may lead to the development of oral candidiasis. Be aware of cross-reactivity in patients with allergy to carbapenems and/or cephalosporins				
Contraindication: in patients with a history of hypersensitivity to penicillins				
Use in pregnancy: Category A				
Administration tips: see Administration tips for benzathine penicillin (Bicillin LA) and procaine penicillin, page 768				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

11,15,16

- If allergic to penicillin, treat with metronidazole plus doxycycline

Schedule	4	Metronidazole		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg 400 mg	Oral	Adult 400 mg bd	5 days
Suspension	200 mg/5mL		Child 10 mg/kg/dose bd to a max. of 400 mg bd	
Provide Consumer Medicine Information: avoid alcohol while taking and for 24 hours after taking this medicine. Take tablets with food or immediately after food to reduce stomach upset, the suspension is best absorbed if taken 1 hour before food. Take until course completed unless advised by your health professional to stop. Tell health professional if a sore white mouth, tongue or vagina develops. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the metronidazole has been stopped				
Note: be aware that metronidazole potentiates the effect of warfarin - monitor INR. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by metronidazole. If the patient develops severe diarrhoea contact the MO/NP immediately				
Use in pregnancy: Category B2. Consult MO/NP for advice				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

11,17,18

- Plus

Schedule	4	Doxycycline		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet / capsule	50 mg 100 mg	Oral	Adult Initial dose 200 mg then 100 mg daily Child > 8 years Initial dose 4 mg/kg/dose to max. of 200 mg then 2 mg/kg/dose daily to a max. of 100 mg daily	5 days
Provide Consumer Medicine Information: take with a large glass of water plus some food or milk. Remain upright (do not lie down) for an hour after taking a tetracycline. Do not take iron, calcium, zinc, or antacids within 2 hours of taking doxycycline. Avoid sun exposure, wear protective clothing and use sunscreen while taking doxycycline. Take until course completed unless advised by your health professional to stop. Patients should report development of diarrhoea immediately to their health professional. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by doxycycline. Interacts with warfarin - monitor INR. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: in patients with allergy to tetracyclines or concurrent treatment with retinoides				
Use in pregnancy: safe in the first 18 weeks of pregnancy. Doxycycline can cause enamel loss and staining of developing teeth and should not be taken after 18 weeks of pregnancy, the neonatal period, and the first 8 years of life				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

11,19,20

5. Follow up

- All bites should be reviewed daily, especially tooth-knuckle injuries. If swollen, decreased range of movement or pus, consult MO/NP

6. Referral/consultation

- Consult MO/NP for all tooth-knuckle injuries and for all bites that are not healing
- Referral to Physiotherapist for hand therapy

Bat bite/scratch - adult/child

(Australian Bat Lyssavirus and other rabies virus exposures/infection)

Recommend

- Contact MO/NP with any possible/or suspected history of bat scratch/bite, or direct contact with the mucous membrane (e.g. nose, eyes, mouth) or broken skin, with the saliva or neural tissues of a bat or a wild or domestic terrestrial mammal in countries where rabies is prevalent as this requires urgent medical response

Background

- The term 'rabies' refers to disease caused by any of the known lyssavirus species as the clinical disease caused by classic rabies virus and other lyssaviruses is indistinguishable²¹
- Be aware that Lyssavirus infection can arise in overseas travellers who have returned to Australia from countries with rabies in animals such as monkeys and dogs - this includes Bali, Indonesia

1. May present with

- Suspected history of bat scratch/bite
- Direct contact with the mucous membrane (e.g. nose, eyes, mouth) or broken skin, with the saliva or neural tissues of a bat or a wild or domestic terrestrial mammal in countries where rabies is prevalent

2. Immediate management

- Wash, don't scrub wound(s) with soap and copious water for at least five minutes as soon as possible after exposure. Apply virucidal antiseptic such as povidone-iodine, iodine tincture, aqueous iodine solution or alcohol (ethanol) if available²²

2. Clinical assessment

- Record as much information as possible including:
 - when, where, how
 - is it a bite, a scratch, or direct contact with broken skin or mucous membrane
 - did the injury draw blood
 - was the bat displaying unusual behaviour and the current disposition of the bat that caused the injury
- What is the rabies vaccination status of the patient e.g. overseas travellers or bat handlers may have been vaccinated
- Assess need for tetanus prophylaxis. See [Tetanus immunisation, page 755](#)
- Testing of the bat is done occasionally where it is safe to do so. **Note:** only appropriately vaccinated and trained people, wearing protective gloves and clothing, should handle bats. Seek advice from Public Health Unit

4. Management

- Contact MO/NP immediately
- MO/NP will contact Public Health Unit who will advise about the administration of post exposure prophylaxis (PEP) as soon as practicable, preferably within 48 hours of exposure. PEP regime depends on rabies vaccination status, exposure and timing. PEP comprises rabies vaccine course +/- human rabies immunoglobulin. See current edition of the *Australian Immunisation Handbook* available at www.immunise.health.gov.au/
- Do not suture wound

5. Follow up

- See Referral/consultation

6. Referral/consultation

- ① Report any suspected rabies virus or lyssavirus including Australian bat lyssavirus infection, based on pathological diagnosis to your local Public Health Unit by telephone: <http://conditions.health.qld.gov.au/HealthCondition/condition/14/217/10/Australian-Bat-Lyssavirus>

Subungual (under the fingernail or toenail) haematoma - adult/child

- Usually caused by a direct blow to the end of a finger/toe. Blood collects under pressure beneath the nail, throbs and is very painful

Procedure for management of pain control if necessary

- Release of the blood is needed to ease the pain. The puncture is performed at the base of the nail where there is greater space between the nail and the bed (and more effective drainage) while reducing the chances of accidental (painful) penetration of nail bed
- Attach a large (18 G) needle to a 3 mL syringe and using gentle downward pressure rotate it back and forth between thumb and forefinger until it drills through the base of the nail and blood seeps up through the hole
- The nail should be painted or irrigated with Betadine® daily, then covered with a simple dressing for a few days

OR

- Heat the end of a straightened paper clip until red hot. Candles or gas lighters may deposit carbon on the nail which can result in tattooing
- Gently push it vertically down into base of the nail over the blood, and the blood will escape through the hole
- The blood separates the nail from the sensitive bed underneath, so the process will be painless
- Check last tetanus vaccination. See [Tetanus immunisation, page 755](#)
- A large haematoma e.g. almost the whole nail area, is usually caused by much greater force, and may have a significant laceration to the nail bed with fracture of the underlying bone. Consult MO/NP who may order x-ray if available
- Check daily for a few days

Burns

Burns - major/minor/chemical - adult/child

Recommend

- Contact MO/NP early for analgesia order in children
- Keep the patient with major burns warm with space blanket, especially children
- Give analgesia as soon as possible (pain is a major presenting symptom in burns^{1,2}. However patients with full thickness burns may have no pain)
- Provide first aid as soon as possible. Use cool running tap water (never ice or iced water) for 20 minutes to stop burning, effective up to 3 hours following the burn. Be careful not to cause hypothermia, especially in children. If chemical burn flush with copious amounts of water. If dry chemical first remove chemical prior to irrigation¹
- Cling wrap should be used for initial dressing for major burns¹ up to 6 hours following burn. If transfer is delayed beyond this then it should be changed to an antimicrobial dressing
- Consult MO/NP as early as possible for:
 - patient may require intubation - respiratory problems may occur due to breathing in steam, flames, smoke or toxic fumes, or burns to head and neck
 - burns which circle a limb or chest (circumferential) may impair circulation and breathing. Elevation of affected limbs will reduce swelling and maintain circulation. If circulation or breathing is compromised then an escharotomy to release the tissue may be required - consult immediately with the burns unit.
 - burns involving face/neck/genitals/hands/feet
 - infants/babies
 - electrical burns, as tissue damage may be deeper than it appears
 - chemical burns
 - any concerns/uncertainty with regard to patient or any burn meeting referral criteria
- In North Queensland, for assistance with management of burns in children email photos of burns to NQBurns@health.qld.gov.au
- In Queensland, for assistance with management of burns in adults contact Royal Brisbane and Women's Hospital switchboard ☎ 07 3646 8111 and ask for Registrar on call who may request photos to be emailed including patient name, date of birth, MO/NP name and phone number to burns@rbwh.com.au
- New South Wales <http://www.aci.health.nsw.gov.au/resources/burn-injury>
- Victoria www.vicburns.org.au

Background

- Remember that burns with no splash marks and with defined lines around perineum, feet or hands in children may indicate non-accidental injury

Related topics

-  [Trauma and injuries, page 118](#)
-  [Tetanus immunisation, page 755](#)
-  [Intraosseous infusion, page 49](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Oxygen delivery systems, page 44](#)
[Shock, page 55](#)
[Burns dressings, page 188](#)
[Electrocution/electric shock, page 107](#)
[Toxicology/carbon monoxide, page 238](#)

On presentation of burn patient

First aid for burns

Stop, drop, cover and roll if on fire
 Apply cool running water for at least 20 minutes
 Keep rest of body warm to prevent hypothermia
 Remove clothing and jewellery

Perform primary and secondary surveys

Obtain clear history of burn injury

- mechanism of injury - how and when burnt?
 - any first aid - what, how long?
 - were clothes removed?
- Continue cooling if within 3 hours of burn

Give appropriate pain relief

Assess % total body surface area (TBSA) using 'rule of nines'
 See [Assessment and examination of skin, hair and nails, page 358](#)

Do the patient's burns meet referral criteria?

• Burns > 10% TBSA	• Burns in children > 5% TBSA
• Full thickness burns > 5% TBSA	• Burns with inhalation injury
• Burns with pre-existing illness	• Electrical burns
• Burns associated with major trauma	• Chemical burns
• Non-accidental injury	• Burn injury in pregnant women
• Burns of special areas - face, hands, feet, genitalium, perineum, major joints and circumferential limb or chest burns	• Burns at the extreme of age - young children and the elderly

Available from Australian and New Zealand Burn Association: <http://anzba.org.au/care/referral-criteria>

Yes

MO/NP refer to appropriate Burns Unit

- Queensland Adult Burns Centre Royal Brisbane and Women's Hospital 07 3646 8111
- The Townsville Hospital (for North Queensland children with up to 35% TBSA)
 Contact Paediatric Surgeon on call ☎ 07 4433 1111 or
- Lady Cilento Children's Hospital Brisbane
 ☎ 07 3068 1111

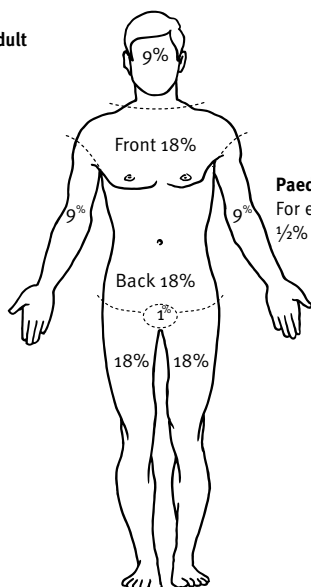
No

Minor burn:

- Assess burn wound
- Apply appropriate dressing
- Arrange follow up dressing and review
- Prescribe pain relief as required

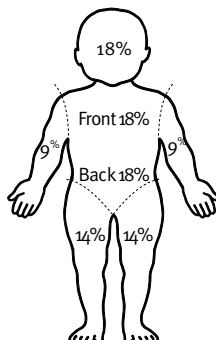
Assessment of % total body surface area (TBSA) - Rules of nines¹

Adult



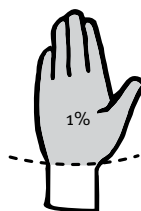
Paediatric

For every year of life after 12 months take 1% from the head and add $\frac{1}{2}\%$ to each leg, until the age of 10 years when adult proportions



Palmar

Patient's palm + fingers = 1%



Burn assessment¹

Depth	Pathology	Colour	Circulation	Sensation	Blisters	Healing time
Epidermal burn (erythema)	Involves epidermis only	Red (and warm to touch)	Normal increased	Present	None or later (days) or desquamation	Within a few days
Superficial - mid dermal burn (superficial partial thickness)	Involves epidermis and upper dermis, most adnexal structures intact	Pink	Hyperaemic	Painful ++ hypersensitive	Yes (hours)	Within 2 to 3 weeks by re-epithelialisation from epidermal elements in dermis minimal scarring
Mid - deep dermal burn (mid - deep partial thickness)	Involves epidermis and significant part of dermis, only deeper adnexal structures intact	Pale pink/ blotchy red	Sluggish to absent	Decreased sensation	Early. Usually large and rupture within hours	Longer than 2 to 3 weeks high risk of hypertrophic scarring
Full thickness	Epidermis, dermis and cell adnexal structures destroyed	White and/or charred	Nil	Nil	No blistering (epidermis destroyed)	No healing granulation and wound contraction leads to chronic ulceration

Major burns - adult/child

1. May present with

- Pain or painless - patient with full thickness burns may have no pain
- Visible and/or hidden burns (check under hair)
- Associated respiratory burns, respiratory distress with stridor and/or wheeze
- Hypotension
- Shock
- Altered level of consciousness from hypotension, head injury or inhalation burn
- Associated traumatic injuries from fall, blast, structure collapse

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- **Remove patient from danger (without endangering yourself)**
- Put out burning clothing e.g. rolling patient on the ground covered with a blanket
- If clothing still smouldering put out with large amounts of cool water
- Perform primary and secondary surveys
- Remove clothing, rings, watches, jewellery and belts
- Immediately cool burnt area for 20 minutes under cool running water (can be tap water). Be careful to avoid hypothermia. Keep non-affected areas warm and dry
- Give O₂ to maintain saturation > 93% adult or > 95% child. See [Oxygen delivery systems, page 44](#)
- If you suspect inhalation burns, e.g. black soot around the nose, mouth or face, burnt nasal hairs and altered voice, give O₂ via a non-rebreathing mask - a Hudson mask is not sufficient. Contact MO/ NP immediately. Consider intubation early as swelling may occur and compromise airway
- If cervical spine cleared, raise head of bed to reduce swelling
- Give analgesia
- Use cling wrap for initial dressing as keeps burn moist and allows easier assessment on arrival at burns unit. Limbs can be wrapped loosely with a non-adherent dressing and a loose bandage. Keep affected limbs elevated to minimise swelling and maintain perfusion, especially in circumferential burns³
- Consult MO/NP as soon as possible as patient may require intubation and fluid resuscitation¹
- Insert 2 x large bore IV cannulas (14 G or 16 G for adults, 22 G for children, if possible). Insert the largest possible in the circumstances, through unburnt skin if possible but if necessary through a burnt area

3. Clinical assessment

- Obtain emergency patient history including:
 - circumstances and mechanism of burn e.g. electrical, flame, contact, chemical, scald
 - the time burn occurred
 - how long patient was exposed to energy source
 - whether in enclosed or open space - if enclosed greater risk of inhalation burn
 - is there a risk of other injuries such as fall from height, road accident, explosion
 - any first aid measures taken
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Inspect burnt area and work out the percentage of body surface and depth affected by burns^{1,2}. Do

not count areas that are only erythematous (red) without blisters or loss of skin. See [Assessment and examination of skin, hair and nails, page 358](#)

- Carefully inspect the mouth, nose and auscultate the chest for air entry and added sounds to determine if respiratory tract burns
- For patchy burns in an adult and paediatric patients, the area of patient's hand is about 1% (roughly work out how many 'hands' the burnt area covers)
- If able to, photograph burn wounds and send by email once discussed with relevant MO/NP
- Burns are tetanus prone wounds. Check last tetanus vaccination. See [Tetanus immunisation, page 755](#)

4. Management

- Consult MO/NP who will arrange retrieval for patients with major burns and advice for patients with minor burns. See [Burns referral criteria, page 179](#)
- Analgesia
 - MO/NP will give order for analgesia in children
 - intravenous is the preferred route of administration for opioid analgesics for severely injured patients if IV line in situ
 - give morphine (preferable) or if allergic to morphine give fentanyl. Give metoclopramide (adult) if vomiting or nauseated
 - children should not receive metoclopramide (Maxolon®) or prochlorperazine (Stemetil®) because of the high risk of dystonic reactions. If an antiemetic is required for a child the MO/NP will likely advise ondansetron

Schedule	8	Morphine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL	IM/Subcut	Adult only 0.1 mg - 0.2 mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
		IV (IHW and IPAP may not administer IV)	Adult only Initial dose of 2.5 mg then 0.5 mg - 2.5 mg increments slowly, repeated every 5 minutes if required to a max. of 10 mg	
Provide Consumer Medicine Information: advise patient morphine can cause nausea and vomiting, and drowsiness				
Note: a reduced dose should be considered in patients with significant renal/liver disease. Use the lower end of the dose range in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				
4,5,6,14,15,16				

4,5,6,14,15,16

- If allergic to morphine give fentanyl. **Note:** fentanyl has a rapid onset of action

Schedule	8	Fentanyl		DTP IHW/SM R&IP
Authorised Indigenous Health Worker must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	100 microgram / 2 mL	IM/Subcut	Adult only 1.5 microgram/kg to a max. of 100 microgram	Stat Further doses on MO/NP order
		IV	Adult only 25 microgram increments slowly, repeated every 10 minutes if required to a max. of 100 microgram	
Provide Consumer Medicine Information: advise patient fentanyl can cause nausea and vomiting, and drowsiness				
Note: use with caution in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				
4,5,7,8,17				

Schedule	4	Metoclopramide		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: tell your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Note: give IV slowly over 1 - 2 minutes				
Contraindication: in patients with epilepsy and Parkinson's disease				
Use in Pregnancy: Category A				
Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction e.g. oculogyric crisis develops give benztropine 2 mg IM or oral. Consult MO/NP. See Mental health behavioural emergencies, page 437				

- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - monitor urine output
 - MO/NP may ask the patient to be catheterised
 - aim for 0.5 mL/kg/hour urine output in adults and 1 mL/kg/hour in children
- Fluid resuscitation in patients with 10% to 15% burns and above¹
 - insert 2 x largest possible bore IV cannula (14 G or 16 G for adults, 22 G for children, if possible). Insert through unburnt skin if possible but, if necessary through a burnt area
 - if intravenous access is unable to be established use intraosseous infusion. See [Intraosseous infusion, page 49](#)
 - IV Hartmann's solution¹ is used for the first 24 hours after burns, MO/NP will advise quantities and rate. Calculate fluid replacement as below:
 - modified Parkland formula: 3 to 4 mL x weight (kg) x % TBSA, given in first 24 hours (over and above maintenance fluids for children)¹
 - half the fluid replacement is given in the first 8 hours, and the rest over the next 16 hours. The fluid replacement requirement must be worked out from the time of the burns, not the time the patient presents for treatment
- Keep patient warm, wrap in space blanket
- Remove rings, watches, jewellery. Cut if required
- Cover burns with cling film e.g. Glad Wrap[®], or a non-adherent dressing and a loose bandage. Elevate affected limbs and monitor circulation on circumferential burns
- Tar or bitumen: Ensure first aid has been applied. Do not remove bitumen. Seek advice from a specialist burns unit³ who may advise bitumen removal using orange oil (De-Solv-it[®]), paraffin, or other oil
- See [Bitumen burns, page 187](#) under [Chemical burns, page 186](#)
- Additional management issues:
 - extensive burns may cause ileus (bowel obstruction) in which case MO/NP may advise to pass a nasogastric tube. Allow free drainage and aspirate periodically
 - remember the respiratory tract can be burnt. Patients can develop altered voice, stridor or wheezing. Early intubation and ventilation could be required. Consult MO/NP urgently
 - antibiotics are not indicated for clean burns unless there is evidence of cellulitis or gross contamination
 - keep the patient warm

5. Follow up

- Transfer to Burns Unit
- Speech Pathologist may be required for ongoing management of patients with respiratory burns

6. Referral/consultation

- Consult MO/NP regarding need for evacuation/hospitalisation in an appropriate facility. See [Burns referral criteria, page 179](#)

Minor burns - adult/child

1. May present with

- Superficial - mid dermal burns.

Note: the depth of a dermal thickness burn may take up to 7 - 10 days to declare itself as superficial or deep¹⁰
- Epidermal burns e.g. sunburn

2. Immediate management

- Ensure adequate cooling and analgesia
- Superficial:
 - cool burnt area with cool running water for 20 minutes within the first 3 hours from injury. Hypothermia must be prevented
 - clean with sodium chloride 0.9%
 - give pain relief as required

3. Clinical assessment

- See [Major burns, page 181](#)

4. Management

- A dressing functions to prevent infection and provide a moist wound healing environment. Choose a dressing regime which can be competently applied and will maximize patient adherence
- If the patient is for immediate transfer consult burns service who may advise to dress wound with Silver sulphadiazine and Melolin®
- For superficial or mid-dermal wounds, that are likely to heal without the need for surgical intervention i.e. less than 2 weeks to close, the following 4 antimicrobial (antiseptic) dressing options are recommended:
 - Silver sulphadiazine cream is easy to apply and easy for patient to mobilise. Requires daily dressing change which may cause more pain. Silver sulphadiazine cream should only be used on advice of burns service. Use with caution in children and pregnant women near term
 - Acticoat® is a comfortable dressing. Can stay intact for 3 - 7 days. Must be kept moist with water
 - Mepilex Ag®. A very comfortable foam dressing that can stay intact for 3 days. Especially useful for dressings over mobile areas such as joints and hands
 - Allevyn Ag®. Similar properties to Mepilex Ag® however less conforming and absorbent
- Switch to a simple paraffin based dressing (e.g. Bactigras®, Xeroform®) once the wound is pink and there is no eschar (dead dermis), and the risk of infection is reduced³
- See [Burns dressings, page 188](#)

Schedule	4	Silver sulphadiazine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Cream	1%	Topical	Adult and child > 1 month apply a 3 - 5 mm thick layer at each dressing change	3 days topically
Provide Consumer Medicine Information: do not apply to face				
Note: must only administer or supply on advice of a burns service. Contents of one container are for 1 patient only - no sharing. 250 g and 500 g jars must be discarded 24 hours after opening. Tubes must be discarded 7 days after opening. Store < 25°C				
Contraindication: Not to be used at or near term pregnancy, in premature infants or neonates. Do not apply to face. Avoid contact with eyes				
Management of associated emergency: consult MO/NP				

11,18

- Analgesia
 - children and infants respond well to an initial therapeutic dose of intranasal fentanyl especially for superficial burns (intranasal fentanyl preferred as IM morphine absorption may be unreliable) until the pain subsides naturally after 1 - 2 hours. Consult MO/NP
 - oral analgesia may be adequate for some minor burns. See [Simple analgesia pull out](#)

5. Follow up

- If in North Queensland adequately consented photos of burns in children can be emailed to NQBurns@health.qld.gov.au at the Townsville Hospital for assistance with management of dressings
- Review wounds depending on the appropriate regime for the dressing used. This may be daily or third daily. Updated photos may be taken and forwarded to the burns unit for ongoing advice
- Tank/bore water can be boiled or bottled water can be used as an alternative to clean wounds
- Infection is indicated by fever, increasing wound pain, redness, swelling and purulent exudate. Take wound swab. Consult MO/NP
- See next MO/NP clinic for any burns not healed in 10 days

6. Referral/consultation

- Consult MO/NP including need for transfer/hospitalisation in an appropriate facility. See [Burns referral criteria, page 179](#)

Chemical burns - adult/child

Recommend

- Immediate management with copious irrigation with sterile water or sodium chloride 0.9%
- Do not attempt to neutralise the chemical as most resultant reactions produce heat and will exacerbate the injury (except in the case of hydrofluoric acid)
- Consult MO/NP for all chemical burns, especially for those involving eyes

Background

- Alkali substances are found in the following: drain cleaners, oven cleaners, denture cleaners, cement, household bleach, pool chlorine, ammonia in cleaners and detergents and dishwashing detergents
- Acid substances include: toilet bowl cleaners, metal cleaners, battery fluid, fertiliser manufacturing, swimming pool cleaners, laboratory chemicals, rust proofing
- Hydrofluoric acid is a chemical compound used in electroplating, stain removal, glass etching, refining and light bulbs

Related topics

 [Burns, page 178](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)

1. May present with

- Visible burns - may be little or no skin changes with hydrofluoric acid burn
- Pain maybe extreme and out of proportion to burn appearance due to deeper tissue toxicity
- Hypotension/shock
- History of exposure to chemical agent
- Hydrofluoric acid exposure

- Very rarely, low serum calcium, low serum magnesium or high serum potassium leading to cardiac arrest may follow absorption of hydrofluoric acid by the skin from as little as a 2% body surface area burn with concentrated 70% hydrofluoric acid solution

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Take precautions (gloves, plastic apron, goggles) to prevent contact with chemical
- Remove contaminated clothing
- Any dry chemical e.g. cement or lime should be brushed away and remove contaminated clothing before irrigating with large amounts of running water

3. Clinical assessment

- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Include in history circumstances of chemical burn, agent if known, and time injury occurred. See [Major burns, page 181](#) and [Minor burns, page 184](#)

4. Management

- Consult MO/NP
- Do not attempt to neutralise the chemical as most resultant reactions produce heat and will exacerbate the injury (except in the case of hydrofluoric acid)

Hydrofluoric acid burns

- Consult MO/NP for all hydrofluoric acid burns
- Time from exposure to symptoms are dependent on concentration of agent (> 40% within an hour and < 10% up to 24 hours)
- Burns of 3 - 4% TBSA have caused deaths
- Weak acid that penetrates tissues very well and binds to calcium and magnesium
- Conversion of hydrofluoric acid to the calcium salt is not associated with heat production and is achieved by covering the burn with gauze soaked in 10% calcium gluconate solution. Alternatively 10 mL of 10% calcium gluconate solution can be combined with 30 mL of water soluble gel and applied¹²
- Calcium chloride solution should not be used as it may cause tissue necrosis

Bitumen burns¹⁰

- Consult MO/NP for all bitumen burns who may advise removal using orange oil (De-Solv-It®), paraffin, or other oil
- Ensure first aid has been applied
- Do not remove bitumen. Cold bitumen will form a waterproof, sterile layer of the burns which will prevent the burn from drying out
- Seek specialist advice
- Extensive and full thickness burns - refer to a burns unit. Generally indicates active removal of bitumen, which should be carried out by a specialist in an operating theatre.
- Circumferential burns - where hardened bitumen is causing constriction, elevate the limb and in consultation with the burns unit soften and/or split to prevent blood flow restriction
- Bitumen burns to the eye - do not attempt to remove the bitumen. Refer urgently for specialist medical assessment and treatment
- Do not use petrol, kerosene or acetone as these can cause toxicity

Burns dressings¹³

Type of dressing	Product/what?	Function/why?	Indication/when?	Application/how?	Note/precaution
Antimicrobial/antiseptic	Silver sulphadiazine cream - Flamazine cream®	• Anti-microbial • Maintains moist wound environment that promotes healing • Easy to apply • Easy for patient to mobilise • Penetrates eschar	• Superficial or mid dermal wounds, likely to heal without the need for surgical intervention i.e. < 2 weeks to close • Transfer/retrieval • Applicable to all areas of the body except the face • Switch to simple paraffin based dressing once the wound is pink and there is no eschar (dead dermis), and risk of infection is reduced	• Apply 2 - 3 mm cream onto wound • Smear cream on, no need to rub it in • Ensure all broken areas and blisters are covered • Cover cream with melolin® and secure with bandage • Change dressing daily	• Use only on the advice of burns service • Use with caution in children and pregnant women near term • Do not use on face • Daily dressing changes may be associated with more pain • Daily dressing allows for daily checking of wound for signs of infection
	Acticoat®	• Anti-microbial • Maintains moist wound environment in the presence of exudate that promotes healing	• Epidermal/dermal burns with a layer of hydrogel e.g. Solosite® • Switch to simple paraffin based dressing once the wound is pink and there is no eschar (dead dermis), and risk of infection is reduced	• Cut Acticoat to size of raw area • Wet Acticoat in water to moisten • Spread hydrogel e.g. Solosite® onto blue side of dressing if required • Acticoat blue side down on wound • Cover Acticoat areas with hyperfix • Can shower and lightly wet the affected areas, then pat dry • DO NOT saturate Acticoat • Dressing changed every 3 - 7 days	• Must be kept moist with water • Can cover final dressing with Glad Wrap® to retain moisture • Contraindicated for patients hypersensitive to silver • Do not use normal saline to moisten Acticoat® as it alters the silver compound
	Mepilex Ag®	• Anti-microbial • Soft/comfortable • Over mobile areas e.g. joints and hands • Absorbs exudate	• Epidermal/dermal burns • Switch to simple paraffin based dressing once the wound is pink and there is no eschar (dead dermis), and risk of infection is reduced	• Cut to cover burn area and approx. 2 cm around wound • A generous layer of paraffin or hydrogel e.g. Solosite® under Mepilex Ag® helps keep wound moist • Secure foam (with hyperfix or cohesive bandage) and change every 3 days	• Foam must be in contact with wound at all times • Dressing must be kept dry

(continued)

Burns dressings¹³

Type of dressing	Product/what?	Function/why?	Indication/when?	Application/how?	Note/precaution
Paraffin based dressing	Xeroform® (fine mesh impregnated gauze)	• Non-adherent • Maintains moist wound environment • Deodorizing action	• Once the wound is pink and there is no eschar (dead dermis) - after about 1 week and the risk of infection is reduced	• Cover with Xeroform® (can apply thick layer of soft white paraffin first then cover with Xeroform®)	
	Bactigras® (gauze impregnated with white paraffin containing 0.5% chlorhexidine)	• Slow- release anti-septic • Non-adherent • Maintains moist wound environment • Decreases exudate formation	• Once the wound is pink and there is no eschar (dead dermis), and the risk of infection is reduced OR • In conjunction with Silver sulphadiazine to lift eschar/ pseudo membrane	• Once wound is pink and no eschar (after about 1 week) cover with Bactigras® • Change dressing second daily OR • When used to help lift eschar / pseudo membrane in conjunction with Silver sulphadiazine • Cut Bactigras® to size of wound with clean scissors. • Place Bactigras® on wound. • Smear Silver Sulphadiazine cream over the top of the Bactigras® • Cover with melolin and heavy crepe bandage. • Bactigras® and Silver sulphadiazine cream are changed daily	• Do not apply coarse weave Vaseline gauze directly to an open wound as it may stick to wound

5. Follow up

- See [Major burns, page 181](#) and [Minor burns, page 184](#)

6. Referral/consultation

- See [Major burns, page 181](#) and [Minor burns, page 184](#)
- Consult MO/NP for all burns

Environmental emergencies

Decompression illness (DCI/bends) - adult/child

Recommend

- Always keep patient flat - never head down - if decompression illness (DCI) suspected¹
- Give as close to 100% O₂ as possible and continue until patient reaches hyperbaric chamber or ordered by MO/NP to remove
- Assume DCI until proven otherwise with all symptoms occurring during or up to 48 hours after SCUBA diving in an otherwise fit and healthy person
- Aspirin is no longer recommended²

Background

- Early onset of symptoms or altered level of consciousness indicates serious decompression illness
- DCI is due to the changes in pressure while diving resulting in nitrogen bubble formation in the blood or tissues³
- Recompression (in a hyperbaric chamber) is the universally accepted standard for the treatment of DCI³
- Australia wide: contact Divers Alert Network ☎ 1800 088 200 for advice or your local hyperbaric unit
 - Queensland
 - Townsville Hospital - Hyperbaric Unit ☎ 07 4433 2080 or after hours ☎ 07 4433 1111
 - Royal Brisbane and Women's Hospital - Hyperbaric Unit ☎ 07 3646 0241 or after hours ☎ 07 3636 8111
- It is important that any patient evacuated is transported at an altitude of < 300 metres/1000 ft (road or helicopter) or by an aircraft capable of pressurising the cabin to the equivalent of sea level⁴

Related topics

 [Trauma and injuries, page 118](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Drowning/submersion, page 89](#)
[Traumatic rupture of the eardrum, page 699](#)

1. May present with

- Signs and symptoms may occur during, immediately after a SCUBA dive, or develop up to 48 hours afterwards
- Signs and symptoms include:
 - extreme fatigue

- numbness/tingling or altered sensations
- headache or other body pain, especially at or around joints
- poor balance or coordination
- irritability, confusion or reduced consciousness
- weakness, paralysis, physical collapse
- rash
- speech, visual or hearing disturbances⁵

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient](#), page 36
- Remove patient from water
- Expired air resuscitation (EAR) should never delay the recovery of a diver to a platform or the shore
- Assess and treat associated problems
- See [Drowning/submersion](#), page 89 and/or [Trauma and injuries](#), page 118
- **Lie patient flat.** Raising the head may cause sudden deterioration and death due to a large gas bubble travelling to the brain
- The patient's airway may need to be managed as they may be unable to protect their airway
- **Do not place patient in head down** position as may increase bubbles in coronary arteries¹
- Give high flow 100% O₂ and continue until patient reaches hyperbaric chamber or ordered by MO/NP to remove
- Insert IV cannula - aim to restore and maintain normal hydration (most divers are dehydrated). IV sodium chloride 0.9% at least 10 - 20 mL/kg¹² over 30 minutes on MO/NP instruction. Avoid using solutions containing glucose⁴
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Consult MO/NP

3. Clinical assessment

- Obtain emergency patient history - details of dive(s): number over recent days, duration, bottom time (the time from beginning descent to beginning direct ascent), depth, surface intervals, decompression stops, speed of ascent, date and time of dive(s), surface interval between dives, time interval between completing the dive and onset of symptoms⁴
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
- Examination of the nervous system including mini-mental state examination to assess cognitive function. Available from: http://qheps.health.qld.gov.au/mentalhealth/docs/a_mini_men_exam.pdf

4. Management

- Consult MO/NP
- If to be evacuated
 - the patient will need to be kept flat until reaches hyperbaric chamber unless MO/NP advises otherwise
 - high flow O₂ must continue until patient reaches hyperbaric chamber, unless this takes many hours. MO/NP may advise air breaks
 - keep warm
- Oral clear fluids as advised by MO/NP, if no altered level of consciousness

- Pain management - patients with severe pain require adequate analgesia
 - IV analgesia is the preferred route of administration for opioid analgesics for DCI
 - if not allergic, give morphine (preferable) and metoclopramide on MO/NP orders
 - **nitrous oxide/O₂ mix ('Entonox®') must not be used for DCI**
- Indwelling catheter (IDC) if required
- If seizure occurs see [Fits/convulsions/seizures, page 72](#) for medication
- **Note:** Aspirin should not be used for fear of promoting bleeding in any area of 'bubble damage'¹²

5. Follow up

- All patients with symptoms after SCUBA diving should see an MO/NP familiar with diving injuries/illnesses as soon as can be arranged even if DCI has been excluded in consultation with MO/NP
- Other conditions need consideration such as barotrauma of the middle ear, including ruptured eardrum and inner ear, which can lead to permanent deafness if not diagnosed early and treated. See [Traumatic rupture of the eardrum, page 699](#)

6. Referral/consultation

- Consult MO/NP on all symptoms occurring up to 48 hours after SCUBA diving
- For location of nearest hyperbaric facility or advice on management and retrieval - Divers Alert Network ☎ 1800 088 200. http://www.danap.org/emergency/hotline_numbers.php

Hypothermia - adult/child

Recommend

- Do not remove wet clothing if there is no dry blanket or other suitable cover
- Do not place the patient in a warm bath
- Infants and elderly people are at greatest risk of hypothermia

Background

- Definition⁶ - hypothermia is when a body's core temperature falls below 35°C.
- Normal temperature ranges (adult)
 - oral 36.8 ± 0.7°C
 - axilla generally 0.5 - 1.0°C lower
 - rectal generally 0.5 - 1.0°C higher
- Hypothermia may occur in any setting or season. The elderly are more susceptible to environmental hypothermia, while in non-elderly the most common precipitants of hypothermia include injury, systemic illness, drug overdose and immersion
- The hypothermic heart is very sensitive to movement therefore rough handling of the patient may precipitate arrhythmias including ventricular fibrillation (VF) or asystole⁴

Related topics

 [Trauma and injuries, page 118](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Drowning/submersion, page 89](#)
[Toxicology/poisoning/overdose, page 224](#)
[Transient ischaemic attack \(TIA\) and stroke, page 114](#)
[Unconscious/altered level of consciousness, page 52](#)
[Cardiorespiratory arrest, page 38](#)

1. May present with

- Mild hypothermia (rectal temperature 32°C to 35°C)
 - tachycardia
 - environmental exposure - wet, windy
 - patient - shivering, pale, skin cool to touch
 - impaired coordination
 - slurred speech
 - confused or apathetic
- Moderate to severe hypothermia (rectal temperature 29°C to 32°C)
 - absence of shivering
 - increasing muscle stiffness
 - progressive decrease in consciousness
 - slow irregular pulse - slow atrial fibrillation or junctional bradycardia
 - hypotension
- Very severe hypothermia (rectal temperature < 29°C)
 - cardiac arrhythmias
 - severe hypotension
 - cardiac arrest
 - fixed dilated pupils
 - patient appears dead
 - weak slow pulse
 - loss of reflexes

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Remove from cold environment, wet clothing, contact with cold surfaces, windy environment
- Dry patient if wet
- Apply insulation between body and the environment e.g. blanket, space blanket

3. Clinical assessment

- Obtain complete patient history
 - recent environmental history/exposure to cold, wet and windy conditions, cold water immersion/submersion, exhaustion
 - trauma
 - exposure to alcohol/other drugs/sedatives
 - period of time since exposure
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - ECG and ongoing monitoring
 - capillary BGL
- Bloods for urea and electrolytes
- Perform physical examination
 - is skin cold, patient shivering?
 - examine for injuries and signs of infection, malnutrition, pressure areas

4. Management

- Consult MO/NP

- If conscious and tolerated, give warm caloric oral fluids (not alcohol)
- External warming
 - passive (rewarming rate 0.5 - 2°C/hour achieved)
 - remove wet clothing, only if there is a dry blanket or other suitable cover
 - cautiously apply external heat such as heat pack, body to body contact, warm blankets
 - place in a warm environment
 - avoid burns by ensuring any heat source is warm or tepid but not hot
 - active external (rewarming 2°C/hour achieved)
 - use heat sources such as Bair Hugger® or Warm Touch® blankets where available
- Generally aim to warm 0.5 - 2°C/hour⁷
- MO/NP may order glucose 10% IV commenced at 100mL/hour (3 - 5 mL/kg /hour for children) through large peripheral vein - aim for BGL between 5.5 - 11 mmol/L⁸

5. Follow up

- Consult with MO/NP prior to discharge, despite temperature

6. Referral/consultation

- Consult MO/NP for all patients for advice on management and arrange evacuation/hospitalisation. In severe hypothermia, admission to a high dependency unit is necessary^{7,8,9}

Heat exhaustion/heat stroke/hyperthermia - adult/child

Recommend

- Immediate management for heat stroke. True heat stroke is a medical emergency and multi-organ failure is common¹¹
- Do not induce shivering, as this will result in heat gain
- IV fluids should be used with caution in heat stroke as pulmonary oedema can develop¹⁰

Background

- Normal ranges of temperature - adult
 - oral $36.8 \pm 0.7^{\circ}\text{C}$
 - axilla generally 0.5 - 1.0°C lower
 - rectal generally 0.5 - 1.0°C higher

Definitions

- **Heat exhaustion** - a heat-related disorder often known as exercise associated collapse (EAC) and is associated with dehydration. The body's normal heat dissipation capacity is maintained
- **Heat stroke** - the core body temperature is $> 40^{\circ}\text{C}$ and the body's capacity to dissipate heat is lost, and results in organ failure. Heat stroke can be non-exertional (occurs as a result of an impaired thermoregulation or hot environment) or exertional (exercise in high ambient temperatures and humidity)¹⁰

Related topics

 [Hypoglycaemia, page 78](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Toxicology/poisoning/overdose, page 224](#)

1. May present with

Heat exhaustion	Heat stroke
• Temperature typically $< 40^{\circ}\text{C}^{10}$ • Headache, nausea or vomiting • Collapse • Postural dizziness • Pale cool/moist skin • Muscle cramps • Profuse sweating	• Core temperature of $\geq 40^{\circ}\text{C}^{10}$ • Confused, drowsy, seizures, altered consciousness, altered neurological signs¹⁰ • Hot dry skin. May have sweating in exertional form • Abnormal glucose level • Cardiovascular collapse (cardiac arrhythmias, clotting disorder) • Muscle weakness, cramps and pain • Bruising and haemorrhage

2. Immediate management

Heat stroke

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Aggressively cool
 - place patient in cool place, with full circulating air, remove unnecessary clothing
 - place wrapped ice packs over large blood vessels of axillae (armpits), neck or groin. Do not place ice directly against skin
 - spray or sponge the torso and limbs with **tepid water** and then fan
 - aim to cool at least $0.1^{\circ}\text{C}/\text{minute}$
- Consult MO/NP
- Maintain adequate oxygenation i.e. O_2 sats $> 94\%$
- Insert IV cannula
- Connect to ECG monitor
- Control shivering - can cause an increase in core temperature
 - treat by covering patient with a sheet until it stops or small doses of titrated IV diazepam (0.02 mg/kg for adult and child on MO/NP order)
- Check capillary BGL - if $< 3 \text{ mmol/L}$. See [Hypoglycaemia, page 78](#)
- Insert indwelling catheter (IDC)

3. Clinical assessment

- Obtain complete patient history
 - recent environmental history/exposure, level of exercise and ambient temperature, snakebite, poisoning/overdose or new psychiatric medications, other illnesses
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - take core temperature (if equipment available)
 - capillary BGL
 - skin - moist and cool or hot and dry?
 - observe colour of urine and urinalysis for blood. If positive could be red blood cells (bleeding) or rhabdomyolysis (muscle breakdown)
- Perform physical examination
- Perform point of care testing for urea and electrolytes if possible

- Perform ECG and monitor

4. Management

Heat exhaustion

- Lie in supine position, ideally with legs elevated
- Specific cooling is not required
- Remove patient from hot environment/trigger
- Remove excess clothing¹¹
- Give oral fluids e.g. water or Gastrolyte®/Hydralyte® if available, unless vomiting is present
- IV sodium chloride 0.9% will provide more rapid recovery, but rarely needed
- Monitor temperature
- Consult MO/NP

Heat stroke

- See Immediate management of heat stroke
- Consult MO/NP - arrange evacuation/hospitalisation
- Aim to reduce core body temperature to around 38°C
- Avoid paracetamol, ibuprofen, and aspirin as they are ineffective as antipyretics in heat-related illness

5. Follow up

- Consult with MO/NP prior to discharge, despite temperature
- Give patient education on prevention of heat-related illness

6. Referral/consultation

- Consult MO/NP for all heat stroke patients to advise on management and arrange evacuation/hospitalisation

Ear, nose and throat emergencies

Nose bleed/epistaxis - adult/child

Recommend

- Provide immediate management if nose bleed is profuse or is not stopped. It can easily lead to hypotension/shock, especially in the elderly

Background

- Most common reasons for epistaxis is upper respiratory infection, with mucosal congestion and vasodilatation and trauma (nose picking)
- Most cases occur in children under 10 years
- Usually spontaneous in children, occurring from the anterior part of the nose
- In adults, occurs more posteriorly and may be associated with high blood pressure or a bleeding condition. If a patient is very hypertensive consider reducing BP to decrease bleeding. See [Acute hypertensive crisis, page 108](#)

Related topics[DRS ABCD resuscitation/the collapsed patient, page 36](#)[Shock, page 55](#)**1. May present with**

- Nose bleed
- Swallowing or spitting up blood if from posterior part of the nose
- Increased HR, hypotension/shock if heavy or continuing loss

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Sit patient up, leaning forward
- Clear clots by blowing nose
- Wear gloves, hold nose firmly between thumb and forefinger to apply pressure on the bleeding point for 10 - 15 minutes
- Instruct patient to breathe through mouth

3. Clinical assessment

- Obtain complete patient history - include past episodes of epistaxis, history of upper respiratory tract infection. It is important to ascertain if the bleeding began in the back of the neck, or anteriorly in the nose¹
- Medicines - is the patient on warfarin, aspirin, NSAID, anticoagulants?
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - central capillary refill
- Perform physical examination
- Encourage patient to spit blood out and not swallow - swallowing blood often results in nausea

4. Management

- If bleeding continues, consult MO/NP, who will likely advise insertion of an anterior nasal pack - see diagram on following page
- If bleeding continues or you suspect blood is coming from the posterior part of the nose, consult MO/NP who will likely advise posterior nasal packing
- Patients should only be discharged with nasal packing following advice from the MO/NP
- Patients discharged with nasal packing should be prescribed a penicillin or first-generation cephalosporin to prevent sinusitis - consult MO/NP
- Oral analgesics should also be considered
- Advise patients to avoid aspirin, aspirin-containing products, and NSAID
- Remove anterior pack next day. If bleeding recurs, consult MO/NP and replace with fresh packing
- If blood loss is heavy or continuing, or there is increased HR or hypotension/shock, insert largest bore IV cannula possible (14 G or 16 G). Consult MO/NP
- It is usual to start with IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate. See [Shock, page 55](#)
- When bleeding has stopped instruct the patient not to sniff, blow or pick their nose for 10 days¹
- Consult MO/NP for all epistaxis post surgery

- Evacuation/hospitalisation is necessary if the bleeding does not stop
- See [Simple analgesia pull out](#)

Anterior nasal packing

- A nasal tampon may be used. Always wear gloves, mask and goggles
- Consult MO/NP before proceeding to insert nasal tampon. Lignocaine + phenylephrine spray may be used to anaesthetise the nasal cavity

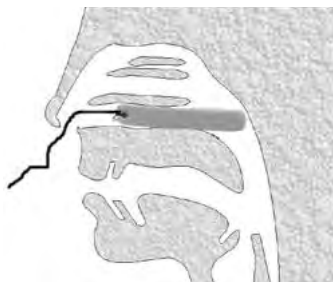
Schedule	2	Lignocaine/phenylephrine hydrochloride		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP RN and SM R&P. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Spray	5% lignocaine - 0.5% phenylephrine hydrochloride	Intranasal	Adult and child ≥ 12 years up to a max. 5 sprays/nostril Child 2 - 4 years 1 spray/nostril 4 - 8 years 2 sprays/nostril 8 - 12 years 3 sprays/nostril	Stat
Provide Consumer Medicine Information: do not eat or drink, and be aware of biting tongue, for two hours after this treatment. There may be a bitter taste that disappears quickly. Report any dizziness, disorientation, tinnitus, tremors or vomiting				
Notes: use a new nozzle attachment for each patient.				
Contraindication: do not use in pregnancy or for children < 2 years				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

3

3

Nasal tampon

- Merocel[®] nasal tampons are the easiest to use². However a Kaltostat[®] pack or vaginal tampon can be used



- Apply lubricant jelly to the nares (do not apply to tampon as it will cause the tampon to expand) to facilitate placement
- The nasal tampon is inserted carefully along the floor of the nasal cavity, where it expands on contact with blood or other liquid

- After the nasal tampon is inserted it may be necessary to drip sodium chloride 0.9% or water into the nostril to achieve full expansion of the tampon if the bleeding has decreased at the time of insertion
- Tape the string to the nose and trim ends
- Remove nasal tampon after 24 hours
- Moisten the nasal tampon with sodium chloride 0.9% before removing²
- Complications include septal hematomas and abscesses from traumatic packing, sinusitis, neurogenic syncope during packing, and pressure necrosis secondary to excessively tight packing

Posterior nasal packing



- Consult MO/NP before proceeding to insert posterior nasal packing. Lignocaine + phenylephrine spray may be used to anaesthetise the nasal cavity
- Rapid temporary control of posterior nose bleed is gained by inserting a foley urinary catheter into the nostril. Sedation may be necessary
- Lubricate the catheter and advance far back along the floor of the nose
- Once the tip passes beyond the palate into the oropharynx, blow up the balloon with 5 mL of air and pull the catheter gently forward until resistance is felt. Inject another 3 - 5 mL of air. The catheter is now lodged in the posterior nose⁴
- There should be enough tension on the catheter to arrest the bleeding
- An anterior pack is then inserted
- The catheter can be held in place by a clip
- If it is unclear which side a posterior epistaxis is coming from or the single catheter fails to arrest the epistaxis, it may be necessary to remove the catheter and insert another catheter into the other nostril

5. Follow up

- Review all patients next day
- Advise to avoid alcohol and hot drinks until review
- Advise patients to avoid aspirin, aspirin-containing products and NSAID. If patient is on regular anticoagulation therapy consult MO/NP
- Next MO/NP clinic for all cases except minor non-recurring nose bleeds in children
- Recurrent nose bleeds in children can warrant silver nitrate cautery
- Nose bleeds in adults may need further investigation

6. Referral/consultation

- Consult MO/NP for all cases that require anterior or posterior nasal packing or where blood loss is heavy or continuing or there is increased HR or hypotension/shock

Gastrointestinal emergencies

Acute abdominal pain - adult/child

Recommend

- Consider ectopic pregnancy in all women of child bearing age (12 - 52 years) who present with abdominal pain and/or vaginal bleeding
- Patients with abdominal pain should be given adequate analgesia. Adequate analgesia can aid diagnosis and does not conceal signs of acute abdomen¹

Background

- It is not necessary for the Registered Nurse or Aboriginal and/or Torres Strait Islander Health Worker to make a definitive diagnosis. It is more important to recognise cases which are significant, and to be able to present the history and findings in an ordered manner to the MO/NP
- Abdominal pain due to pancreatitis can be a complication of *Streptococcus pyogenes* infections

Related topics

-  [Vaginal bleeding in early pregnancy, page 504](#)
-  [Low abdominal pain in female, page 597](#)
-  [Renal colic, page 217](#)
-  [Acute retention of urine, page 220](#)
-  [Bacterial skin infections, page 360](#)
-  [Upper respiratory tract infection, page 294](#)
-  [Acute rheumatic fever, page 672](#)
-  [Acute post streptococcal glomerulonephritis, page 667](#)

- [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- [Upper gastrointestinal bleeding, page 212](#)
- [Rectal bleeding, page 214](#)
- [Testicular/scrotal pain, page 222](#)
- [Bowel obstruction, page 215](#)

1. May present with

- Abdominal pain
- No appetite, nausea, vomiting
- Can't pass wind, constipation
- Vomiting up blood (haematemesis) or passing blood or tar-like (melena) bowel motions. See [Upper gastrointestinal bleeding, page 212](#) and [Rectal bleeding, page 214](#)
- Fever, sweats, rigors
- Jaundice
- Abdominal wall pain/lump
- Scrotal pain. See [Testicular/scrotal pain, page 222](#)
- Abdominal distension or mass
- Inability to pass urine
- Vaginal bleeding
- Increased HR

- Hypotension/shock

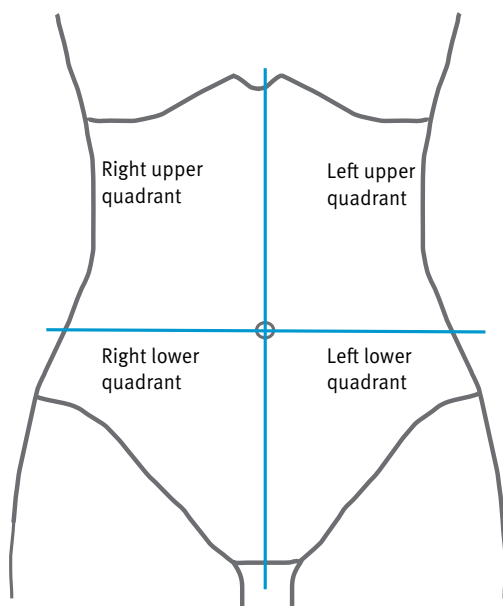
2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Perform rapid clinical assessment
- If hypotension/shock insert largest bore IV cannula possible (14 G or 16 G)
- It is normal to start with IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate
- Give patient nil to eat or drink
- Consult MO/NP urgently who will advise further management and arrange evacuation/hospitalisation

3. Clinical assessment

- If severe acute abdominal pain, assessment may be easier after analgesia is given. IM opioid or preferably IV titrated to patient needs. Consult MO/NP
- Obtain complete patient history - a detailed history and examination will provide enough evidence to establish an appropriate course of management to contend with the likely diagnosis:
 - previous history of similar episodes
 - past medical and surgical history
 - current medicines and family history
 - menstrual history in women: are periods regular, when was the last, was it normal, is the woman taking any contraception?
 - alcohol intake - current and past
 - history of recent trauma
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - urinalysis
 - urine pregnancy test (β hCG) if childbearing age (12 - 52 years) female. If positive see [Vaginal bleeding in early pregnancy, page 504](#) and consider possibility of tubal/ectopic pregnancy
 - BGL
- Assessment of the pain
 - check pain scale (0 - 10), how severe is the pain?
 - where is the pain? does it radiate? if so, where to? shoulder-tip pain?
 - is the pain sharp or dull, cramping?
 - the degree of pain at onset and over time
 - does the patient get some relief by moving about e.g. colic such as renal, biliary or bowel colic or does relief come from lying very still e.g. peritoneal irritation/peritonitis from any cause?
 - are there any associated signs or symptoms
 - e.g. no appetite, nausea, vomiting
 - last bowel movement, any blood observed or black and tar-like stools (melena)?
 - diarrhoea, constipation?
 - fever, sweating, rigors?
 - any blood, cloudy or offensive urine, burning or pain on passing?
 - any jaundice
 - any arthralgia
 - any recent weight loss
- Perform physical examination:
 - inspection
 - is the abdomen distended or not?
 - is the shape of abdomen symmetrical?

- are there scars present?
- what is the colour and pigmentation?
- inspect the hernial areas
- inspect the scrotum in a male
- auscultation (listen with stethoscope)
 - bowel sounds are sometimes useful, but may be difficult to interpret. Absence or faint tinkling suggests bowel obstruction. See [Bowel obstruction, page 215](#)
 - listen to the chest for air entry and added sounds (wheezes and crackles). Pneumonia and heart attack can present with abdominal pain
- percussion (tapping)
 - all four quadrants (right lower quadrant, right upper quadrant, left upper quadrant and then left lower quadrant)
 - is there dullness over any areas - liver? stomach? intestines? spleen? bladder?
 - ask the patient to sit up if possible and check kidney area
- palpation
 - gentle palpation of the abdomen commencing at a site far removed from the indicated site of pain
 - where is the maximal tenderness?
 - is there any guarding?
 - are there any masses?
 - palpate the hernial areas above and below inguinal ligaments
 - palpate the scrotum in a male
 - loins: sit the patient up and palpate over the renal angles for tenderness
- Rectal examination - it is not necessary for Nurses/Health Workers to perform in cases of acute abdominal pain but it is essential in cases of haematemesis or cases of unexplained hypotension/shock to detect melaena (digested blood from upper gastrointestinal tract bleeding). See [Upper gastrointestinal bleeding, page 212](#)



Causes of acute abdominal pain

Right hypochondriac

- gall bladder - biliary colic or cholecystitis
- hepatitis - alcoholic or infective
- pneumonia
- liver abscess/tumour - rare

Epigastric

- gastritis or gastric / duodenal ulcer
- pancreatitis
- heart attack
- ruptured aortic aneurysm

Left hypochondriac

- pneumonia
- pancreatitis
- ruptured spleen

Right lumbar

- urinary tract infection
- renal colic

Right lumbar

Right iliac

Right iliac

- appendicitis
- tubal/ectopic pregnancy
- ovarian cyst
- PID
- irreducible or strangulated hernia (usually men)
- testicular torsion

Umbilical

- irreducible or strangulated umbilical hernia
- ruptured aortic aneurysm
- gastroenteritis
- small bowel obstruction
- inflammatory bowel disease
- early appendicitis

Hypogastric

- urinary tract infection
- large bowel obstruction
- acute retention of urine
- uterine fibroid complication
- PID
- tubal/ectopic pregnancy
- testicular torsion

Left lumbar

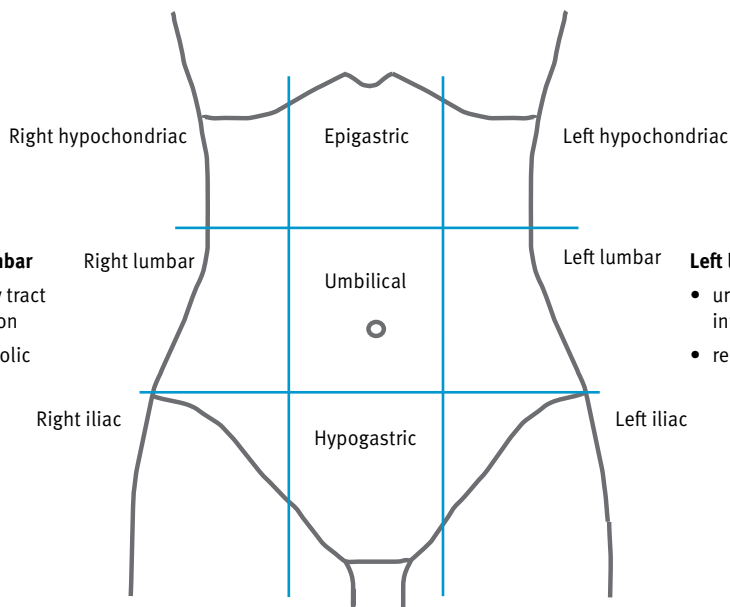
Left lumbar

- urinary tract infection
- renal colic

Left iliac

Left iliac

- diverticulitis
- tubal/ectopic pregnancy
- ovarian cyst
- PID
- irreducible or strangulated hernia
- testicular torsion



4. Management

- Consult MO/NP in all cases of acute abdominal pain using diagrams as a guide
- If board-like rigidity of abdomen, or pulsatile abdominal mass, insert large bore IV cannula and consult MO/NP urgently. MO/NP will advise further management and arrange evacuation/hospitalisation in a facility with appropriate surgical capability
- Do 12 lead ECG in all cases of upper abdominal pain in case of ischaemic chest pain: angina/heart attack
- If available MO/NP may order erect chest x-ray looking for air under diaphragm and erect and supine abdominal x-ray looking for dilated bowel loops and air-fluid levels. These are probably the only two reasons to perform plain abdominal x-rays
- Give patient nil to eat or drink
- MO/NP may advise to pass nasogastric tube if easy. Allow free drainage and aspirate periodically
- The MO/NP may ask for the patient to be catheterised
- Give analgesia as required. Morphine may be required for pain and metoclopramide for nausea and vomiting

Schedule	8	Morphine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL	IM/Subcut	Adult only 0.1 mg - 0.2 mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
		IV (IHW and IPAP may not administer IV)	Adult only Initial dose of 2.5 mg then 0.5 mg - 2.5 mg increments slowly, repeated every 5 minutes if required to a max. of 10 mg	
Provide Consumer Medicine Information: advise patient morphine can cause nausea and vomiting, and drowsiness				
Note: a reduced dose should be considered in patients with significant renal/liver disease. Use the lower end of the dose range in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				
2,3,4,17,18,19				

Schedule	4	Metoclopramide		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: tell your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Note: give IV slowly over 1 - 2 minutes				
Contraindication: in patients with epilepsy and Parkinson's disease				
Use in Pregnancy: Category A				
Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction e.g. oculogyric crisis develops give benztropine 2 mg IM or oral. Consult MO/NP. See Mental health behavioural emergencies, page 437				

5

5. Follow up

- If in consultation with MO/NP, patient not evacuated/hospitalised and allowed home, review next day
- See next MO/NP clinic

6. Referral/consultation

- Consult MO/NP in all cases of acute abdominal pain

Acute gastroenteritis/dehydration - adult

Vomiting and diarrhoea

Recommend

- Rehydration is the most important aspect of management
- Be alert for electrolyte imbalance
- Use of inappropriate fluids for rehydration (oral and IV) can lead to a further deterioration in the patient's condition and/or life threatening electrolyte imbalances
- Be alert for acute renal impairment
- Be alert that a presentation of diarrhoea and vomiting could be sepsis

Background

- Risk factors for dehydration in adults include:
 - increased fluid losses (diarrhoea, vomiting, fever, exertion, heat exposure, uncontrolled diabetes)
 - reduced/inadequate oral intake. The elderly in particular can be at risk for inadequate oral intake

Related topics

 [Giardiasis, page 712](#)

[Acute gastroenteritis/dehydration - child, page 702](#)

[Heat exhaustion/heat stroke/hyperthermia, page 194](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)

[Shock, page 55](#)

1. May present with**Possible Complications**

- Hypovolemic shock
- Electrolyte imbalance
- Acute renal failure

Gastroenteritis signs and symptoms

- Acute diarrhoea - presence of three or more abnormally loose or watery stools in the preceding 24 hrs
- Vomiting
- Cramping abdominal pain
- Fever

And/or**Dehydration signs and symptoms**

- Thirst
- Dry mucous membranes
- Reduced urine output/concentrated urine
- Tachycardia/tachypnoea
- Weakness/light-headedness/altered level of consciousness
- Headache
- Reduced skin turgor/sunken eyes
- Delayed capillary return
- Hyperthermia
- Postural hypotension/hypotension
- Decreased pulse pressure⁶

2. Immediate management

- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Consult MO/NP immediately if risk factors and/or signs & symptoms of moderate/severe dehydration. See [Management Adult Dehydration Flowchart, page 208](#)
 - altered level of consciousness
 - hypotension
 - tachycardia
 - decreased urine output (oliguria)
- Consult MO/NP immediately in cases of gastroenteritis with:
 - high-output diarrhoea (frequent and substantial volumes)
 - visible blood in stool

- If severe dehydration insert IV cannula or IO if unable to obtain venous access and commence immediate IV sodium chloride 0.9%. See [Management Adult Dehydration Flowchart, page 208](#)

3. Clinical assessment

- Obtain a complete past history in particular note current diabetes status and medications including history of presenting concern including any environmental exposure e.g. exertion in high ambient temperature and high humidity
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - assessment of dehydration status. See [Management Adult Dehydration Flowchart, page 208](#)
 - weight. Percentage loss of body weight is the best measure of dehydration - compare current weight to most recently recorded weight⁷
 - in cases of hyperthermia perform urinalysis for blood
- For Gastroenteritis also include the following:
 - onset, stool frequency, type and volume
 - presence of blood in stool
 - vomiting
 - abdominal pain
 - epidemiological clues e.g. recent travel, recent eating of shellfish, similar illness in other household members or social contacts
 - collect a faeces specimen for M/C/S and ova, cysts and parasites (OCP) and viral studies if:
 - history of blood in stool
 - severe or prolonged diarrhoea > 7 days
 - history suggestive of food poisoning e.g. cluster presentation
 - recent overseas travel
 - test for *Clostridium difficile* toxins if history of recent antibiotic use or hospitalisation
 - history of fever or blood in stool include test for salmonella, shigella, and campylobacter¹⁶

4. Management

For gastroenteritis

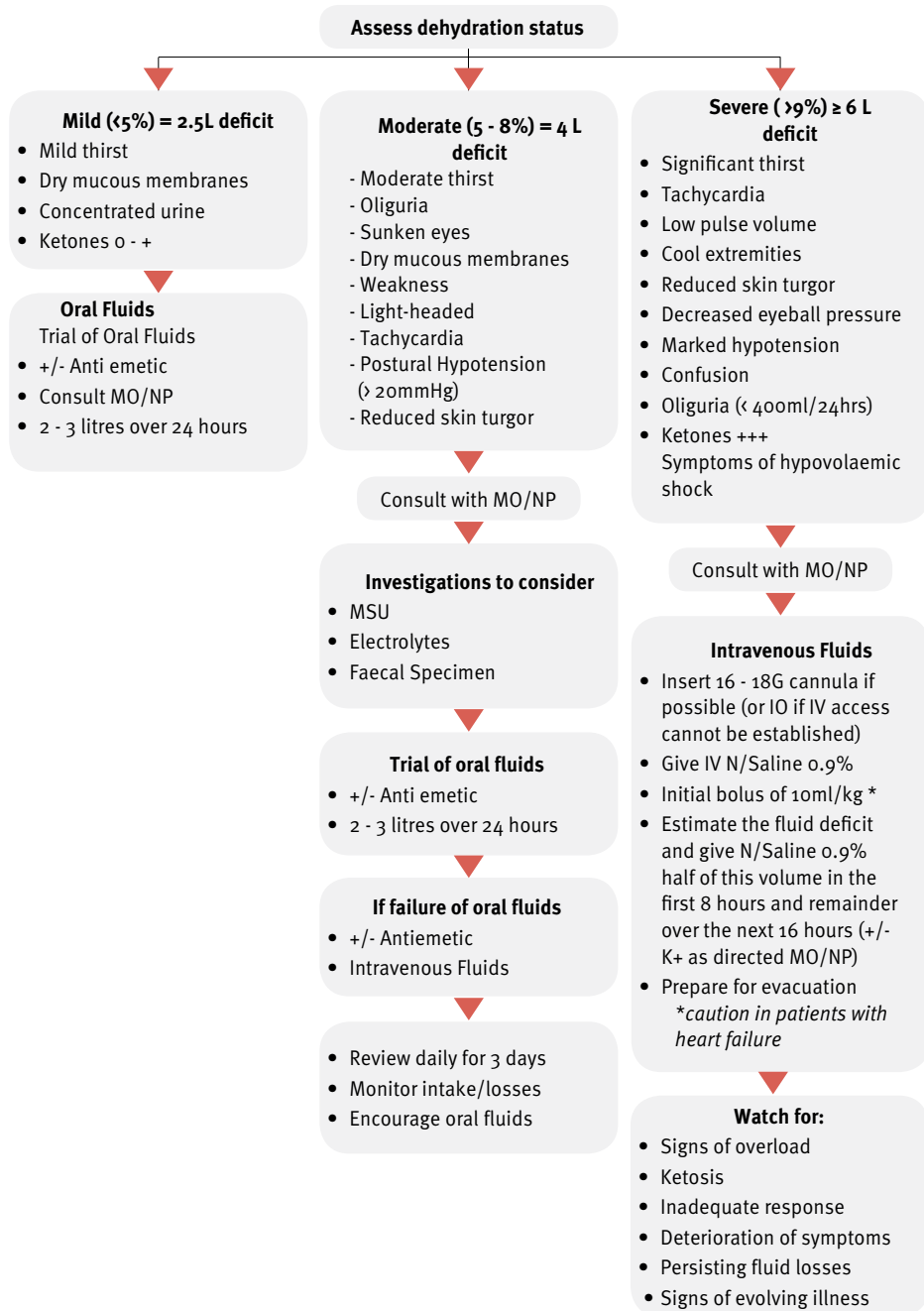
- Maintain hydration/rehydrate
- Continue normal diet as tolerated, or clear fluids if vomiting^{6,8}
- Advise:
 - to eat foods with sodium and/or potassium such as soups with salt, salted crackers, bananas, and potato (mashed, hot chips, or crisps)
 - to avoid caffeine, and milk and lactose-containing products⁶
 - that probiotics can reduce the duration and severity of diarrhoea⁹

If dehydrated. Using the [Management Adult Dehydration Flowchart, page 208](#) to guide rehydration

- Initiate rehydration (oral whenever possible)
 - use oral rehydration solutions (ORS). Recommend 2 - 3 litres over 24hrs - frequent small volumes may be better tolerated. Intermittent vomiting does not preclude use of ORS¹⁰
 - If commercial ORS not available use the following recipe (one level teaspoon of salt, eight level teaspoons of sugar, 1L of clean drinking water¹⁰
 - avoid drinking either diluted or undiluted fluids with high sugar content e.g. soft drinks, sports and energy drinks, cordials and fruit juice⁷
- If unable to rehydrate orally then IV fluids may be required. Commence with sodium chloride 0.9%. Consult MO/NP who may order Hartman's Solution. See [Management Adult Dehydration Flowchart, page 208](#)

- Monitor fluid intake and urine output as a key indicator for response to treatment
- MO/NP may arrange evacuation in cases of moderate - severe dehydration

Management Adult Dehydration flowchart^{7,11,12}



5. Follow up

- Review next day
- Review results of MC/S and OCP and treat appropriately
- Offer advice and education as applicable such as: safe food handling; avoidance of extreme environmental heat exposure/limited exertion in high ambient temperatures; and adequate fluids

6. Referral/consultation

- Consult MO/NP:
 - for all cases of moderate/severe dehydration and as per [Management Adult Dehydration Flowchart, page 208](#)
 - for complicated gastroenteritis
 - prior to discharge in cases of moderate/severe dehydration
 - ① Consider notification to your Public Health Unit - refer to the Communicable Diseases website: <http://disease-control.health.qld.gov.au/Condition/704/gastroenteritis>



Alcohol related epigastric pain - adult

Recommend

- See Immediate management

Background

- Alcohol can cause epigastric and/or right and/or left upper quadrant pain secondary to gastritis, acute pancreatitis or alcoholic hepatitis, gastric or duodenal ulcer, small bowel obstruction or biliary tract disease¹³
- Epigastric pain associated with alcohol usually occurs during or soon after heavy alcohol intake. Don't jump to conclusions as to the cause of the epigastric pain in a person who drinks alcohol
- Terms - often people use the term gastritis (inflammation of the gastric mucosa) for dyspepsia (indigestion), however the diagnosis of gastritis can only be made on endoscopy or biopsy
- Epigastric pain from gastritis/gastro-oesophageal reflux disease (GORD) isn't necessarily associated with alcohol. GORD can occur in children or adults

Related topics

- [Acute abdominal pain, page 200](#)
- [Chest pain, page 93](#)

[Alcohol withdrawal, page 472](#)
[Alcohol misuse, page 464](#)
[Glasgow coma scale \(GCS\)/AVPU, page 766](#)
[Mental health presentation, history and assessment, page 428](#)
[Upper gastrointestinal bleeding, page 212](#)
[Shock, page 55](#)

1. May present with

- Epigastric and/or right upper quadrant and/or left upper quadrant pain
- Lack of appetite, nausea, vomiting
- Vomiting up blood (haematemesis) or passing tar-like bowel motions (melena)
- Increased HR
- Hypotension/shock

2. Immediate management

- Perform rapid clinical assessment
- See [Glasgow coma scale \(GCS\)/AVPU, page 766](#)
- If hypotension/shock, insert largest bore IV cannula possible (14 G or 16 G)
- It is normal to start with IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate. See [Shock, page 55](#)
- Consult MO/NP urgently who will advise further management and arrange evacuation/hospitalisation

3. Clinical assessment

- See [Acute abdominal pain, page 200](#)
- Include in history taking:
 - establishment of current alcohol use - have there been changes recently?
 - is the patient concerned about their alcohol intake?
 - assess other alcohol related problems including injuries, mental health status, relationship problems, stress and money worries, sexual problems
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - pain scale
- Perform physical examination
 - inspect and palpate for tenderness over liver area, upper abdominal pain, left upper quadrant - other causes/associated pain?
- Determine if presentation is mild, moderate or severe

Mild	Moderate	Severe
Annoying pain but not aggravating or distressing Normal BP, HR, respiratory rate, temperature	Patient moving about, restless with aggravating pain HR slightly increased BP slightly increased	Patient keeping still and very distressed with pain HR increased BP raised or low (hypotension / shock)

4. Management

- The severity of the pain and the other findings of the patient will guide management, e.g. acute pancreatitis may cause hypotension/shock and respiratory distress. The severity of pain is subjective however objective indications such as vital signs and clinical findings will also guide management

Mild

- Give antacid e.g. [Gastrogel®/Mylanta®](#) (dose according to label) and/or metoclopramide 10 mg IM
- Do 12 lead ECG, fax/scan/email to MO/NP
- Take bloods for LFT if not done in the last 3 months, check BGL
- If doesn't respond to antacid and/or antiemetic within 30 minutes, consider as moderate or severe

Schedule	4	Metoclopramide		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: tell your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Note: give IV slowly over 1 - 2 minutes				
Contraindication: in patients with epilepsy and Parkinson's disease				
Use in Pregnancy: Category A				
Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction e.g. oculogyric crisis develops give benztropine 2 mg IM or oral. Consult MO/NP. See Mental health behavioural emergencies, page 437				

5

Moderate

- Consult MO/NP who will likely advise:
 - clear fluids only
 - analgesia: paracetamol
 - ranitidine, omeprazole, hyoscine butylbromide (Buscopan®)
 - do 12 lead ECG
 - send blood for LFT, lipase (more specific for pancreatitis than amylase)
 - check BGL
 - observe and consult MO/NP within 4 - 6 hours of progression
- If pain does not respond regard as severe. See [Simple analgesia pull out](#)

Severe

- Consult MO/NP who may advise:
 - give nil to eat or drink
 - apply high flow O₂ via non-rebreather mask
 - do 12 lead ECG
 - collect FBC U/E and LFTs and check BGL
 - test urine
 - insert IV cannula. It is normal to start with IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate
 - analgesia - IM opioid or preferably IV. See [Acute abdominal pain, page 200](#)
 - evacuation/hospitalisation
 - proton pump inhibitor (PPI)

5. Follow up

- If chronic alcohol misuse patient to have oral thiamine 300 mg daily¹⁴
- Be aware of the potential over the following days to develop withdrawal symptoms in a heavy drinker

who ceases drinking abruptly. See [Alcohol withdrawal, page 472](#)

- If allowed home, review next day
- Offer advice and information regarding the harmful effects of excessive alcohol intake. There is good evidence to show that an MO/NP or Health Care Worker's advice can be influential in modifying drinking patterns. See [Alcohol misuse, page 464](#)
- See next MO/NP clinic

6. Referral/consultation

- Consult MO/NP as above
- If referral for chronic alcohol misuse is required. See [Alcohol misuse, page 464](#)

Upper gastrointestinal bleeding - adult/child

Recommend

- See Immediate management if patient has a large amount of blood loss

Background

- There are many causes of upper gastrointestinal bleeding most common are gastric or duodenal ulcer, oesophageal varices/erosion
- Can range from small bleed to very large loss of blood
- Patient may vomit blood, which was swallowed from a nose bleed
- Use of NSAID can predispose to bleeding

Related topics

 [Acute abdominal pain, page 200](#)
 [Nose bleed/epistaxis, page 196](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Rectal bleeding, page 214](#)
[Shock, page 55](#)
[Button Battery, page 236](#)

1. May present with

- Burning pain in epigastrium or retrosternally
- Vomiting up blood (haematemesis)
- Passing black tar-like bowel motions (melena)
- Fresh blood in the bowel motion (haematochezia)
- Hypotension/shock

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Perform rapid clinical assessment
- Maintain adequate oxygenation i.e. O_2 sats > 94%
- Analgesia may be required consult MO/NP - IM opioid or preferably IV is given
- If hypotension/shock or large haematemesis or melena insert largest bore IV cannula possible (14 G or 16 G) x 2
- It is normal to start with IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate. In an adult the aim is to keep:

- HR < 120/min
- systolic BP > 90 - 100 mmHg
- urine output > 0.5 mL/kg/hour
- Consult MO/NP urgently who will advise further management and arrange evacuation/hospitalisation in an appropriate facility
- Upper gastrointestinal bleeds can be dramatic and are difficult to manage. Apart from IV access and IV fluids, including early blood if available, the best treatment option is usually to evacuate urgently

3. Clinical assessment

- See [Acute abdominal pain, page 200](#) noting in particular:
 - past history of gastric (stomach) or duodenal ulcer or previous episodes of bleeding or oesophageal varices
 - past history of liver disease or renal disease
 - determine the character of the bleeding: is it large or small, dark or bright?
 - Is there rectal bleeding? Is there melaena? Is it bright blood, with or without bowel motion?
 - current medicines especially aspirin or non-steroidal anti-inflammatory drugs (NSAID), anticoagulants
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - continue to monitor including ECG monitoring
- Rectal examination as appropriate
 - if possible perform PoCT for FBC, urea and electrolytes, INR

4. Management

- Consult MO/NP
- If haematemesis small or 'coffee ground' only in vomitus MO/NP may advise metoclopramide 10 mg IM stat
- Proton Pump Inhibitor (PPI) such as omeprazole oral or esomeprazole IV
- Arrange evacuation/hospitalisation once haemodynamically stable

5. Follow up

- If patient settles, review next day
- See next MO/NP clinic. MO/NP may consider referral for endoscopy

6. Referral/consultation

- Consult MO/NP on all occasions of upper gastrointestinal bleeding

Rectal bleeding - adult/child

Recommend

- Screen those aged between 50 and 75 years for colorectal cancer with faecal occult blood test (FOBT) every 2 years¹⁵

Background

- The characteristic of rectal bleeding is determined by the location of disease/condition leading to blood loss
- Do not attribute rectal bleeding to haemorrhoids unless more serious causes have been excluded
- Serious causes for rectal bleeding are underlying colonic/rectal cancer and anticoagulants

Related topics

 [Acute abdominal pain, page 200](#)

[Upper gastrointestinal bleeding, page 212](#)

1. May present with

- Bright red blood loss (haemorrhoids or bowel cancer or large upper GI bleed). Dark red blood can be differentiated from melena by mixing it with tap water - changes to red while melena stays black
- Melena (black, tar-like bowel motion, foul smelling: blood changed by digestion in upper gastrointestinal tract)
- Anaemia
- Anorexia/vomiting
- Weight loss
- Ineffective urge to pass a bowel motion
- Abdominal pain
- Fever
- Obvious worm infestation
- Diarrhoea/constipation

2. Immediate management

- Analgesia may be required consult MO/NP - IM opioid or preferably IV is given. See [Acute abdominal pain, page 200](#)
- If passing black tar-like bowel motions (melena). See [Upper gastrointestinal bleeding, page 212](#)
- If blood loss is heavy or continuing, or there is increased HR or hypotension/shock, insert largest bore IV cannula possible (14 G or 16 G)
- It is normal to start with IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate but generally speaking blood loss that causes hypotension/tachycardia will require blood replacement, if available. See [Shock, page 55](#)
- Consult MO/NP urgently who will advise further management and arrange evacuation/hospitalisation in an appropriate facility

3. Clinical assessment

- See [Acute abdominal pain, page 200](#) noting in particular:
 - change in bowel habit (mucoïd diarrhoea or constipation)
 - sense of rectal urgency or unsatisfied defecation

- external examination of anus looking for evidence of haemorrhoids and bleeding
- check for bowel sounds
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weight
- Collect a stool specimen to check for occult blood or for testing OCP
- Note nutritional status
- Digital rectal examination may be required
- Collect blood test for Erythrocyte Sedimentation Rate (ESR)/C-reactive protein/urea and electrolytes/ FBC

4. Management

- If bleeding not heavy or continuing consult MO/NP who may advise topical treatment for haemorrhoids ± short term laxative
- Treat for worms where clinically indicated
- If heavy blood loss - patient will require evacuation

5. Follow up

- Patients with rectal bleeding need to be assessed by an MO/NP at next available opportunity including digital rectal examination/proctoscopy ± sigmoidoscopy
- All patients over 50 years to have 2 yearly faecal occult blood test (FOBT) until the age of 75 if repeated negative findings

6. Referral/consultation

- All patients with rectal bleeding need to be reviewed by an MO/NP

Bowel obstruction - adult/child

Recommend

- **Metoclopramide is contraindicated**

Background

- Bowel obstruction can occur in the small or large intestine, it can be partial or complete
- The three most common causes of small bowel obstruction are post-operative adhesions, hernias and cancers
- The most common causes of large bowel/colon obstruction are cancer, twisting of the bowel (volvulus), narrowing of the opening due to diverticulitis

Related topics

 [Acute abdominal pain, page 200](#)

[Acute gastroenteritis/dehydration, page 205](#)

[Acute gastroenteritis/dehydration - child, page 702](#)

[Abdominal injuries, page 139](#)

1. May present with

- Colicky abdominal pain

- Abdominal distension - soft or rigid
- Cannot pass wind
- Bowel sounds may be increased or absent
- Vomiting may or may not be present - may smell like faeces
- Fever - may be indicative of peritonitis, late sign
- Liquid diarrhoea or obstipation (intractable constipation)
- Increased HR, dehydration, especially in children and elderly
- Hypotension/shock with perforation and sepsis

2. Immediate management

- See [Acute abdominal pain, page 200](#)
- Analgesia may be required consult MO/NP - IM opioid or preferably IV is given. See [Acute abdominal pain, page 200](#)
- Perform rapid clinical assessment
- Collect bloods for electrolytes and potassium
- If hypotension/shock, insert largest bore IV cannula possible (14 G or 16 G) x 2
- It is normal to start with IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate. See [Shock, page 55](#)
- Consult MO/NP urgently who will advise further management and arrange evacuation/hospitalisation

3. Clinical assessment

- See [Acute abdominal pain, page 200](#) noting in particular:
 - past surgical history, previous bowel obstruction
 - history of bowel habit
 - abdominal distension
 - absent or tinkling bowel sounds
 - abdominal tenderness, guarding
 - presence of vomiting or diarrhoea
 - any abdominal mass
 - POCT for urea and electrolytes and lactate if available

4. Management

- Consult MO/NP who will advise analgesia IM opioid or preferably IV
- If a patient looks unwell, has persistently abnormal vital signs or rigidity of the abdomen, then ischaemic bowel or perforated viscus should be suspected. Insert large bore IV cannula and consult MO/NP urgently. MO/NP will advise further management and arrange evacuation/hospitalisation in a facility with appropriate surgical capability
- It is normal to start with IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate
- MO/NP will likely advise to pass nasogastric tube. Allow free drainage and aspirate periodically
- If available MO/NP may order erect and supine abdominal x-ray looking for dilated bowel loops and air fluid levels and erect chest x-ray looking for gas under the diaphragm
- Keep nil by mouth
- Insert indwelling urinary catheter and monitor urine output

5. Follow up

- When back in the community: bowel obstruction has a high likelihood of recurrence whether treated conservatively or surgically
- Refer to Dietitian

6. Referral/consultation

- Consult MO/NP. All cases of suspected bowel obstruction will need to be evacuated/hospitalised

Genitourinary emergencies

Renal colic - adult

Recommend

- Provide early pain relief¹
- Consult MO/NP if fever present as an infected obstructed kidney is an urological emergency

Background

- Renal colic is the pain caused by kidney stones passing through the ureter from the kidney to the bladder

Related topics

 [Acute abdominal pain, page 200](#)

1. May present with

- Pain - colicky, sharp, burning and originating in the flank area and radiating to the lower abdomen and inguinal regions. Pain in the tip of the penis may be due to a stone in the bladder
- Nausea and vomiting are often associated
- Fever
- Blood in the urine (haematuria), visible or on urinalysis
- Restless/agitated

2. Immediate management

- Perform rapid clinical assessment
- Check pain scale
- Administer analgesia - IM opioid or preferably IV is given. NSAID and opioids are medicines of choice for renal colic
- If an opioid has to be given, it should not be pethidine¹

3. Clinical assessment

- See [Acute abdominal pain, page 200](#) noting in particular:
 - past history of kidney stones or previous episodes
 - blood visible in urine or positive on testing
 - renal angle tenderness
 - fever

- consider ruptured aortic aneurysm in patients > 45 years and first presentation of this pain
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - urinalysis
 - urine β -hCG in women of reproductive age
 - monitor pain scale

4. Management

- MO/NP will arrange evacuation/hospitalisation if:
 - fever (an infected obstructed kidney is an urological emergency)
 - pain not controlled or persists for more than 24 hours
- Consult MO/NP who may advise:
 - high oral fluid intake or IV fluids to flush stone(s) through
 - analgesia: paracetamol or ketorolac or **if an opioid has to be given it should not be pethidine¹**
- Send MSU for M/CS
- IV antibiotics if fever
- See [Simple analgesia pull out](#)

Schedule	8	Morphine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL	IM/Subcut	Adult only 0.1 mg - 0.2 mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
		IV (IHW and IPAP may not administer IV)	Adult only Initial dose of 2.5 mg then 0.5 mg - 2.5 mg increments slowly, repeated every 5 minutes if required to a max. of 10 mg	
Provide Consumer Medicine Information: advise patient morphine can cause nausea and vomiting, and drowsiness				
Note: a reduced dose should be considered in patients with significant renal/liver disease. Use the lower end of the dose range in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				
2,3,4,12,13				

- If allergic to morphine give fentanyl. **Note:** fentanyl has a rapid onset of action

Schedule	8	Fentanyl		DTP IHW/SM R&IP
Authorised Indigenous Health Worker must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	100 microgram /2 mL	IM/Subcut	Adult only 1.5 microgram/kg to a max. of 100 microgram	Stat Further doses on MO/NP order
		IV	Adult only 25 microgram increments slowly, repeated every 10 minutes if required to a max. of 100 microgram	
Provide Consumer Medicine Information: advise patient fentanyl can cause nausea and vomiting, and drowsiness				
Note: use with caution in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				
2,3,5,6,14				

- Or

Schedule	4	Ketorolac trometamol		DTP IHW/SM R&IP
Authorised Indigenous Health Worker must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL 30 mg/mL	IM (Give slow deep IM)	Adult > 16 and < 65 years 30 mg	Stat
			Adult ≥ 65 years or < 50 kg 15 mg	
Provide Consumer Medicine Information: may cause pain at the injection site. May cause gastro-intestinal irritation (after several doses)				
Note: correct any dehydration before administering ketorolac. Use with caution: in the elderly; and patients with history of hypertension, asthma, coagulation disorders, or other NSAID use. Interacts with warfarin - monitor INR				
Contraindication: in breastfeeding mothers and in patients with renal impairment (serum creatinine > 180 mcg/L) and heart failure				
Do not use in pregnancy: Category C				
Management of associated emergency: consult MO/NP. See Toxicology/opioids, page 246				

- Give metoclopramide if nauseated or vomiting

Schedule	4	Metoclopramide		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: tell your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Note: give IV slowly over 1 - 2 minutes				
Contraindication: in patients with epilepsy and Parkinson's disease				
Use in Pregnancy: Category A				
Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction e.g. oculogyric crisis develops give benztropine 2 mg IM or oral. Consult MO/NP. See Mental health behavioural emergencies, page 437				

9

9

5. Follow up

- If the pain settles, the patient should be advised to continue high oral fluid intake including through the night, to flush stone(s) through, and to strain all urine (for stones) at home
- Review the next day
- Next MO/NP clinic and likely referral for IVP, CT scan, and/or renal ultrasound

6. Referral/consultation

- Consult MO/NP on all occasions

Acute retention of urine - adult/child

Recommend

- Provide early and effective pain relief as acute retention of urine can be painful and distressing

Background

- Causes may be obstructive, neurogenic, infective, post-operative, trauma, pharmacologic, extraurinary, or psychogenic¹⁰
- Most common in middle aged or elderly men, but can also occur secondary to delay in passing urine, UTI, medicines, severe pain e.g. primary genital herpes or spinal injury
- It is usually preceded by a history of hesitancy and dribbling due to prostatic enlargement

Related topics

 [Acute abdominal pain, page 200](#)

1. May present with

- Obstruction of urinary bladder - dull suprapubic pain
- Obstruction of ureter - severe suprapubic and flank pain that radiates to the penis, scrotum, or inner aspect of the upper thigh
- Inability to pass urine or passing dribbles of urine only
- Distended bladder
- Constipation

2. Immediate management

- Consult MO/NP who will advise analgesia - IM/IV opioid and metoclopramide

3. Clinical assessment

- See [Acute abdominal pain, page 200](#) noting in particular:
 - preceding history of hesitancy and dribbling
 - medical and surgical history including current medications
 - palpable bladder, dull percussion (palpation and percussion is associated with urge to urinate)
 - perform bladder scan if available

4. Management

- Adequate analgesia may relieve urethral spasm enough to be able to pass urine spontaneously
- A reasonable effort should be made to allow for spontaneous urination
- If does not pass urine spontaneously, MO/NP will request patient be catheterised. It is important not to use excessive force to push the catheter through the obstructed urethra
- Measure and record all urine output
- Perform urinalysis
- Send MSU or catheter catch urine for MC/S
- If unable to catheterise easily, MO/NP will attempt on evacuation/hospitalisation and may insert suprapubic catheter instead
- Depending on the clinical circumstances, and the volume of urine drained, the MO/NP may advise the catheter be removed or left insitu

5. Follow up

- If not evacuated/hospitalised, review next day and consult MO/NP
- See next MO/NP clinic. It is important not only to decompress the bladder but also to identify and treat the cause

6. Referral/consultation

- Consult MO/NP on all occasions of acute retention of urine

Testicular/scrotal pain - adult/child

Recommend

- Testicular torsion is an emergency requiring urgent surgery (within 4 - 6 hours) to save testes - consult MO/NP immediately
- Use the differential diagnoses table on following page to assist with deciding between the two most common conditions which cause acute scrotal pain and swelling - torsion of the testis and acute epididymo-orchitis. Always assume testicular torsion until proven otherwise

Background

- Other less common causes of acute scrotal pain include mumps, strangulated inguinal hernia and traumatic haematoma

Related topics

 [Epididymo-orchitis, page 593](#)

 [Acute abdominal pain, page 200](#)

1. May present with

- Gradual or acute onset of pain and/or swelling of testicle(s)
- Abdominal pain¹¹
- Right iliac fossa (RIF) or left iliac fossa (LIF) referred pain
- Nausea and vomiting, fever
- History of rapid movement, physical trauma

2. Immediate management

- Consult MO/NP urgently
- MO/NP will organise immediate evacuation/hospitalisation to facility with appropriate surgical capability for the patient with testicular torsion
- MO/NP will advise analgesia - IM/IV opioid and metoclopramide

3. Clinical assessment

- See [Acute abdominal pain, page 200](#) noting in particular:
 - tenderness and location of testes, compare with other testicle
 - fever
 - urethral discharge, burning on passing urine (dysuria)
 - urinalysis
 - history of physical trauma, rapid movement

4. Management

- Consult MO/NP using the following differential diagnoses table as guide

Differential diagnoses	Torsion	Epididymo-orchitis
Age	any age but most commonly in the 10 - 25 years age group	young adults who are sexually active, the elderly who may have prostatic trouble, rare before puberty
Onset	usually sudden but can be gradual	gradual
Severity of pain	very severe	moderate
Fever	absent or slight, less than 37.5°C	significant
Associated symptoms	abdominal pain, vomiting	abdominal pain, occasional urethral discharge/dysuria
Examination	swollen, red and tender, affected testis may sit higher than the other and be lying transversely	swollen, red and tender
Effect of elevating scrotum	no change or worse pain	relief of pain

Torsion

- Testicular torsion is an emergency requiring urgent surgery. If there is to be any chance of saving the testis, the MO/NP will arrange urgent evacuation/surgery and advise analgesia - IM/IV opioid and metoclopramide
- Keep nil by mouth

Epididymo-orchitis

- See [Epididymo-orchitis, page 593](#)

5. Follow up

- If MO/NP decides to treat as acute epididymo-orchitis and not to evacuate/operate:
 - review next day
 - if the patient is not significantly better, consult MO/NP

6. Referral/consultation

- Consult MO/NP on all occasions of testicular/scrotal pain

Toxicology

Toxicology/poisoning/overdose

General approach

Recommend

- Consult MO/NP first who will contact the Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours) if a substance is known to be toxic and/or a toxic quantity is known or suspected to have been taken
- In cases of severe or complex poisoning where specific expert medical advice is required the Poisons Information Centre can refer health practitioners to a Clinical Toxicologist
- Use universal precautions in all poisoning cases where toxins unknown
- Do not undertake any gastrointestinal decontamination until a full risk assessment has been completed
- Consider poisoning in any patient who is confused, drowsy, unconscious or fitting
- Remember that someone who is conscious and talking after taking a poison could still be in the early stages of severe poisoning

Note: the use of ipecac syrup or any other methods to induce vomiting are no longer recommended due to the risk of aspiration and lack of effectiveness

- All patients with intentional poisoning require a 12 lead ECG and a paracetamol level
- A recommended source of up to date electronic information on toxicology and toxinology can be found under the Therapeutic Guidelines (eTG) "Toxicology and Wilderness". Available at: <https://tgldcdp.tg.org.au/guideLine?guidelinePage=Toxicology+and+Wilderness&frompage=etg> complete

Related topics

 [Fits/convulsions/seizures, page 72](#)

 [Hypoglycaemia, page 78](#)

 [Mental health presentation, history and assessment, page 428](#)

[Unconscious/altered level of consciousness, page 52](#)

[Heat exhaustion/heat stroke/hyperthermia, page 194](#)

1. May present with

- Central nervous system depression e.g. confusion, drowsiness, altered level of consciousness or fitting
- Gastrointestinal tract toxicity e.g. nausea, vomiting
- Cardiovascular system toxicity e.g. hypotension, bradycardia or tachycardia, arrhythmias
- Conscious and fully orientated with a history or circumstances suggestive of deliberate or accidental poisoning

2. Immediate management¹

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Perform rapid assessment +
 - O₂ saturation
- Correct hypoglycaemia
- Correct hyperthermia

- Consider antidotes e.g. naloxone
- Use universal precautions in all poisoning cases (gloves, plastic gown and mask). See [Cyanide, page 240](#), [Organophosphates, page 247](#) and [Paraquat, page 252](#) poisoning for specific advice
- If breathing, turn on to side in recovery position while obtaining more information. Some poisons may cause both vomiting and sedation sufficient enough to result in aspiration
- Do not administer O₂ routinely. If required, give O₂ to maintain O₂ saturation > 93% adult or > 95% child. If not maintained, consult MO/NP. See [Oxygen delivery systems, page 44](#)
- Patients with ongoing abnormal O₂ saturations require an assessment of their ventilation e.g. CO₂ monitoring via a blood gas analysis. In poisoning, do not assume hypoxia is a result of the poisoning alone

Note: Do not undertake any gastrointestinal decontamination until a full risk assessment has been completed

3. Clinical assessment

- Undertake a 'Risk Assessment' by obtaining a full history including details of poisoning

Risk assessment	
Agent	Name of product, its ingredients/components, manufacturer Look for container if possible Ask relatives or witnesses Overdoses of drugs often involve more than one substance Inquire specifically if alcohol has been taken in all instances as it may greatly affect the toxicity of other exposures Also inquire specifically about paracetamol and any other over-the-counter products
Route of exposure	Oral, topical, eye, inhaled, injected
Dose	Try to work out exactly how much was taken. This may require manually counting out the amount remaining in the container from the amount initially thought to be there It is important to always consider the worst case scenario
Time of exposure	Exact time if possible
Intent of exposure	Accidental or deliberate
Has any treatment been attempted	Has substance been diluted, skin been washed, eyes irrigated etc.
Patient factors	Does the patient have any pre-existing illness, heart disease, patient weight, BGL, etc.
Clinical course	What symptoms has the patient noticed since exposure to poison/medicine? This can then be correlated with the agent, dose and time since ingestion to strengthen the risk assessment
Clinical status of patient	Blood pressure, HR, respiratory rate, temperature, O ₂ saturation, conscious state. See Glasgow coma scale (GCS)/AVPU, page 766

4. Management

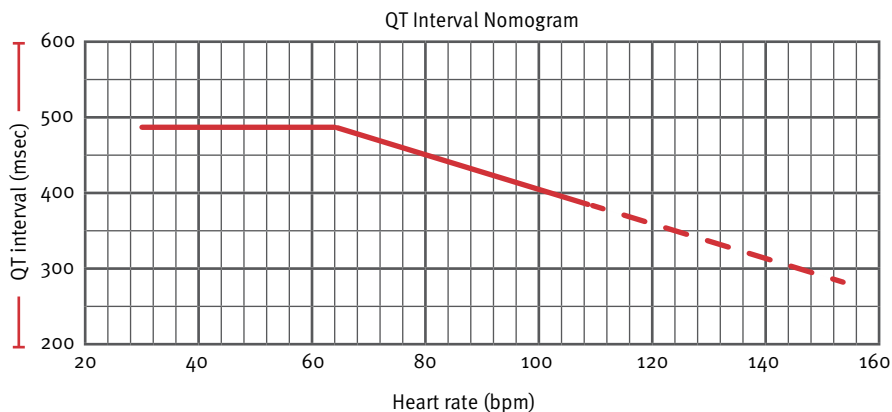
- Consult MO/NP first in cases of suspected poisoning
- MO/NP will contact Poisons Information Centre PIC ☎ 13 11 26 (24 hours) to determine if an exposure is likely to be toxic. If the substance is known to be toxic and a toxic quantity is known or

suspected to have been taken, the PIC can help determine the contents and other characteristics of the agent involved in the exposure, and then advise on the likely clinical effects and appropriate management in conjunction with the MO/NP

- All patients with intentional poisonings require a 12 lead ECG and a paracetamol level. See [Paracetamol, page 249](#) for specific advice
- Supportive care and monitoring: following stabilisation of the patient, good supportive care and monitoring is sufficient for the majority of poisoned patients. Some patients may require further investigations and decontamination as follows:
 - electrolytes, renal and liver function, full blood count, coagulation tests (rarely), chest x-ray, blood gases, spirometry and urine testing
 - decontamination may be considered when:
 - the risk assessment indicates severe or life threatening toxicity
 - supportive care or antidote treatment alone may not ensure a good outcome
 - the poison is still in the gastrointestinal tract, usually within an hour of ingestion
 - the poison is able to be removed by chosen method
 - the patient's airway is self protected or has been secured

Specific ECG changes¹

- QRS widening - this is secondary to sodium channel blockade and is seen in a number of ingestions e.g. tricyclic antidepressants, antihistamines, antiarrhythmics. A QRS > 120 msec (0.12 seconds) is considered pathological
- QT prolongation - this is secondary to potassium channel blockade and can be associated with torsades de pointes. Medicines associated with QT prolongation include some of the antiarrhythmics, antidepressants, antihistamines, antibiotics and antipsychotics. All ECG machines correct the QT interval for HR but these are problematic. The most common correction formula used is Bazett's formula. This overcorrects when the HR is > 70, leading to abnormally prolonged QT interval. A more accurate method of assessing the QT interval in toxicology is to use the QT nomogram where the uncorrected QT is plotted against the HR. Patients with an abnormal QT HR pair should be monitored until the QT HR pair is below the line



- Solid line indicates heart rates that are not tachycardic
- - Dashed line is extrapolated to allow assessment of faster heart rates

The QT nomogram is a plot of the QT interval versus the heart rate. A QT-heart rate pair above the line is associated with an increased risk of torsades de pointes

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Activated charcoal

- MO/NPs are advised to consult the Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours) or Clinical Toxicologist for information on the appropriate use of activated charcoal before use in the paediatric age group
- Activated charcoal binds to poisons in the gut and prevents absorption. It is not effective for cyanide, alcohols, iron, lithium, potassium and other electrolytes, acids, alkalis or petroleum products
- Activated charcoal is usually ineffective if given more than 1 hour post-ingestion. However with some medicines there may be advantage in administering activated charcoal after this time, or in repeat doses
- Caution is required with the use of activated charcoal in patients who are not intubated because of problems with aspiration e.g. drowsy patient with an unstable airway particularly those who are reluctant to take the activated charcoal
- In summary, activated charcoal should only be given if the patient can self-administer without any assistance from treating staff. All patients who are, or are at risk of becoming drowsy, unconscious or fitting will need airway protection and will need intubation prior to administration of activated charcoal

Schedule	Unscheduled	Activated charcoal Give on advice of PIC/MO/NP		NON DTP
Authorised Indigenous Health Worker must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Suspension	50 g/250 mL	Oral Giving the activated charcoal to a child from a covered container may increase its acceptance (the colour can be off putting). Activated charcoal via the nasogastric or orogastric tube may be considered. The patient must be able to protect their airway or have it secured e.g. intubation	Adult only 50 g Child 1g/kg/dose to max. of 50 g	Activated charcoal can be repeated on MO/NP orders There are some medicines (carbamazepine, theophylline, quinine, colchicine and phenobarbitone, digoxin, aspirin) whose elimination may be enhanced with repeat dosing e.g. 25 - 50 g 4 - 6 hourly
Contact the PIC ☎ 13 11 26 (24 hours) for advice				
Provide Consumer Medicine Information: activated charcoal is unpalatable - but can be mixed with ice cream to improve this				
Notes: decontamination with activated charcoal is rarely indicated in children. Activated charcoal should only be considered in children when risk assessment suggests that a good outcome is unlikely with supportive care. Activated charcoal should never be administered in children with altered conscious state without airway protection. The use of activated charcoal requires a careful assessment of the risks and benefits because a general anaesthetic is often required to protect the airway. Must consult MO/ NP for children < 6 years				
Management of associated emergency: consult MO/NP				

- There is no evidence that the use of sorbitol or other cathartic agent provides any benefit over activated charcoal alone and they are no longer indicated

5. Follow up

- Before allowing any patient home it is especially important to assess suicidal intent. Enquire specifically about:
 - suicidal thoughts
 - previous deliberate self-harm
 - evidence of a premeditated act without the intention of being found
- Consider other high risk factors:
 - mental illness including depression and schizophrenia
 - violent self-harm attempt such as jumping, hanging or shooting
 - chronic alcohol misuse or drug dependency
 - single, male
 - after having a baby
- Medical clearance of a patient with deliberate self-poisoning or accidental ingestion requires both the physical and mental state to have returned, or be close to their premorbid state. The patient should be able to mobilise independently, perform simple activities of daily living e.g. feed and toilet themselves. In addition the patient should be orientated to time, place and person and perform simple mental tasks e.g. serial sevens (counting down from 100)
- The Queensland PIC has a useful website on the first aid treatment and prevention of poisonings, it can be found at: www.health.qld.gov.au/poisonsinformationcentre

6. Referral/consultation

- Consult MO/NP on all occasions if the substance taken is known or suspected to be toxic
- The PIC can help to clarify toxicity and give up to date advice on the urgency and the specifics of management
- All patients who are, or are at risk of becoming drowsy, unconscious or fitting, or who may require specific management or antidotes as detailed below may need to be evacuated/hospitalised
- All patients with deliberate self-poisoning will need a mental health review

If information on agents/drugs not specifically mentioned in this section is required please contact the Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Specific poisons

Anticholinergic agents - adult/child^{3,4,5}

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first for all patients with anticholinergic overdose. PIC ☎ 13 11 26 (24 hours)

Background

- Anticholinergic toxicity can be due to ingestion of pure anticholinergic agents e.g. benztropine, benzhexol, anticholinergic plants, notably angel's trumpet or datura (*Brugmansia* species) or by drugs that have anticholinergic activity as part of their toxicity, such as tricyclic antidepressants and antihistamines

1. May present with

- Central nervous system effects e.g. hallucinations, delirium, sedation and occasionally seizures
- Peripheral nervous system effects e.g. dilated pupils, red, dry skin, mouth and axilla and urinary retention, reduced bowel sounds, tachycardia and hyperthermia
- Effects may be delayed and cyclical

2. Immediate management

- See Immediate management under [Transient ischaemic attack \(TIA\) and stroke, page 114](#)

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- The patient may be in a hyperstimulated state e.g. delirium. It can be useful to attend to the patient in a dark and quiet room in the company of a familiar person, friend or relative
- Consult MO/NP who will advise further management which may include:
 - diazepam for sedation or seizures
 - active cooling for hyperthermia. See [Heat exhaustion/heat stroke/hyperthermia, page 194](#)
 - IV fluids to maintain hydration
 - IDC for urinary retention
 - deep vein thrombosis prophylaxis if patient is bed bound for an extended period of time

Anticonvulsants - adult/child

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first for all patients with anticonvulsant overdose. Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Background

- This is a diverse group of drugs with differing toxicities. The older agents e.g. sodium valproate and carbamazepine are more toxic in overdose in comparison with the new agents e.g. lamotrigine and antihistamines

Sodium valproate - adult/child

- In addition to [Toxicology/poisoning/overdose, page 224](#)

1. May present with

- Gastrointestinal toxicity e.g. nausea and vomiting
- Central nervous system depression: ranges from mild sedation to coma
- Cardiovascular effects e.g. hypotension and QT prolongation
- Metabolic abnormalities e.g. metabolic acidosis (lactic acidosis), hyponatraemia (sodium load)
- Bone marrow depression e.g. thrombocytopenia

2. Immediate management Not applicable

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- The risk assessment is based on the dose ingested, serum valproate levels (if available) and the status of the patient, especially the level of CNS depression
- Consult MO/NP who will advise further management. Evacuation/hospitalisation may be required
- Large ingestions will require intubation and ventilation. Activated charcoal 50 g should be given post intubation
- Hypotension (systolic BP < 90 mmHg) should be treated with IV fluid. On rare occasions inotropes will be required to maintain blood pressure
- Haemodialysis may be required in a patient with life threatening toxicity

Carbamazepine - adult/child

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Background

- Toxicity is related to dose: > 50 mg/kg or > 3 g total, can be associated with significant toxicity

1. May present with

- Toxicity can be delayed and prolonged due to erratic absorption and the anticholinergic properties of carbamazepine
- GIT toxicity e.g. bowel obstruction (ileus)
- Central nervous system depression: cerebellar effects e.g. nystagmus and dysarthria, sedation progressing to coma, seizures (rare)
- Cardiovascular effects e.g. tachycardia and hypotension and rarely QRS prolongation with ventricular arrhythmias

2. Immediate management

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- Intubation and ventilation for patients with a decreased level of consciousness
- Multi dose activated charcoal (50 g q4h) for intubated patients (if bowel sounds present)
- IV fluids for hypotension (systolic BP < 90 mmHg), inotropes rarely required
- Rarely sodium bicarbonate for patients with cardiovascular instability and widened QRS (> 120 msec)
- Take blood for carbamazepine concentration every 3 - 6 hours in severe cases

Phenytoin - adult/child

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Background

- Of the 3 traditional anticonvulsants, ingestion of phenytoin in overdose is rarely associated with life threatening toxicity. However, toxicity can be prolonged due to saturable liver metabolism with long half life > 24 hours. Most patients will do well with supportive care. Chronic toxicity from dose adjustments and/or medicine interactions behaves in a similar fashion
- Toxicity correlates reasonably well with medicine concentration. 10 - 20 mg/L is the therapeutic range

1. May present with

- Early neurological symptoms may be nystagmus, ataxia and mild sedation
- More severe ingestions may show worsening nystagmus, severe ataxia, dysarthria and sedation, coma and seizures
- GIT toxicity e.g. nausea and vomiting
- Cardiovascular effects e.g. bradycardia/hypotension, associated with rapid infusion of IV phenytoin (> 50 mg/min) are not seen with oral phenytoin

2. Immediate management Not applicable

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- Most patients do well with simple supportive care
- Intubation and ventilation is rarely required
- IV fluids for hypotension (systolic BP < 90 mmHg)
- Multi dose activated charcoal (50 g q4h) to increase clearance in severe toxicity may be indicated
- Serial phenytoin levels (no more than daily)

Other anticonvulsants - adult/child

Lamotrigine, gabapentin, pregabalin, levetiracetam

- In addition to [Toxicology/poisoning/overdose, page 224](#)
- Ingestion of these 4 agents most commonly leads to mild GIT and CNS toxicity with sedation and nystagmus. Severe CNS toxicity resulting in coma requiring intubation and ventilation rarely occurs

Antidepressants - adult/child^{4,5,6}**Selective serotonin reuptake inhibitors (SSRIs)**e.g. fluoxetine, paroxetine, fluvoxamine, sertraline, citalopram, escitalopram³

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first for all patients with antidepressant overdose. Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Background

- SSRIs rarely cause significant toxicity. Citalopram and escitalopram can cause QT prolongation and prolonged cardiac monitoring may be required

1. May present with

- Serotonin toxicity, which is rarely life threatening, is best described as:
 - neuromuscular effects e.g. hyperreflexia, clonus, tremor, hypertonicity, seizures (rare)
 - autonomic effects e.g. hyperthermia, diaphoresis, flushing, tachycardia
 - mental status effects e.g. anxiety, agitation and confusion (rare)
 - QT prolongation with citalopram and escitalopram

2. Immediate management Not applicable**3. Clinical assessment**

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- Most ingestions of SSRIs require only observation. Some may need symptomatic treatment for any symptomatic serotonin toxicity e.g. benzodiazepines
- Ingestions of citalopram and escitalopram should be managed in consultation with MO/NP and Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Tricyclic antidepressants (TCAs) - adult/childe.g. amitriptyline, clomipramine, dothiepin, doxepin, imipramine, nortriptyline, trimipramine³

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first for all patients with antidepressant overdose. Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Background

- Ingestions of > 15 mg/kg can result in severe toxicity with unconsciousness, cardiac arrhythmias and seizures. Onset of toxicity is rapid (within the hour). Patients ingesting TCAs who are asymptomatic at 6 hours post ingestion and have a normal ECG can be discharged
- All patients with intentional poisonings require a 12 lead ECG and a paracetamol level. See [Toxicology/poisoning/overdose, page 224](#)

1. May present with

- Neurological effects e.g. rapid deterioration in level of consciousness and seizures
- Cardiovascular effects e.g. tachycardia, hypotension progressing to broad complex tachycardia and ventricular arrhythmias. Bradycardia is a preterminal sign of cardiovascular collapse
- Anticholinergic toxicity is often seen with smaller ingestions or after recovery from a large ingestion

2. Immediate management

- See Immediate management under [Toxicology/poisoning/overdose, page 224](#)
- Patients who arrive with a decreased level of consciousness will often require intubation and ventilation
- Commence continuous cardiac monitoring

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- If unconscious see Immediate management under [Toxicology/poisoning/overdose, page 224](#)
- Consult MO/NP who will advise further management which may include:
 - fluid load with sodium chloride 0.9% if hypotensive (BP < 90 mmHg)
 - QRS widening associated with haemodynamic compromise should receive IV sodium bicarbonate (1 - 2 mmol/kg)
 - seizures should be managed with benzodiazepines e.g. midazolam 5 mg or diazepam 10 mg. See [Fits/convulsions/seizures, page 72](#)
 - consideration should be given to administering activated charcoal (50 g) post intubation via an NGT
- Patients with hypotension, ventricular arrhythmias and/or ongoing seizures and/or not responsive to the above treatment should be discussed with a Clinical Toxicologist

Antihistamines - adult/child^{3,4,5}

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first for all patients with antihistamine overdose. Poisons Information Centre (PIC)
☎ 13 11 26 (24 hours)

Background

- Due to ingestion of both sedating antihistamines e.g. promethazine and non-sedating antihistamines e.g. loratadine, desloratadine, cetirizine and fexofenadine

1. May present with

- Central nervous system depression, anticholinergic symptoms e.g. delirium, urinary retention and rarely seizures. See [Toxicology/Anticholinergic agents, page 228](#)
- Tachycardia, orthostatic hypotension
- Rarely arrhythmias, myocardial depression and rhabdomyolysis e.g. doxylamine
- QT prolongation and very rarely torsades de pointes with non-sedating antihistamines

2. Immediate management Not applicable

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- Close attention to airways, breathing and circulation is essential, as the majority of patients have an excellent prognosis with good supportive care
- Consult MO/NP who will advise further management which may include:
 - activated charcoal. This is rarely required due to the rapid onset of sedation, but may be considered in ingestions of particular antihistamines e.g. promethazine
 - sedation may be required 12 - 24 hours after the ingestion when antihistaminic sedative effects have resolved, but the anticholinergic delirium remains

Antipsychotics - adult/child⁷

Typical

e.g. chlorpromazine, haloperidol, pericyazine

In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first for all patients with antipsychotic overdose. Poisons Information Centre (PIC)
① 13 11 26 (24 hours)

Background

- Although grouped as a class, these agents have different toxicities in overdose

1. May present with

- Neurological effects e.g. decreased level of consciousness, dystonic reactions
- Cardiovascular effects e.g. hypotension, tachycardia and QT prolongation

2. Immediate management

- See Immediate management under [Toxicology/poisoning/overdose, page 224](#)
- Patients who arrive with a decreased level of consciousness will often require intubation and ventilation

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- If unconscious the patient will often require intubation and ventilation
- Consult MO/NP who will advise further management which may include:
 - fluid load with sodium chloride 0.9% if hypotensive (systolic BP < 90)
 - extrapyramidal effects e.g. dystonic reactions, should be managed with benztropine adult 1 - 2 mg and for children 0.02 mg/kg (max. 1 g) IV¹³. See [Mental health behavioural emergencies, page 437](#)
 - patients with QT prolongation should have ongoing cardiac monitoring

Antipsychotics - adult/child**Atypical****e.g. quetiapine, olanzapine, risperidone**

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Background

- Although grouped as a class, these agents have different toxicities in overdose

1. May present with

- Olanzapine - mild to moderate decreased level of consciousness rarely leading to coma, sedated delirium and other anticholinergic toxicity e.g. tachycardia
- Quetiapine - tachycardia and hypotension, decreased level of consciousness progressing to coma in large ingestions
- Risperidone - tachycardia and dystonic reactions, rarely hypotension. Decreased level of consciousness does not occur

2. Immediate management

- See Immediate management under [Toxicology/poisoning/overdose, page 224](#)
- Patients who arrive with a decreased level of consciousness will often require intubation and ventilation

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- If unconscious see Immediate management
- Consult MO/NP who will advise further management which may include:
 - fluid load with sodium chloride 0.9% if hypotensive (systolic BP < 90)
 - extrapyramidal effects e.g. dystonic reactions should be managed with benztropine adult 1 - 2 mg and for children 0.02 mg/kg (max. 1 g) IV²³. See [Mental health behavioural emergencies, page 437](#)

Aspirin/salicylates - adult/child^{3,4,5}

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first for all patients with ingestions of aspirin and methylsalicylate overdose. All patients should be discussed with the Poisons Information Centre PIC ☎ 13 11 26 (24 hours)

Background

- May be due to ingestion of aspirin containing products and methylsalicylate containing liniments and vaporiser fluids

1. May present with

- Gastrointestinal effects e.g. nausea, vomiting

- Neurological effects e.g. confusion, drowsiness, restlessness, hyperventilation, tinnitus (ringing in ears). Coma and seizures are rare and associated with severe poisoning
- Metabolic effects e.g. respiratory alkalosis and metabolic acidosis
- Toxicity is related to ingested dose
 - < 150 mg/kg - minor toxicity
 - 150 - 300 mg/kg - mild to moderate effects e.g. tinnitus and hyperventilation
 - 300 - 500 mg/kg - severe toxicity e.g. metabolic acidosis, coma and seizures
 - > 500 mg/kg - potentially fatal

2. Immediate management

- See Immediate management under [Toxicology/poisoning/overdose, page 224](#)

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)
- In addition, patients with salicylate toxicity require an arterial blood gas (ABG), repeated salicylate levels and biochemistry e.g. electrolytes, renal function

4. Management

- Consult MO/NP who will advise further management which may include activated charcoal for doses > 150 mg/kg when the time of ingestion is within 6 hours
- The Poisons Information Centre (PIC) can assist with calculations involving salicylate exposures. When the amount is unknown, blood levels may be taken, although this may require evacuation

5. Follow up

- See follow up under [Toxicology/poisoning/overdose, page 224](#)

6. Referral/consultation

- Patients who have ingested more than 300 mg/kg, or have any evidence of acidosis, may require treatment in a critical care area. This may require retrieval to a larger centre in consultation with a Clinical Toxicologist

Button Battery - adult/child¹²

Recommend

- Contact MO/NP immediately for all patients with definite or suspected button battery ingestion. The MO/NP will discuss button battery exposures with Poisons Information Centre (PIC) ① 13 11 26 (24hrs) and may also be required to consult the on-call surgeon or gastroenterologist
- If x-ray facilities are not available urgent retrieval to appropriately equipped facility may be required

Background

- Household products that contain these batteries include remote control devices, toys, hearing aids and watches
- Button batteries can cause life-threatening injuries, particularly if lodged in the oesophagus or airway. Button batteries lodged in ears and noses can also cause significant injury
- Button batteries with a diameter of more than 20mm can more easily lodge in the oesophagus
- Batteries in the oesophagus may be asymptomatic early but severe burns can occur within 2 hours⁹

1. May present with

- Airway obstruction or wheezing
- Drooling
- Difficulty swallowing
- Decreased appetite
- Refusal to eat
- Coughing, choking or gagging with eating or drinking
- Abdominal pain
- Chest pain
- Constipation
- Vomiting
- Fever
- Stridor
- May present with non-specific symptoms with no definite history of a battery ingestion

2. Immediate management

- Nil by mouth until oesophageal position excluded by x-ray as anaesthesia may be required for battery removal
- Do not induce vomiting or give cathartics as both are ineffective⁹
- Urgent x-ray of the entire oesophagus, neck and abdomen to identify position of battery, especially in patients < 12years and if a battery is known to be larger than 20mm in diameter. If battery in oesophagus obtain an anteroposterior and lateral x-ray if possible. If x-ray facilities are not available and the patient has a suspected or definite button battery ingestion, urgent retrieval is required to an appropriately equipped facility

3. Clinical assessment

- Undertake 'Risk Assessment' under [Toxicology/poisoning/overdose, page 224](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)

4. Management

- Urgent removal of battery is required if battery found to be lodged in the oesophagus, airway, ear or nose. This may require evacuation of the patient. Consult MO/NP or clinical toxicologist via the Poisons Information Centre (PIC) ☎ 13 1126 (24hrs)
- Close attention to airway and breathing is essential
- If the battery is found within or distal to the stomach, it may be allowed to pass spontaneously if there is no indication of significant gastrointestinal injury - MO/NP will consult clinical toxicologist for this advice

5. Follow up

- If the battery is allowed to pass spontaneously these patients should be followed up to ensure battery passage
- Community education on the prevention of button battery injuries especially safe storage

Carbon monoxide - adult/child^{3,4,5}

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first for all patients with carbon monoxide poisoning. Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Background

- Can result from exposure to combustion in a confined space, both accidentally, occupationally (e.g. firemen) and deliberately (car exhaust fumes). Patient with deliberate exposures to carbon monoxide have often taken overdoses of other agents

1. May present with

- Neurological effects e.g. headache, lethargy, confusion, drowsiness, weakness, altered state of consciousness (may be transient), seizures
- Gastrointestinal effects e.g. nausea, vomiting
- Cardiovascular effects e.g. tachycardia. In severe poisonings ECG changes and arrhythmias

2. Immediate management

- See Immediate management under [Toxicology/poisoning/overdose, page 224](#)
- Apply high flow O₂ via a non-rebreathing mask. A Hudson mask is not sufficient. See [Oxygen delivery systems, page 44](#)

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)
- Carboxyhaemoglobin levels are a poor marker of exposure and hence prognosis

4. Management

- Consult MO/NP or clinical toxicologist via the Poisons Information Centre (PIC) ☎ 13 11 26 (24hrs)
- High flow O₂ as above for at least 6 hours. Ongoing O₂ therapy may be considered in patients with ongoing clinical effects. These patients should be discussed with a Clinical Toxicologist. Hyperbaric O₂ is no longer recommended for most carbon monoxide exposures
- In carbon monoxide poisoning, a pulse oximeter will record a misleading normal O₂ saturation

5. Follow up

- See follow up under [Toxicology/poisoning/overdose, page 224](#)

6. Referral/consultation

- Patients with ongoing symptoms or pregnant patients should be discussed with a Clinical Toxicologist
- Consult MO/NP or clinical toxicologist via the Poisons Information Centre (PIC) ☎ 13 11 26 (24hrs)

Caustic substances - adult/child^{3,4,5}

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first for all patients with caustic substance exposure. Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Background

- Known or suspected exposures to acids including: rust removers, some toilet bowl cleaners, battery acids, other acids used in cleaning and industry or alkalis including: drain cleaners, oven cleaners, ammonia, detergents including automatic dishwashing detergent

1. May present with

- Burns to the lining of the mouth, oesophagus and stomach. The lips and mouth should be inspected for signs of burns, including blisters, redness and swelling. However, a clear mouth does not necessarily indicate a clear oesophagus
- Stridor, dyspnoea or dysphonia indicate airway injury which may be life threatening
- Signs associated with oesophageal inflammation: pain or difficulty with swallowing, excessive drooling, irritability, pulling at lips or tongue, vomiting, abdominal pain

2. Immediate management

- Initial management is to wipe out the mouth with a cloth, then rinse with water. No further fluids should be given

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- Close attention to airways and breathing is essential
- Do not induce vomiting
- Do not give an acid to neutralise an ingested alkali or vice versa as the heat of neutralisation may cause further damage
- Do not give activated charcoal³. It is ineffective
- Consideration should be given to administering analgesia in the form of IV opioids as these exposures can be painful. Consult MO/NP who will advise further management and arrange evacuation/hospitalisation if required
- There is no evidence that the use of corticosteroids prevents the development of oesophageal strictures following alkali ingestions

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first for all patients with cyanide poisoning. Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Background

- Cyanide binds to the ferric ion in the mitochondrial cytochrome oxidases, thereby inhibiting cellular respiration and results in lactic acidosis. Cyanide exposure is usually from inhalation from domestic or industrial fires or from occupational exposure (cyanide is used in gold refining). Onset of toxicity and death is rapid. Most patients who survive to hospital will do well with supportive care without the need for antidotes

1. May present with

- Neurological effects e.g. headache, weakness, confusion, drowsiness, coma and seizures
- Cardiovascular effects e.g. hypotension, tachycardia, ECG changes, arrhythmias and cardiorespiratory arrest can occur
- Gastrointestinal effects e.g. nausea and vomiting
- Respiratory distress and cyanosis from hypoxia

2. Immediate management

- See Immediate management under [Toxicology/poisoning/overdose, page 224](#)
- Patients with a decreased level of consciousness and/or respiratory failure will require early intubation and ventilation

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- Take precautions (gloves, plastic gown and mask) to prevent contact with cyanide directly or off the patient, particularly from the liquid form of cyanide
- Remove the patient from the source of contamination to fresh air
- Give high flow O₂ via a non-rebreathing mask. A Hudson mask is not sufficient. See [Oxygen delivery systems, page 44](#)
- Consult MO/NP who in consultation with the Poisons Information Centre (PIC) may recommend the use of an antidote, of which there are several available
- MO/NP will arrange evacuation/hospitalisation to an appropriate facility

Eucalyptus oil - adult/child^{3,4,5}

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first. All patients with ingestions of eucalyptus oil should be discussed with the Poisons Information Centre PIC ☎ 13 11 26 (24 hours)

Background

- Ingestion of as little as 2 - 3 mL or more may produce signs of toxicity. Ingestion can also result in aspiration resulting in a pneumonitis, that evolves over hours

1. May present with

- Neurological effects e.g. confusion, drowsiness, decreased level of consciousness and coma
- Cardiovascular effects e.g. tachycardia and hypotension
- Respiratory effects e.g. aspiration, which may result in pneumonitis, with coughing, gagging, wheezing and respiratory distress
- Gastrointestinal effects e.g. vomiting, nausea
- Onset can be rapid with severe toxicity developing within the hour

2. Immediate management

- See Immediate management under [Toxicology/poisoning/overdose, page 224](#)

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- May require O₂ to maintain O₂ saturation > 93% adult or > 95% child. If not maintained consult MO/NP
- Insert IV cannula if any signs of sedation and have midazolam ready in case of seizures. See [Fits/convulsions/seizures, page 72](#)
- Consult MO/NP who will advise further management and arrange evacuation/hospitalisation
- The use of activated charcoal is contraindicated given the rapid onset of symptoms and the risk of aspiration
- All patients should be observed for 6 hours
- Avoid giving any food/liquid containing dairy for at least 2 hours following ingestion in order to limit absorption

Hydrocarbons (including many oils) - adult/child^{4,5}

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first for all patients with ingestion of hydrocarbons. Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Background

- Toxicity depends on the particular hydrocarbon. Clarification of the type of hydrocarbon and the expected toxicity may be obtained from the Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)
- In general:
 - high viscosity hydrocarbons are thick substances and are generally swallowed resulting in gastrointestinal effects
 - low viscosity hydrocarbons are often easily vaporised or aerosolised and are associated with inhalation and aspiration. They can cause chemical damage to the lungs, hypoxia, aspiration and systemic effects due to easier absorption. Onset of toxicity is often rapid

1. May present with

- Rapid onset of central nervous system (CNS) depression and seizures
- Respiratory symptoms such as coughing and choking, which indicates aspiration has occurred
- Cardiac arrhythmias can occur early and be fatal

2. Immediate management

- See Immediate management under [Toxicology/poisoning/overdose, page 224](#)

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- May require O₂ to maintain saturation > 93% adult or > 95% child. If O₂ saturation not maintained consult MO/NP
- Do not induce vomiting or administer activated charcoal
- See following table Types of hydrocarbons

5. Follow up

- Review the next day and the day after given the possibility of delay in respiratory symptoms
- Consult MO/NP if any chest symptoms or signs of increased HR or temperature

Types of hydrocarbons

Type	Examples	Risk of pneumonitis	Risk of systemic toxicity	Management
High-viscosity	Vaseline Motor oil Other lubricating oils	Low	Low	Marked diarrhoea may occur, usually managed by increasing oral fluids
Low-viscosity: systemic toxicity possible	Kerosene Lighter fluid Mineral turpentine Petrol & diesel Pine oil - associated with potential for marked CNS effects similar to eucalyptus oil	High	Low. CNS toxicity can occur, whether due to an asphyxia effect, or a direct hydrocarbon effect	Observe for acute asthma-like features or pneumonitis. May be delayed 1 - 2 days. Observe for nausea, vomiting, diarrhoea Consult MO/NP
Low-viscosity: known systemic toxicity	Camphor, Chlorinated insecticides Benzene Toluene		High. Particularly severe effects include cardiac arrhythmias and seizures	Observe for acute asthma-like features or pneumonitis. May be delayed 1 - 2 days. Observe for nausea, vomiting, diarrhoea Consult MO/NP who will organise evacuation/hospitalisation if required

Iron - adult/child^{3,4,5}

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first. MO/NP is advised to discuss with Clinical Toxicologist
- The Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours) can assist

Background

- It is the elemental iron content that is used for the calculation of toxicity. The amount may vary between 80 mg and 105 mg in a 300 mg ferrous or ferric salt tablet depending on the formulation. Ferro-Liquid® mixture contains 6mg/mL of elemental iron. The Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours) can assist with calculations
- Toxicity depends on the weight of the patient and amount of elemental iron ingested:
 - < 60 mg/kg - asymptomatic or GIT toxicity
 - 60 - 120 mg/kg - systemic toxicity
 - > 120 mg/kg - potentially lethal
- It is unusual for children to ingest more than 40 mg/kg elemental iron

1. May present with

- Classically, iron toxicity is described as presenting in three distinct phases. Clinically these phases often overlap with each other:

Phase 1

Significant GIT toxicity manifesting as severe nausea, vomiting, abdominal pain, haematemesis and bloody diarrhoea (haemorrhagic gastroenteritis). These effects may be delayed, but are usually seen within 6 hours if a sufficient amount has been ingested. Hypotension from fluid loss can occur

Phase 2

A quiet or window phase where the GIT toxicity settles prior to systemic toxicity commencing

Phase 3

Systemic toxicity manifesting as multiorgan failure with cardiovascular collapse, renal failure, metabolic acidosis, hepatotoxicity and CNS toxicity. These life threatening effects usually occur between 6 and 48 hours after the exposure

2. Immediate management

- See Immediate management under [Toxicology/poisoning/overdose, page 224](#)

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)
- A plain abdominal x-ray may show residual whole tablets or a concretion (a hard usually inorganic mass) which may indicate the need for whole bowel irrigation. This decision should be made in consultation with a Clinical Toxicologist

4. Management

- Iron levels at the 4 - 6 hours post ingestion can predict toxicity. In addition patients with iron ingestion require a number of other investigations including electrolytes, renal and liver function, blood gases, full blood count and an abdominal x-ray
- IV fluids should be administered to ensure adequate circulating volume and replacement of fluid loss
- Activated charcoal is ineffective
- Whole bowel irrigation may be useful for large exposures (over 60 mg/kg). Consult MO/NP or a Clinical Toxicologist
- Consult MO/NP who will organise evacuation/hospitalisation
- Desferrioxamine is an antidote that will be needed in serious cases. This can be brought with the retrieval team

Lithium - adult/child^{3,4,5}

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- All cases of chronic lithium toxicity with neurological toxicity should be discussed with a Clinical Toxicologist. The Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours) can assist

Background

- Acute lithium ingestions in patients with normal renal function are relatively benign with minor GIT toxicity only, as the lithium is renally excreted prior to entry into the CNS. This is usually regardless of whether the patient is taking lithium regularly or irregularly
- Chronic lithium toxicity, which often occurs insidiously in the context of advanced age and renal impairment, is a serious illness requiring inpatient care and rarely dialysis

1. May present with

- Gastrointestinal effects e.g. nausea, vomiting and diarrhoea
- Neurological effects e.g. tremor, hyperreflexia, clonus, ataxia and dysarthria
- Cardiovascular effects e.g. hypotension/QT prolongation in severe toxicity only

2. Immediate management Not applicable

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- Acute lithium ingestions often only require antiemetics and IV fluid
- Serial lithium levels and discharge when lithium level is below 1 mmol/L
- Chronic lithium toxicity usually requires inpatient admission and IV fluid with attention to fluid balance including an IDC
- All cases of chronic lithium toxicity with neurological toxicity should be discussed with a Clinical Toxicologist

Non-steroidal anti-inflammatory drugs (NSAID) - adult/child^{3,4,5}

e.g. diclofenac, ibuprofen, indomethacin, ketorolac, naproxen, mefenamic acid

In addition to [Toxicology/poisoning/overdose, page 224](#) approach

Recommend

- Consult MO/NP first for all patients with NSAID overdose. The Poisons Information Centre (PIC) ① 13 11 26 (24 hours)

Background

- Most people with ingestions of NSAID do well with supportive care. Most ingestions are with ibuprofen and if < 400 mg/kg are unlikely to result in major toxicity

1. May present with

- Gastrointestinal effects e.g. nausea, vomiting and upper GIT irritation
- Renal effects e.g. renal impairment in patients who are dehydrated/hypovolaemic
- Neurological effects e.g. altered level of consciousness and seizures with ingestion of mefenamic acid
- Metabolic effects e.g. metabolic acidosis with large ingestions (> 400 mg/kg ibuprofen)

2. Immediate management Not applicable

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- Consult MO/NP
- Most patients will do well with symptomatic and supportive care
- All patients should receive IV fluid and have their renal function checked

- Upper GIT irritation symptoms can be managed with IV/oral proton pump inhibitors

Opioids - adult^{3,4,5}

e.g. buprenorphine, codeine, fentanyl, hydromorphone, methadone, morphine, heroin, oxycodone, pethidine, Lomofil[®]

Recommend

- Consult MO/NP first for all patients with opioid overdose. The Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Background

- Toxicity from opioids cannot be predicted solely from the dose ingested due to differing tolerance in opioid dependent patients
- People who have overdosed on slow release opioids and those with renal impairment may have delay in the onset of symptoms therefore need longer period of observation
- Activated charcoal is not routinely indicated. A good outcome is expected with supportive care and antidote administration as necessary. The onset of symptoms is also usually rapid, making airway protection essential if considering any form of decontamination
- Lomofil[®] contains atropine and diphenoxylate. Diphenoxylate is chemically related to pethidine

1. May present with

- Neurological depression ranging from drowsiness to coma
- Respiratory depression often mirrors the degree of CNS depression
- Cardiovascular effects e.g. hypotension
- Miosis (small pupils)
- QT prolongation and torsades de pointes can occur with ingestions of methadone

2. Immediate management Not applicable

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- Consult MO/NP
- May require O₂ to maintain saturation > 93% adult or > 95% child. If O₂ saturation is not maintained consult MO/NP. See [Oxygen delivery systems, page 44](#)
- Hypoxia in patients with opioid ingestion mandates an assessment of CO₂
- Give naloxone if depressed level of consciousness or respiratory rate. Care and clinical justification needs to be considered prior to inducing withdrawal in patients who are regular users of opioids as complications could include seizures and arrhythmias which may be fatal
- MO/NP may order further doses or IV infusion of naloxone. Naloxone has a short half life and the patient may relapse as the naloxone wears off
- **The endpoint should be a patient with a respiratory rate > 12 respirations per minute and easily responsive to verbal stimuli.** Complete reversal of opioids is not required and can lead to undesirable effects e.g. acute opioid withdrawal, agitation, pulmonary oedema

Schedule	3	Naloxone hydrochloride		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker may administer one dose then must consult MO/NP				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	0.4 mg/mL	IV	Adult Dilute 0.4 mg with sodium chloride 0.9% to a total of 8 mL = 0.05 mg/mL Give 0.1 mg (2 mL) to 0.2 mg (4 mL) of this dilution as required to meet endpoint of resp. rate > 12 rpm and easily responsive to verbal stimuli	Stat Further doses on MO/NP order Can be repeated at intervals of 2 - 3 mins to a max. of 2 mg
		IM	Adult 0.4 mg	
Note: opioid analgesics have a longer duration of action than naloxone and respiratory depression may return as the naloxone wears off. Continued observation and monitoring of respiratory function is required				
Management of associated emergency: onslut MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

3,7

Organophosphates - adult/child^{3,4,5}

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first. All organophosphate ingestions should be discussed with a Clinical Toxicologist. The Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours) can assist

Background

- Organophosphate toxicity is a rare and potentially lethal toxicity. This usually occurs in situations of deliberate overdose
- Occupational dermal or inhalational exposure which is more common can cause toxicity, but this is rarely life threatening
- Organophosphates are often formulated with hydrocarbons which can contribute to the toxicity, especially if aspirated. See [Toxicology/hydrocarbons, page 51](#)

1. May present with

- Gastrointestinal effects e.g. nausea, vomiting, diarrhoea, cardiovascular effects - shock can occur with some organophosphate poisonings. It is unknown whether this is organophosphate toxicity or toxicity from the diluent e.g. hydrocarbon solvent
- Cholinergic toxicity
- Muscarinic effects (effects on parasympathetic nervous system):
 - vomiting, diarrhoea, urination, miosis (small or contracted pupil), bronchorrhea (excessive mucous from the air passages of the lung), bronchospasm, lacrimation (tears) and salivation
 - bradycardia (slow HR) and hypotension

- Nicotinic effects:
 - muscle weakness, muscle fasciculation (twitching), respiratory muscle paralysis
 - tachycardia (fast HR) and hypertension
- Central nervous system effects (mixture of both muscarinic and nicotinic effects):
 - agitation, coma, seizures
 - respiratory failure and unconsciousness may follow

2. Immediate management

- See Immediate management under [Toxicology/poisoning/overdose, page 224](#)
- Although decontamination of the patient and avoidance of secondary contamination is important it must not take precedence over the resuscitation of the patient

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- Resuscitation should be the primary concern and should not be secondary to external decontamination of the patient
- Take precautions (nitrile gloves if available, plastic gown and mask) to prevent contact with organophosphate from the patient. Significant secondary poisoning has never been documented. Some staff are often concerned about this risk, which is due to the strong smell of the hydrocarbon diluent
- Manage the patient in a well ventilated room
- Give O₂ according to clinical condition - at a minimum, use non rebreathing mask. A Hudson mask is not sufficient. See [Oxygen delivery systems, page 44](#)
- Decontamination is very important. For skin exposures, remove contaminated clothing and wash skin very well with warm soapy water
- Gastrointestinal decontamination is unlikely to be effective due to rapid absorption of the liquid formulations
- Consult MO/NP who may advise giving atropine IV and who will organise evacuation/hospitalisation
- Large doses of atropine may be required with massive poisoning. Start with 1.2 mg and double the dose every 5 minutes until atropinised. Once this has occurred commence an infusion at 10 - 20% of the total atropine dose per hour
- Target endpoints for atropinisation:
 - clear chest with no wheeze
 - HR > 80 and BP (systolic) > 80
 - dry axillae
 - normal pupil size
- Advanced care, including intubation and suctioning of airways may be required

Carbamates

Clinical presentation is identical to organophosphate ingestions. The duration of effects are usually briefer and sometimes are less severe. Oximes are not indicated. Some carbamate products are mixed with methanol which can be the major toxicity encountered. As for organophosphate exposures, patients with carbamate ingestion should be discussed with a Clinical Toxicologist

- Patients exposed to unintentional or dermal exposures of organophosphates or carbamates who remain asymptomatic at 6 hours post exposure can be discharged

Paracetamol - adult/child^{3,4,5,8}

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- The management of paracetamol ingestion can be challenging. MO/NP advised to contact the Poisons Information Centre (PIC) ☎ 13 11 26 where there are any concerns regarding the management of paracetamol ingestion⁸
- Different units are used to report paracetamol levels (micromol/L or mg/L). Incorrect plotting of level may lead to potentially lethal error. Ensure units reported are plotted on nomogram of same measurement
- Medical Journal of Australia (MJA): *Guidelines for the management of paracetamol poisoning in Australia and New Zealand* available at: https://www.mja.com.au/sites/default/files/issues/203_05/Guidelines_paracetamol_Aus_NZ_2015.pdf

Background

- Paracetamol poisoning can arise from:
 - acute deliberate self-poisoning;
 - acute accidental paediatric exposure; or
 - inadvertent repeated supratherapeutic ingestion
- Most paediatric exposures are to the liquid forms of paracetamol in children aged between 1 and 3 years (10 - 15 kg). It is uncommon for children to ingest > 200 mg/kg but if this potential exists (> 200 mg/kg) serum paracetamol levels should be measured after 2 hours post ingestion. Toxic levels should be discussed with PIC
- When treating children < 6 years of age MO/NP should speak with PIC or Toxicologist as the treatment process is different for this group
- Paracetamol is presented in a variety of formulations: tablets, capsules, and powders in a range of strengths; sustained release tablets and capsules; and suspensions in a range of strengths
- Some over the counter preparations contain paracetamol as well as other drugs capable of causing complicating symptoms
- Management guidelines vary between ingestion of immediate release versus modified release formulations, and also between acute versus repeated supratherapeutic ingestion⁸
- Death due to liver failure may result. The patient may be mostly asymptomatic until day 2 or 3 following the exposure
- *The Guidelines for the management of paracetamol poisoning in Australia and New Zealand* (web) are available from https://www.mja.com.au/sites/default/files/issues/203_05/Guidelines_paracetamol_Aus_NZ_2015.pdf

1. May present with

- History of paracetamol overdose (deliberate, accidental, or inadvertent)
- During the first 24 hours following acute overdose the patient may have few if any signs or symptoms but may include: malaise, pallor, diaphoresis, anorexia, nausea and vomiting. Persistent or late vomiting is common with hepatotoxicity
- Right upper quadrant tenderness
- Severe liver damage about 2 - 4 days after ingestion if untreated. The patient may be mostly asymptomatic until day 2 or 3 following the exposure
- 24 - 72 hours after ingestion signs and symptoms of hepatic damage may emerge including right upper quadrant pain and increased INR
- 72 - 96 hours after overdose signs and symptoms of continuing hepatic damage include hypoglycaemia, metabolic acidosis, and jaundice, and frequently renal complications⁸

2. Immediate management Not applicable

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

Paracetamol dosing that may be associated with hepatic injury

Adult or a child ≥ 6 years

- Acute exposures requiring investigation:
 - ingestion of > 200 mg/kg or 10 g, whichever is lowest over a period of less than 8 hours
- Repeated supratherapeutic paracetamol dose is ingestion of:
 - > 200 mg/kg or 10 g (whichever is lower) in a single 24 hour period
 - > 150 mg/kg or > 6 g (whichever is lower) per 24 hour period for the preceding 48 hours
 - > 100 mg/kg or > 4 g (whichever is lower) per 24 hour period for more than 48 hours in those who also have abdominal pain or nausea and vomiting

Children < 6 years

- Acute exposure requiring investigation
 - ingestion of > 200 mg/kg over a period of less than 8 hours require investigation
- Supratherapeutic paracetamol dose is ingestion of:
 - > 200 mg/kg in a single 24 hour period
 - > 150 mg/kg per 24 hour period for the preceding 48 hours
 - > 100 mg/kg per 24 hour period for more than 48 hours⁸
- For obese children the weight should be based on ideal body weight. To determine ideal body weight, growth charts are available from http://www.rch.org.au/childgrowth/Growth_Charts

4. Management

- Consult MO/NP
- If the amount of paracetamol ingested is near to, or greater than the calculated toxic dose, the patient may require evacuation/hospitalisation. Discuss with PIC first
- Activated charcoal 50 g should be offered to cooperative, awake, adult patients who present:
 - within 2 hours of ingestion of a toxic dose of immediate release paracetamol
 - within 4 hours of a toxic dose of modified release paracetamol
 - within 4 hours of ingestion of a large/massive dose (i.e. greater than 30 g) immediate-release paracetamol
 - more than 4 hours post ingestion of a massive overdose of modified-release paracetamol⁸
- In children < 6 years of age with potential accidental paracetamol intoxication, gastrointestinal decontamination with syrup of ipecac, activated charcoal or gastric lavage is not indicated
- For children < 6 years of age who have ingested more than 200 mg/kg liquid paracetamol it is recommended that a serum paracetamol concentration is measured at least 2 hours after ingestion of a liquid preparation. In obese children based on ideal body weight. A cut off level of 150 mg/L or 1000 micromol/L should be used for levels taken 2 - 4 hours post ingestion
- All adults or children ≥ 6 years of age who have ingested more than 200 mg/kg of paracetamol, or **in all cases of deliberate self-poisoning regardless of stated dose, should have serum paracetamol concentration measured after 4 hours post ingestion**
- Indications for acetylcysteine are based on the serum paracetamol level plotted on a paracetamol nomogram, which is sent with the results from pathology
- If serum paracetamol concentration will not be available until > 8 hours post ingestion, or if time of

ingestion is uncertain acetylcysteine treatment should be commenced⁸

- Acetylcysteine (Parvolex®) given intravenously, is an effective antidote where best effects are noted if administered within 8 hours of paracetamol ingestion
- If acetylcysteine has been commenced within 8 hours of ingestion then a standard infusion totalling 300 mg/kg over 21 hours can be given with no requirement for follow up investigations, except in cases of massive overdose where a higher dose of acetylcysteine may be appropriate
- If acetylcysteine has been commenced more than 8 hours after ingestion then the requirement for ongoing acetylcysteine after the standard 21 hour infusion is based on serum ALT (alanine aminotransferase)⁸

Schedule	4	Acetylcysteine (Parvolex®)		NON DTP Must be ordered by MO/NP
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	200 mg/mL	IV	Adult Initially 150 mg/kg in 200 mL glucose 5% over 60 minutes Followed by continuous infusion of 50 mg/kg in 500 mL glucose 5% over 4 hours Then 100 mg/kg in 1 L glucose 5% over 16 hours (total dose 300 mg/kg in 21 hours)	Administered within 8 hours of ingestion
Provide Consumer Medicine Information: may cause flushing, urticaria and itch. Severe anaphylactoid reactions are common (1%)				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
				8,9

5. Follow up

- Discharge patient in consultation with MO/NP

6. Referral/consultation

- MO/NP consult Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours) for chronic exposure

Paraquat - adult/child^{3,4,5}

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first. All paraquat exposures, accidental and deliberate should be discussed with a Clinical Toxicologist. The Poisons Information Centre (PIC) 13 11 26 (24 hours) can assist

Background

- As little as 10 - 15 mL of concentrated liquid paraquat (herbicide - weed killer) is fatal, which corresponds to less than a mouthful in an adult

1. May present with

- Oral and pharyngeal ulceration, nausea, vomiting and diarrhoea
- Inflammation of the heart muscle (myocarditis), liver and kidney damage and life threatening pulmonary oedema
- Death occurs often secondary to multi-organ dysfunction early, or pulmonary fibrosis late

2. Immediate management

- Give activated charcoal immediately. If there is a delay with getting a patient to receive activated charcoal, e.g. isolated patients calling in, instruct them to eat soil or food - this will absorb the paraquat

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- Treatment must be rapid. Delays will greatly increase risk of toxicity and death
- Take precautions (gloves, plastic gown and mask) to prevent contact with paraquat
- Do not give O₂ initially unless ordered by MO/NP. O₂ enhances pulmonary toxicity of paraquat
- Consult MO/NP who may advise:
 - O₂ if O₂ saturation falls below 90%
 - most exposures will require evacuation/hospitalisation to an appropriate facility
 - base line spirometry is of use for monitoring patient condition

Recreational drugs - adult/child^{3,4,5}**Amphetamines and cocaine**

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP. Complicated amphetamine toxicity should be discussed with a Clinical Toxicologist. The Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours) can assist

Background

- There are numerous derivatives of amphetamines available. Some are used therapeutically e.g. dexamphetamine, while others are only available via illicit means e.g. ecstasy (MDMA) or ice. Concentrations vary and patient tolerance means that toxicity of these agents can be variable

1. May present with

- Sympathomimetic and serotonin toxidromes characterised by:
 - CNS excitation e.g. agitation, delirium, seizures
 - neuromuscular excitation e.g. hyperreflexia
 - autonomic effects e.g. hyperthermia, diaphoresis, mydriasis
 - cardiovascular effects e.g. tachycardia, hypertension, arrhythmias and rarely hypotension
 - metabolic effects e.g. hyperglycaemia, hypokalaemia and metabolic acidosis
- Can be complicated by hyponatraemia, rhabdomyolysis, cerebral haemorrhage, aortic dissection and myocardial infarction

2. Immediate management Not applicable**3. Clinical assessment**

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management¹⁴

- Consult MO/NP who will advise further management which may include:
 - most patients sympathomimetic toxidrome will settle with sedation e.g. diazepam 5 - 10 mg IV. There is no upper range of benzodiazepine dose as long as the patient is responding. Minimal response and/or brief duration of action strongly suggests benzodiazepine tolerance and another agent should be used for sedation e.g. droperidol 10 mg IM/IV
- In addition to above, specific therapy may include:
 - hypertension - IV nitrates e.g. GTN or phentolamine or sodium nitroprusside IV
 - myocardial ischaemia - aspirin 150 mg, IV nitrates e.g. GTN
 - hyperthermia (> 39°C) - cold IV fluids, tepid sponging and ice packs to the groin and axillae
 - rhabdomyolysis - IV fluids, IDC, fluid balance
- Complicated amphetamine toxicity should be discussed with a Clinical Toxicologist

Cannabis (marijuana)

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Background

- Widely used illicit drug with psychoactive properties which in general cause benign symptoms only
- Chronic heavy use may lead to cannabinoid hyperemesis syndrome, characterised by nausea, vomiting and colicky abdominal pain. The patient may report improvement with hot showers either at home or in hospital. Patients will often admit to infrequent use only. All patient's symptoms will resolve with decreased use or abstinence

1. May present with

- Neurological symptoms e.g. ataxia, uncoordination, sedation and rarely CNS depression
- Cardiovascular symptoms e.g. tachycardia, hypotension (postural)
- Psychiatric e.g. euphoria, agitation, anxiety, delusions and hallucinations

2. Immediate management Not applicable

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- Consult MO/NP
- Most patients toxicity will resolve with time and simple supportive care
- Occasionally sedation e.g. oral diazepam may be required

Gamma-hydroxybutyrate (GHB)

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP for all patients with GHB toxicity. Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Background

- GHB and its precursors are used by bodybuilders and possibly in a drug facilitated sexual assault e.g. date rape. Its use leads to a rapid onset of CNS and respiratory depression usually with complete recovery within 4 - 6 hours

1. May present with

- Neurological effects e.g. rapid onset of CNS depression with coma and agitation/delirium on waking
- Cardiovascular effects e.g. bradycardia and hypotension
- Other effects e.g. vomiting, hypothermia

2. Immediate management

- See Immediate management under [Toxicology/poisoning/overdose, page 224](#)

- Patients who arrive with a decreased level of consciousness may require intubation and ventilation

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- Consult MO/NP
- Most patients can be managed in the left lateral position to maintain an adequate airway as the duration of toxicity is brief. Rarely intubation/ventilation is required
- IV fluids for hypotension and re-warming for hypothermia



Petrol/glue/aerosol sniffing - adult/child

Recommend

- Immediate management if fitting. See [Fits/convulsions/seizures, page 72](#)

Related topics



[Fits/convulsions/seizures, page 72](#)



[Mental health behavioural emergencies, page 437](#)



[Acute asthma, page 81](#)



[Pneumonia, page 300](#)

1. May present with

- Chest symptoms and signs
- Headache, nausea, vomiting
- Euphoria, confusion, agitation
- Fitting
- Withdrawn, strange, aggressive or displaying acutely disturbed behaviour
- Lethargy
- Tremor (shakes), nystagmus (eye tremor), ataxia (unsteadiness), blurred vision and slurred speech

2. Immediate management

- If fitting see [Fits/convulsions/seizures, page 72](#)
- If patient is confused or withdrawn, strange, aggressive or displaying acutely disturbed behaviour ensure your own safety:
 - you may need to enlist the help of the police or others
 - have them visibly close by and ready to help, but not to further frighten or intimidate the patient
 - do not approach the patient if they have a weapon and don't put yourself in a position where you could be trapped by the patient
 - explain what is happening at all times. Reassure the patient and avoid confrontation
 - for additional information on ensuring safety and managing anger. See Mental Health Section: [Immediate management - managing anger, page 429](#)

3. Clinical assessment

- Obtain complete patient history (if possible) include in history taking:
 - past medical, surgical and social history including past episodes of sniffing
 - alcohol and/or substance intake

- obtain information on the type of hydrocarbon used, as this will directly influence the clinical presentation
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
- Perform physical examination:
 - auscultate chest for air entry and added sounds (crackles or wheezes)
 - inspect for tremor, nystagmus or unsteadiness (finger-nose-finger test)

4. Management

- Consult MO/NP
- If evidence of chest signs and symptoms MO/NP may advise treatment. See [Acute asthma, page 81](#) and [Pneumonia, page 300](#)
- May require O₂ to maintain O₂ saturation > 93% adult or > 95% child
- See [Oxygen delivery systems, page 44](#)
- If patient is sufficiently agitated to interfere with care and oral sedation is appropriate - oral administration of diazepam will usually be adequate
- Acutely disturbed or heavily sedated patients should not be left alone
- Regularly assess vital signs and GCS until either the patient recovers or is evacuated/hospitalised
- When caring for patients with signs of petrol sniffing, be mindful of the effects on balance and coordination, particularly following administration of diazepam

Schedule	4	Diazepam		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	2 mg 5 mg	Oral	Adult 5 mg with second 5 mg dose if required to a max. of 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: causes sedation and respiratory depression				
Management of associated emergency: consult MO/NP. See Toxicology/sedatives/hypnotics, page 257				

10,11

5. Follow up

- If allowed home, patient should be discharged into the care of a responsible person
- Review daily for 2 to 3 days. Respiratory symptoms in particular may be delayed
- See next MO/NP clinic
- Further management of petrol sniffing is a difficult problem. The best approach is community based, involving community council, health staff and family. Alcohol, Tobacco and Other Drug Service (ATODS) and Mental Health Services may be able to advise or assist
- Teachers, Sport and Recreation Officers and apprenticeship schemes all play a role in instilling self-esteem in the youth of communities

6. Referral/consultation

- Consult MO/NP as above and if:
 - GCS < 14, abnormal clinical observations, chest symptoms or signs, any significant other findings
 - diazepam is required
 - patient is assessed as being a risk to themselves or others

Sedatives/hypnotics - adult/child^{3,4,5}

e.g. benzodiazepines, zopiclone, zolpidem

- In addition to [Toxicology/poisoning/overdose, page 224](#)

Recommend

- Consult MO/NP first who will contact the Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours) for advice on the use of flumazenil (rarely used)

Background

- Most ingestions of these agents are in patients who are therapeutically taking this medication. Regular use leads to tolerance and in overdose mild to moderate sedation only. Unconsciousness requiring intubation and ventilation is uncommon

1. May present with

- Benzodiazepine sedatives such as diazepam, oxazepam, nitrazepam and flunitrazepam are commonly taken in deliberate overdose, often in combination with alcohol
- Unconsciousness is unusual unless the benzodiazepine is combined with other sedatives or alcohol. Most patients are sleepy, easily roused and maintain adequate respiratory function
- Be wary of hypotension (BP < 90 mmHg) and unsteadiness on waking

2. Immediate management Not applicable

3. Clinical assessment

- See Risk assessment under [Toxicology/poisoning/overdose, page 224](#)

4. Management

- Close attention to airway, breathing and circulation is essential, as the majority of patients have an excellent prognosis with good supportive care
- Consult MO/NP who will advise further management. Evacuation/hospitalisation may be required
- Flumazenil, a specific benzodiazepine antagonist is rarely indicated. It may be useful where facilities are not available to safely intubate and ventilate a patient. Flumazenil may be hazardous if given when there is a co-ingestion of a pro-convulsant medicine
- Contact the Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours) for advice on the use of flumazenil

Toxinology - bites and stings

Snakebite including sea snake - adult/child

Recommend

- Every snakebite should be treated as potentially venomous
- Snakebite patients must be managed in a hospital with a monitored resuscitation area, access to 24 hour formal pathology laboratory and available antivenom, by staff able to manage the complications of anaphylaxis and envenomation
- Current 'Point of Care' testing has been proven unreliable for use in case of snake bite as false negatives have been reported in envenomed patients - **Do not use point of care testing e.g. bedside INR tests**
- MO/NP will arrange evacuation/hospitalisation as required. MO/NP is advised to contact Clinical Toxicologist early. The Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours) can assist

Related topics

-  [Tetanus immunisation, page 755](#) [DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Shock, page 55](#)

1. May present with

- No symptoms, but a history suggestive of a bite
- No obvious bite site
- Obvious bite site - painful, red, local tissue swelling
- Signs and symptoms of envenomation:
 - sudden collapse
 - non-specific systemic effects e.g. nausea, vomiting, abdominal pain, headache
 - coagulopathy: bleeding of gums, coughing, spitting or vomiting blood, prolonged bleeding from the bite or IV puncture site, blood in urine
 - neurotoxicity: progressive paralysis - drooping of eyelids, uncoordinated eye movements, double vision, difficulty in swallowing, breathing or speaking, fatigue and irregular shallow breathing, gait disturbances, including weakness or poor coordination
 - myotoxicity: muscle and back pain, tenderness, weakness

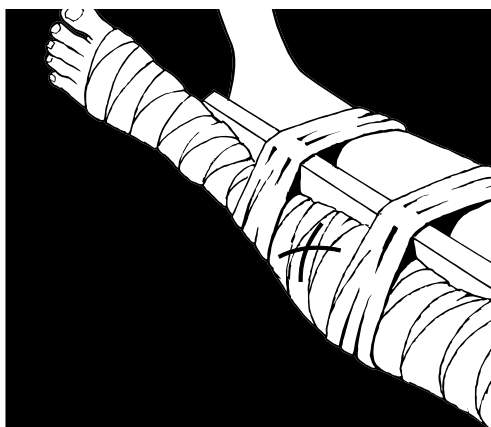
2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Aim to delay lymphatic spread of venom and possible systematic effects while the patient is transported to a facility where they can be managed and antivenom can be administered if necessary
- Keep the patient as calm and still as possible
- Note time of snakebite
- Avoid unproven and harmful techniques such as tourniquets, ice, cutting, sucking
- If bandaged do not remove
- Check for evidence of bite if pre-hospital bandage not applied:
 - lack of any bite/fang marks does not exclude envenomation
 - fang marks may look like minor scratches
 - multiple random fang marks may indicate that massive envenomation has occurred

- opposite may occur with significant bite marks and no envenomation
- Do not wash the wound as a swab may be required later for the Snake Venom Detection Kit (SVDK)
- Apply pressure immobilisation bandaging:
 - pressure bandage over the entire limb
 - immobilisation of limb
 - immobilisation of the whole patient
- Do not remove a pressure immobilisation bandage until either:
 - the patient has a normal neurological examination and the first set of bloods and examination are normal or
 - antivenom administration has commenced if found to be envenomed¹

Procedure for pressure immobilisation bandage

- Use an elastic bandage relevant to size of patient
- Start at bite site using firm pressure (should be unable to easily slide a finger between the bandage and skin)
- Cover the bitten area first and then bandage upwards from the lower portion of the limb to cover as much of the affected limb as possible (see diagram). This includes application of the bandage, over the top of the clothes if necessary. The patient should be kept calm and still. Firm pressure bandages can be applied to bites on the trunk provided respiratory movement is not impeded
- Apply a splint including joints on either side of the bite to restrict limb movement (see illustration)
- If the bite is on the trunk, MO/NP may request to apply local pressure over the site and immobilise the patient



- Never let the patient walk
- Indicate on bandage the location of the snakebite (as per illustration)
- If a snakebite occurs and only one other person is present and no vehicular transport is available, it is probably safest to apply a pressure bandage and splint, then leave the bitten patient to get help
- In isolated areas, if bitten when alone, apply local pressure if possible. The patient should move themselves to seek urgent help²

3. Clinical assessment

- Include in history taking:
 - geographic area bite occurred
 - location of bite(s) on body

- time of bite (if not already noted)
- appearance of snake if seen
- number of strikes
- first aid measures used
- time of bandage application
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - urinalysis for blood. If positive could be red blood cells (bleeding), haemoglobin (red blood cell breakdown) or myoglobin (muscle breakdown). Keep some urine (second catch) in case it is needed for use with the SVDK following a negative test on the bite site
- **Do not remove bandage**
- Palpate the lymph nodes draining the bite site for signs of tenderness
- Check for evidence of paralysis
 - muscles of eyes and face affected first - drooping of eyelids, uncoordinated eye movements, double vision, loss of full range of eye movements
 - impaired respiratory effort or peripheral weakness
- Check for evidence of abnormal bleeding - gums, urine (as above), bite site and IV site
- Check for evidence of rhabdomyolysis - muscle tenderness and weakness
- **Point of care testing is not to be used** as a substitute for formal laboratory testing. False negatives have been reported in envenomated patients

4. Management

- Consult MO/NP immediately
- Ensure limb is appropriately bandaged and apply further bandages as necessary without removing the first bandage
- Insert IV cannula
- Monitor vital signs and urine output
- Collect blood for FBC, urea/electrolytes, CK and coagulation tests (INR, aPTT, D Dimer). This can be sent with the patient
- If hypotension/shock is present, commence bolus sodium chloride 0.9% or Hartmann's solution at 20 mm/kg stat. Consult MO/NP who will advise subsequent volumes/rate. See [Shock, page 55](#)
- Nil by mouth
- MO/NP will arrange evacuation/hospitalisation if required to a facility that has sufficient antivenom stocks, monitored resuscitation area, on site pathology

Snake Venom Detection Kits (SVDK)

SVDK are expensive and should only be used in conjunction with clinical and biochemical examinations. They should be kept only at locations that stock a range of antivenoms e.g. Rural Hospitals with an MO/NP, access to 24 hour pathology, monitored resuscitation area.

- There is no place for SVDK in locations that carry no antivenom or only polyvalent antivenom
- The SVDK is a guide only in the choice of antivenom. More often than not the local geography in association with the clinical examination and blood test results determine the choice of antivenom
- A positive skin SVDK does not indicate envenomation nor does it indicate antivenom use. In the context of an abnormal clinical examination and/or blood tests it may assist in antivenom use
- A negative skin SVDK test does not indicate a non-venomous snake and does not alter management
- A positive urine SVDK may indicate envenomation, however false positives can occur especially for brown snake

When definite envenomation has occurred, delay in treatment could be life threatening. Consult MO/NP and give snake antivenom as ordered. The choice of antivenom will be based on clinical examination. Rarely a patient will be so unwell that they will require antivenom before appropriate assessment

Indications for antivenom

- Laboratory evidence of envenoming e.g. coagulopathy
- Clinical evidence of envenoming e.g. neurotoxicity:
 - all cases where antivenom is considered should be discussed with a Clinical Toxicologist
 - the recommended dosage of antivenom is 1 ampoule of the appropriate monovalent antivenom or in rare cases 1 ampoule of polyvalent. More than 1 ampoule is usually not required
 - patients receiving antivenom should be in a resuscitation area where an allergic reaction can be managed
 - envenomated patients receiving antivenom can have their pressure immobilisation bandage removed once antivenom has been administered
 - draw up adrenaline (0.5 mL of 1:1000 for adults) and keep close at hand in the event of an allergic reaction/anaphylaxis to the antivenom. See [Anaphylaxis and severe allergic reaction, page 67](#)
 - check BP and HR every 5 minutes while antivenom is being administered
 - check when the patient had last tetanus vaccination. See [Tetanus immunisation, page 755](#)

Schedule	4	Polyvalent snake antivenom	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse must consult unless circumstances do not allow, in which case notify MO/NP as soon as circumstances allow

Form	Strength	Route of administration	Recommended dosage	Duration
Vial	1 vial contains 40,000 units in 50 mL	Slow IV infusion via a second infusion line into the side arm of the main IV line	Adult and child ≥ 5 years 1 vial diluted with 450 mL (1:10) with sodium chloride 0.9% or Hartmann's	Stat Slow IV infusion over at least 15 minutes
	Brown 1,000 units Tiger 3,000 units Death Adder 6,000 units Taipan 12,000 units Black 18,000 units		Child < 5 years 1 vial diluted in 200 mL (1:5) with sodium chloride 0.9% or Hartmann's	

Provide Consumer Medicine Information: allergic reaction/anaphylaxis can occur; also serum sickness as a delayed adverse reaction. Serum sickness takes many days or weeks to occur whereas anaphylaxis is immediate

Note: in cardiac arrest undiluted antivenom, administered as a rapid IV push, may be life saving

Management of associated emergency: check O₂ supply, self inflating resuscitator, oropharyngeal airways and suction apparatus. If patient develops a significant allergic reaction to the antivenom (itching of the skin, hives, angioneurotic oedema, hypotension/shock, loss of consciousness)

- stop the infusion of antivenom
- give adrenaline IM. See [Anaphylaxis and severe allergic reaction, page 67](#). Consult MO/NP

3.4

5. Follow up

- If antivenom is used, complete and send off the questionnaire that comes with each ampoule. This is very important for increasing our epidemiological and clinical knowledge on snakebites
- Be aware serum sickness can occur within the first two weeks after exposure to antivenom. The features are rash, fever and polyarthralgias or polyarthritis³. The use of prophylactic steroids to reduce the incidence of serum sickness is controversial and should be discussed with the Clinical Toxicologist

6. Referral/consultation

- Consult MO/NP on all occasions of snakebite



Spider bites (general) - adult/child

Related topics

- [Redback spider bite, page 266](#)
- [Tetanus immunisation, page 755](#)

[Funnel-web \(big black\) spider bite, page 263](#)
[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Pressure immobilisation bandage, page 259](#)

1. May present with

- A history of being bitten by a spider
- Fang marks or no marks
- Localised reactions - red, swelling, hot
- Pain associated with bite will depend on the age of the spider and the size of its pincers/fangs. Generalised spreading pain not associated with bite suggests redback spider
- Signs and symptoms of systemic envenomation which include:
 - nausea, vomiting, headache
 - general feeling of being unwell

2. Immediate management Not applicable

3. Clinical assessment

- Include in history:
 - description of spider (if seen)
 - time of bite
 - geographical location where bite occurred
 - first aid measures used
 - site and feature of bite
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination of all systems

4. Management

- Reassure the patient
- Apply ice pack to bite site

- Give analgesia. See [Simple analgesia pull out](#)
- Check when had last tetanus vaccination. See [Tetanus immunisation, page 755](#)
- The **white-tailed spider** has a reputation of being everywhere throughout Australia and was previously believed to cause necrotic arachnidism, a syndrome of progressive ulceration/cutaneous injury from spider venom. There is now evidence to show that bites from the white-tailed spider are very unlikely to cause symptoms of ulceration⁵

5. Follow up

- Advise daily wound care and review as required

6. Referral/consultation

- Consult MO/NP if severe or persistent local or systemic symptoms

Funnel-web (big black) spider bite - adult/child

Recommend

- All cases of suspected funnel-web spider bite should be discussed with a Clinical Toxicologist. The Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours) can assist
- Apply pressure immobilisation bandage

Related topics

-  [Snakebite including sea snake, page 258](#)
-  [Tetanus immunisation, page 755](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Pressure immobilisation bandage, page 259](#)

Distribution of funnel web spiders in Australia



©2013 *A Clinician's Guide to Australian Venomous Bites and Stings*. A/Prof. Julian White

1. May present with

- If severe systematic envenoming occurs, it develops rapidly, usually within 30 minutes and almost always within 2 hours¹
- History of witnessed painful bite by big black spider with large fangs
- Severe pain at bite site, but little local reaction - no swelling/redness
- Tongue and other muscle twitching, tingling of the lips
- Lacrimation, piloerection (erection of the hair), sweating, hypersalivation
- Abdominal pain, nausea, vomiting, headache
- Hypertension, bradycardia or tachycardia
- Breathlessness
- Anxiety
- In young children, the first indication of envenoming may be sudden severe illness with inconsolable crying, salivation, vomiting or collapse¹

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#) - managed in an area with cardiorespiratory and resuscitation equipment if possible
- Apply pressure immobilisation bandage. See [Snakebite including sea snake - adult/child, page 258](#)
- Apply a splint to immobilise the limb

3. Clinical assessment

- Include in history taking:
 - description of spider (if seen)
 - time of bite
 - geographical location where bite occurred
 - first aid measures
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - look for any signs of envenomation, including:
 - site and feature of bite
 - general - agitation, vomiting, headache and abdominal pain
 - autonomic - sweating, salivation, piloerection (erection of hair) and lacrimation (tearing)
 - cardiovascular - high blood pressure, fast or low HR and pulmonary oedema
 - neurological - muscular twitching, tingling mouth and lips, muscle
 - spasm, coma

4. Management

- Insert IV cannula
- Nil by mouth
- Consult MO/NP who may arrange evacuation/hospitalisation for administration of antivenom. If antivenom is required an initial 2 vials are recommended. Further doses may be required in severe envenomation⁶
- Do not remove the pressure immobilisation bandage unless the patient is either asymptomatic or if the patient is symptomatic and antivenom is available and/or after 2 - 4 vials have been administered
- Do 12 lead ECG

- Check when the patient had last tetanus vaccination. See [Tetanus immunisation, page 755](#)
- **Note:** in cardiac arrest, antivenom, administered as a rapid IV push, may be lifesaving. All immediately available funnel-web antivenom (at least 4 vials) should be given

Schedule	4	Funnel-web spider antivenom		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse must consult MO/NP unless circumstances do not allow, in which case notify the MO/NP as soon as circumstances allow				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	125 units Reconstitute with 10mL water for injection Do NOT shake	IV Give slowly	Adult and child Initial dose 2 vials (4 vials if severe envenoming)	Stat May be repeated on MO/NP order in 15 minutes
Provide Consumer Medicine Information: advise patient that the antivenom has the possibility of carrying infectious diseases from the rabbit plasma that it has been produced from (although there are no recorded cases of this happening). Contact health professional if fever, rash or joint pain develops up to 14 days after administration				
Note: gently swirl - do NOT shake - the reconstituted antivenom to ensure the product is fully dissolved (takes approx.10 minutes). Use product immediately following complete dissolution. Prepare a separate syringe of adrenaline before administering antivenom as anaphylactic reactions can occur rapidly				
Use in Pregnancy: No information available				
Management of associated emergency: check O ₂ supply, self-inflating resuscitator, oropharyngeal airways and suction apparatus. If patient develops a significant allergic reaction to the antivenom (itching of the skin, hives, angioneurotic oedema, hypotension/shock, loss of consciousness)				
• stop the infusion of antivenom • give adrenaline IM. See Anaphylaxis and severe allergic reaction, page 67. Consult MO/NP				

23,24

23,24

5. Follow up

- If evacuated/hospitalised, patient will be observed for 6 hours after removal of pressure bandage/ administration of antivenom or until symptoms of envenomation have resolved
- If not evacuated/hospitalised, review next day
- Be aware serum sickness can occur one to two weeks after exposure to responsible agent. The features are rash, fever and polyarthralgias or polyarthritis³

6. Referral/consultation

- Consult MO/NP on all occasions of suspected funnel-web spider bite

Redback spider bite - adult/child

Recommend

- Do not apply pressure immobilisation bandage¹

Related topics

 [Tetanus immunisation, page 755](#)

1. May present with

- A history of being bitten by a spider
- Puncture marks are not always seen
- Intense local pain. The bite is not painful at first, but between 10 - 40 minutes later the bite site becomes very painful, with pain radiating from the bite site to become regional and then general¹
- Sweating and piloerection (erection of hair) can occur within an hour of bite¹. This is best felt for by using the back of your hand as it is often localised to a small area around the bite. The sweating and piloerection can spread to involve the limb, usually and characteristically following the line of the lymphatics, or can become generalised
- Less commonly a red, hot or swollen bite site
- Headache, nausea, vomiting, abdominal pain
- Mild to severe hypertension and tachycardia
- If untreated the symptoms may increase in severity over several hours and often resolve over several days, however they may persist for weeks or months¹
- Very rarely, severe cases can lead to progressive muscular paralysis

2. Immediate management See Management

3. Clinical assessment

- Include in history taking:
 - description of spider (if seen)
 - time and location of bite
 - first aid measures
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - site and feature of bite

4. Management

Note: do not apply a pressure immobilisation bandage for redback spider bites. Envenoming is not life threatening and resuscitation is rarely required

- Reassure the patient
- Apply an ice pack to bite site
- Clean the wound with antiseptic or wash with soap and water to help prevent secondary infection
- Give analgesia. See [Simple analgesia pull out](#)
- Consult MO/NP if patient is not responding to simple analgesia

- MO/NP will give order for children if opioid analgesia is required
- Consult MO/NP if patient not responding to simple analgesia, and/or displaying clinical features of systemic envenoming or the diagnosis is in doubt
- Recent research into redback spider envenomation has questioned past recommendations on the utility/benefit of redback spider antivenom^{18,19,20,21}
- Patients who fail to respond to simple analgesia should be discussed with a clinical toxicologist via the Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)
- Check when the patient had last tetanus vaccination. See [Tetanus immunisation, page 755](#)

Schedule	8	Morphine		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL	IM/Subcut	Adult only 0.1 mg - 0.2 mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
		IV (IHW and IPAP may not administer IV)	Adult only Initial dose of 2.5 mg then 0.5 mg - 2.5 mg increments slowly, repeated every 5 minutes if required to a max. of 10 mg	
Provide Consumer Medicine Information: advise patient morphine can cause nausea and vomiting, and drowsiness				
Note: a reduced dose should be considered in patients with significant renal/liver disease. Use the lower end of the dose range in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				
				6,7,8

- If allergic to morphine MO/NP may order fentanyl. **Note:** fentanyl has a rapid onset of action

Schedule	8	Fentanyl		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	100 microgram / 2 mL	IM/Subcut	Adult only 1.5 microgram/kg to a max. of 100 microgram	Stat Further doses on MO/NP order
		IV	Adult only 25 microgram increments slowly, repeated every 10 minutes if required to a max. of 100 microgram	
Provide Consumer Medicine Information: advise patient fentanyl can cause nausea and vomiting, and drowsiness				
Note: use with caution in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/ opioids, page 246				
6,7,9,22				

5. Follow up

- Review symptoms and wound daily

6. Referral/consultation

- Consult MO/NP if severe or persistent local or systemic symptoms

Scorpion stings and centipede bites - adult/child

Recommend

- Do not apply pressure immobilisation bandage¹

Related topics

 [Tetanus immunisation, page 755](#)

1. May present with

- History of sting/bite
- May or may not have seen scorpion/centipede
- Local symptoms at site of sting/bite - red, tender, mild swelling, numbness and tingling¹
- Severe local pain is common¹ lasting 15 to 45 minutes, occasionally longer

- Occasional systemic symptoms mild, non-specific and self limiting include nausea, headache and malaise¹

2. Immediate management Not applicable

3. Clinical assessment

- Include in history taking:
 - description of sting/bite (if seen)
 - time and location of sting/bite
 - first aid measures
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - site and feature of sting/bite

4. Management

- Reassure patient
- Apply an ice pack to sting/bite site
- Clean the wound with antiseptic or wash with soap and water to help prevent secondary infection
- Give analgesia. See [Simple analgesia pull out](#)
- Consult MO/NP if patient not responding to simple analgesia
- Check when the patient had last tetanus vaccination. See [Tetanus immunisation, page 755](#)

5. Follow up

- Advise daily wound care and review as required

6. Referral/consultation

- Consult MO/NP as above or if systemic symptoms

Tick bites - adult/child

Tick paralysis/tick typhus

Related topics

 [Tetanus immunisation, page 755](#)

[Bacterial skin infections, page 360](#)

 [Anaphylaxis and severe allergic reaction, page 67](#)

1. May present with

- Initially, local itching and irritation 6 - 12 hours after bite
- If tick is located in the patient's head - swelling of face, eyes
- Evidence of tick: attachment sites are often close to the trunk after initially dropping on to the body at a peripheral site
- Tick paralysis usually takes several days to occur and can result in muscle weakness, causing difficulty walking, poor balance or poor coordination. This can lead to visual symptoms, such as difficulty reading and double vision. Adults can present with a regional or cranial nerve palsy. Symptoms can worsen for up to 48 hours post tick removal



- Allergic reaction - ranging from localised swelling to severe life threatening anaphylaxis
- **Note:** ticks and scrub mites may carry rickettsia that cause tick typhus and scrub typhus. Febrile illnesses associated with a rash can be fatal. Consult MO/NP

2. Immediate management Not applicable

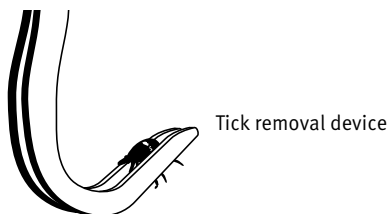
3. Clinical assessment

- Include in history taking:
 - estimate of how long patient has had the tick
 - geographical area where exposure may have occurred
 - first aid measures
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - inspect for ticks. The size of the tick will depend on the type and developmental stage
 - inspect for tissue reaction. A small lump due to bite can persist for weeks due to reaction to foreign material
 - inspect in hair, between buttocks, groin, labia, ear canals etc. if tick envenomation is suspected. They can be very difficult to find. Don't stop if one is found, as there may be more
- Observe for progressive muscle weakness and paralysis which can be localised to a limb. Facial paralysis similar to Bell's palsy may occur

4. Management

Procedure for removal of tick

- It is important to remove all ticks as soon as possible after discovery
- When located, the tick is carefully removed with every attempt made to remove all of the tick
- The tick should be grasped as close to the skin as possible using fine forceps or tick removal device. See illustration below. Once grasped the tick is then removed by applying gentle outward traction¹
- Take care not to squeeze the body of the tick or use any methods which may agitate the tick, such as applying heat or using kerosene or methylated spirits, as these methods may cause the tick to inject further saliva/toxin into the body
- An alternative method is the knot method. Make a loose half-hitch in a thread such as a piece of dental floss or suture material. The open knot is slipped over the tick as close as possible to the skin and then pulled taut. The embedded tick then usually flips out
- Clean the wound with antiseptic or wash with soap and water to help prevent secondary infection
- Apply a cold compress to help reduce pain and swelling¹⁰
- It is normal for a tick bite to remain slightly itchy for several weeks, however if other symptoms develop, then an MO/NP should be consulted
- Check when the patient last had tetanus vaccination. See [Tetanus immunisation, page 755](#)



5. Follow up

- Advise daily wound care after removal and review as required
- Once the tick has been removed, it might be expected that the effects of the toxin would quickly dissipate, but this is not the case. The extent of the paralysis may worsen for up to 48 hours after the removal of the tick¹
- Consult MO/NP if any signs of tick bite paralysis. The MO/NP will arrange evacuation/hospitalisation

6. Referral/consultation

- Consult MO/NP if tick bite paralysis or suspect tick typhus

Marine envenomation - adult/child

Jellyfish stings

Jellyfish sting and treatment summary

Box jellyfish (<i>Chironex fleckeri</i>)	Irukandji syndrome	Bluebottle (<i>Physalia</i>)	Others
Whip-like sting marks with characteristic frosted ladder pattern	Minimal skin markings with possible red rash	Linear erythematous eruption with discrete oval wheals	Blubber, Hair jelly, Little mauve stinger, Jimble, Fire jelly - also known as <i>Morbakka</i> (<i>Tamoya species</i>)
			
Douse with vinegar for at least 30 seconds, to inactivate all undischarged sting cells. If life threatening sting, give box jellyfish antivenom	Douse with vinegar to wash off adhered tentacles Provide analgesia See Irukandji syndrome, page 273	Wash with water and remove any tentacles Immersion in water (45°C) as hot as patient can tolerate for 20 minutes. Avoid burning the patient Vinegar is not recommended See Bluebottle (<i>Physalia</i>) sting, page 276	Wheals of varying size and shape on a red base Wash with water remove tentacles and consider hot water immersion. Vinegar is not recommended See Other jellyfish stings, page 277
See Box jellyfish (<i>Chironex fleckeri</i>) envenomation, page 272			

Related topics

[DRS ABCD resuscitation/the collapsed patient, page 36](#)

Box jellyfish (*Chironex fleckeri*) envenomation - adult/child

Recommend

- Douse all visible sting sites with vinegar to inactivate any undischarged sting cells
- Severe envenoming can result in cardiovascular collapse and death within 30 minutes. Initiate CPR, may require prolonged CPR¹¹
- Give antivenom as soon as possible if there is evidence of life threatening envenoming
- Do not apply a pressure immobilisation bandage

1. May present with

- Severe immediate pain typically lasting up to 8 hours
- Wide (up to 1 cm) whip-like sting marks, with a characteristic frosted ladder pattern
- Attached jellyfish tentacles
- Loss of consciousness
- Cardiorespiratory arrest

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient](#), page 36
- Consult MO/NP for required resuscitation medicines
- Even if respiratory or cardiac arrest, and no antivenom available, continue CPR (EAR ± ECC) until MO/NP advises to stop
- Liberally douse the sting area and all adherent tentacles with vinegar, for at least 30 seconds
- Restrain the patient if necessary. Severe pain may cause irrational behaviour and vigorous activity, making first aid and other management difficult. Furthermore, muscular exertion is dangerous as it will increase the absorption of the toxin
- Insert IV cannula
- Nil by mouth

3. Clinical assessment

- Include in history taking time of sting and first aid measures taken
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note in particular cardiovascular system - blood pressure and HR
 - ECG - attach to monitor and observe for arrhythmias
- Perform physical examination - site, size and features of sting

4. Management

- Manage patient in area equipped for cardiorespiratory monitoring and resuscitation if possible¹
- Consult MO/NP
- Continue CPR if in cardiac arrest. This should continue for at least 1 hour
- Pain relief - an intravenous opioid will be necessary. Consult MO/NP
- Give box jellyfish antivenom. If not possible to achieve IV access intraosseous route should be considered
- See [Simple analgesia pull out](#)

Schedule	4	Box jellyfish antivenom		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may administer one dose and then consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	20,000 units	IV	Adult and child ≥ 5 years 1 vial (20,000 units) diluted 1:10 with sodium chloride 0.9% or Hartmann's Child < 5 years 1 vial (20,000 units) diluted 1:5 with sodium chloride 0.9% or Hartmann's	Stat Give slowly over 5 - 10 minutes Additional doses may be given on MO/ NP order (repeat doses up to max. of 6 vials if patient remains in cardiac arrest)
Provide Consumer Medicine Information: allergic reaction/anaphylaxis can occur; also serum sickness as a delayed adverse reaction. Serum sickness takes many days or weeks to occur whereas anaphylaxis is immediate				
Note: in cardiac arrest, undiluted antivenom, administered as a rapid IV push can be lifesaving. The IV route is the preferred route of administration of box jellyfish antivenom. In the event of IV access not being obtained, the antivenom can be given IM, however studies have shown that IM antivenom is poorly absorbed				
Management of associated emergency: check O ₂ supply, self inflating resuscitator, oropharyngeal airways and suction apparatus. If patient develops a significant allergic reaction to the antivenom (itching of the skin, hives, angioneurotic oedema, hypotension/shock, loss of consciousness)				
• stop the infusion of antivenom • give adrenaline. See Anaphylaxis and severe allergic reaction, page 67. Consult MO/NP				

4,11

5. Follow up

- All patients with envenomation from box jellyfish will need evacuation/hospitalisation

6. Referral/consultation

- Consult MO/NP on all occasions of suspected box jellyfish envenomation or as soon as circumstance allow



Irukandji syndrome - adult/child

Recommend

- Apply generous volumes of vinegar to all visible sting sites¹²

Background

- This syndrome is associated with stings from the *Carukia barnesi* jellyfish and can result in life threatening symptoms, with a small number of patients developing cardiac failure

1. May present with

- Minor short-lived pain with initial sting or may go unfelt initially
- Onset of systemic symptoms 15 - 40 minutes after sting¹²:
 - pain
 - severe agitation, restlessness
 - sense of impending doom
 - feeling unwell
 - generalised sweating
 - vomiting
 - severe pain in the back, limbs and abdomen
 - can mimic symptoms of decompression illness
 - severe hypertension, tachycardia

2. Immediate management¹²

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Consult MO/NP for required resuscitation medicines
- Even if respiratory or cardiac arrest, and no antivenom available, continue CPR (EAR ± ECC) until MO/NP advises to stop

3. Clinical assessment

- Include in history taking:
 - time of sting
 - first aid measures used
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
 - note in particular respiratory rate and any signs of respiratory distress
 - blood pressure (severe hypertension may occur)
 - ECG
- Perform physical examination:
 - auscultate the chest for added sounds (crackles or wheezes), as an indication of pulmonary oedema
 - examine and document site, size and features of sting

4. Management

- Liberally douse the sting area with vinegar
- Insert IV cannula
- Consult MO/NP who will arrange evacuation
- Apply high flow O₂¹²
- Monitor BP, pulse, O₂ saturations, respirations
- Attach to heart monitor
- Give analgesia - give morphine or if allergic to morphine give fentanyl
- IV infusion should be considered¹²
- Control of hypertension may be life saving as a number of deaths have occurred due to intracerebral haemorrhage¹². If systolic BP > 200 mmHg and/or diastolic BP > 120 mmHg - give 2 puffs sublingual of glyceryl trinitrate (GTN) whilst awaiting evacuation (contraindicated in patients on selective phosphodiesterase inhibitor - sildenafil (Viagra®), vardenafil (Levitra®) in the last 24 hours or tadalafil (Cialis®) in the last 48 hours). May repeat as required on MO/NP orders¹².

MO/NP may commence IV glyceryl trinitrate infusion

- Contact Poisons Information Centre (PIC) ☎ 13 11 26 if assistance is required or referral to a Clinical Toxicologist is required

Schedule	8	Morphine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL	IM/Subcut	Adult only 0.1 mg - 0.2 mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
		IV (IHW and IPAP may not administer IV)	Adult only Initial dose of 2.5 mg then 0.5 mg - 2.5 mg increments slowly, repeated every 5 minutes if required to a max. of 10 mg	
Provide Consumer Medicine Information: advise patient morphine can cause nausea and vomiting, and drowsiness				
Note: a reduced dose should be considered in patients with significant renal/liver disease. Use the lower end of the dose range in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. See Toxicology/opioids, page 246				
7,8,9,12				

- If allergic to morphine give fentanyl. **Note:** fentanyl has a rapid onset of action

Schedule	8	Fentanyl		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	100 microgram / 2 mL	IM/Subcut	Adult only 1.5 microgram/kg to a max. of 100 microgram	Stat Further doses on MO/NP order
		IV	Adult only 25 microgram increments slowly, repeated every 10 minutes if required to a max. of 100 microgram	
Provide Consumer Medicine Information: advise patient fentanyl can cause nausea and vomiting, and drowsiness				
Note: use with caution in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				
7,9,12,22				

5. Follow up

- Evacuate/hospitalise

6. Referral/consultation

- Consult MO/NP in all cases of suspected irukandji syndrome

Bluebottle (Physalia) sting - adult/child

Recommend

- Relieve pain by immersing affected limb in water or shower as hot as patient can tolerate (45°C). Put both limbs in hot water to gauge heat. Use with caution in young children and those with poor peripheral circulation e.g. elderly and diabetic¹¹
- Do not use vinegar. It is only used for box jellyfish (*Chironex Fleckeri*) and irukandji syndrome

1. May present with

- History of being stung by bluebottle
- Immediate burning pain (lasts up to 2 hours)
- Linear or spindle (elliptical) red welts
- Systemic effects are infrequent

2. Immediate management Not applicable

3. Clinical assessment

- Include in history:
 - time of sting
 - first aid measures used
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - site, size and features of sting

4. Management

- Immerse affected area in water or shower as hot as patient can tolerate (45°C). Put both limbs in hot water to gauge heat. Use with caution in young children and those with poor peripheral circulation e.g. elderly and diabetic. Continue until resolution of pain, or for at least 20 minutes¹¹
- Oral paracetamol is usually sufficient analgesia. See [Simple analgesia pull out](#)
- Monitor for allergic reactions

5. Follow up

- Review if any indication of systemic symptoms e.g. nausea, headache or malaise

6. Referral/consultation

- Transport to hospital or medical intervention is rarely required

Other jellyfish stings - adult/child

Mauve stinger (*Pelagia species*), hair jellyfish (*Cyanea species*), jimble and other box jellyfish (*Chiropsalmus bronzeii*)

Recommend

- Pain relief - immerse affected area in water or shower as hot as patient can tolerate (45°C). Put both limbs in hot water to gauge heat. Use with caution in young children and those with poor peripheral circulation e.g. elderly and diabetic
- Do not use vinegar. It is only used for box jellyfish (*Chironex Fleckeri*) and irukandji syndrome

1. May present with

- Wheals of varying size on a red base
- Immediate, intense pain
- Systemic effects are uncommon

2. Immediate management Not applicable

3. Clinical assessment

- Include in history:
 - time of sting
 - description of jellyfish if seen
 - first aid measures
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)

- Perform physical examination:
 - site, size and features of sting

4. Management

- Wash the area with sea water
- Remove any tentacles
- Do not use vinegar¹¹
- Pain relief - immerse affected area in water or shower as hot as patient can tolerate (45°C) for pain relief. Put both limbs in hot water to gauge heat. Use with caution in young children and those with poor peripheral circulation e.g. elderly and diabetic. Continue until resolution of pain, or for at least 20 minutes
- Oral paracetamol is usually sufficient analgesia
- See [Simple analgesia pull out](#)

5. Follow up

- Review if any indication of systemic symptoms such as nausea, headache or malaise

6. Referral/consultation

- Consult MO/NP if:
 - pain not controlled by oral analgesia
 - systemic effects, or doubt over cause of sting (suspected box jellyfish (*Chironex Fleckeri*) or irukandji syndrome)

Blue-ringed octopus and cone shell envenomation - adult/child

Recommend

- Apply pressure immobilisation bandage¹¹

Related topics

[DRS ABCD resuscitation/the collapsed patient, page 36](#)

[Pressure immobilisation bandage, page 259](#)

1. May present with

Blue-ringed octopus¹

- Often painless sting
- Tingling sensation around the mouth
- Local symptoms are minimal or absent
- Collapse on or near the beach shortly after a minor sting
- Early signs of systemic envenomation:
 - ptosis
 - blurred vision
 - double vision
 - difficulty swallowing

- Flaccid paralysis - occurs within minutes of sting
- Respiratory/cardiac arrest

Cone shell

- Local pain, swelling and numbness
- Can progress to muscle uncoordination and weakness, disturbance of speech, vision and even hearing
- Swallowing/breathing difficulties and respiratory paralysis if severe envenomation

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Continue CPR (EAR ± ECC) until MO/NP advises to stop
- Apply a pressure bandage over the wound site and involved limb
- Apply a splint to immobilise the limb

3. Clinical assessment

- Include in history:
 - time of sting (if possible)
 - first aid measures
 - indication of time of commencement of paralysis
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - pay particular attention to cardio/respiratory system and neurological assessment
- Perform physical examination:
 - site, size and features of sting

4. Management

- Consult MO/NP, who will organise evacuation
- Apply pressure immobilisation bandage¹¹. See [Pressure immobilisation bandage, page 259](#)
- If indicated provide airway support
- Cardiorespiratory resuscitation, continue until help arrives/evacuation/transfer

5. Follow up

- Do not remove pressure bandage if envenomation by blue-ringed octopus or cone shell is suspected, the bandage should be left in situ until evacuated/hospitalised in an appropriate facility

6. Referral/consultation

- Consult MO/NP in all cases of suspected blue-ringed octopus or cone shell envenomation

Fish stings - adult/child

Stonefish, stingray, bullrout, cat fish

Recommend

- Do not apply pressure immobilisation bandage¹
- Burns can occur if the combination of local anaesthetic and hot water are used together and therefore is not recommended

Related topics

-  [Acute wounds, page 157](#)
-  [Tetanus immunisation, page 755](#)
-  [Marine lacerations, page 168](#)

1. May present with

- Immediate and intense pain
- Local swelling, bruising, puncture marks
- Mechanical trauma from barb
- Barb or spine insitu
- Tissue necrosis and infection and potentially, gangrene

Stonefish sting

- Systemic effects are rare¹
- Nausea, vomiting, dizziness, shortness of breath
- Cardiovascular signs

Bullrout sting

- In severe cases headache and vomiting

Stingray envenomation

- Increasing local pain which spreads to the entire limb, swelling and a characteristic bluish white appearance of the wound
- Systemic effects are rare, they include nausea, vomiting, muscle cramps, diarrhoea, sweating, syncope and cardiac arrhythmias

2. Immediate management

- Pain relief - immerse affected area in water or shower as hot as patient can tolerate (45°C). Put both limbs in hot water to gauge heat. Use with caution in young children and those with poor peripheral circulation e.g. elderly and diabetic. Continue until resolution of pain, or for at least 90 minutes¹¹

3. Clinical assessment

- Include in history:
 - circumstances of injury
 - time of injury
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - inspect site of injury. See [Acute wounds, page 157](#)

4. Management

- Reassure the patient
- Provide pain relief. Some options may include:
 - injection of a local anaesthetic, lignocaine plain 1% with infiltration around the wound is very effective in relieving the pain. Caution if/when combining with immersion in hot water
 - consult MO/NP regarding opioid analgesia - depending on severity of injury may order IV

- morphine
- oral paracetamol
- See [Simple analgesia pull out](#)

Schedule	4	Lignocaine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	1% 50 mg/5 mL	Subcutaneous	Adult and child ≥ 12 years and/or > 50 kg up to max. of 3 mg/kg/dose to a total max. infiltration of 200 mg Child up to max. of 3 mg/kg/dose based on actual body weight except in obese children the max. dose should be based on ideal body weight	Stat Consult MO/NP for further doses Do not repeat the total max. dose at intervals of < 1.5 hours
Provide Consumer Medicine Information: if performing a digital block advise patient about onset and duration of action, and how to avoid injury to anaesthetised area. Report any drowsiness, dizziness, blurred vision, vomiting or tremors				
Note: use the lowest dose necessary. Determine child's ideal weight on 50 th centile on an appropriate weight - for - age percentile chart available from http://www.rch.org.au/childgrowth/Growth_Charts				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- See [Acute wounds, page 157](#) and [Marine lacerations, page 168](#):
 - incising and opening the entry of the wound may be necessary
 - all wounds must be thoroughly cleaned and irrigated, dead tissue excised
 - any pieces of spine should be removed and radiographic imaging may assist in identifying foreign bodies
 - irrigate the wound with sodium chloride 0.9%
 - do not close, this allows for drainage and healing
 - x-ray (if available and MO/NP orders) if a foreign body is suspected
 - check when had last tetanus vaccination. See [Tetanus immunisation, page 755](#)
 - elevate wound
 - antibiotics may be necessary
- Evacuation/hospitalisation and administration of stonefish antivenom may need to be considered for systemic symptoms or severe pain. Stonefish antivenom can be given IM however IV is likely to be more effective. Stonefish antivenom must always in a critical care area with readily available adrenaline resuscitation equipment²⁵

5. Follow up

- Stonefish sting - people without clinical features of systemic envenoming at 2 hours do not require

further observation¹

- Those treated with opioid analgesia or antivenom may be discharged when they have been asymptomatic for a period of 4 hours¹
- Review wound daily initially

6. Referral/consultation

- Consult MO/NP with:
 - all stonefish stings that warrant opioid analgesia
 - stonefish sting with systemic symptoms
 - stingray wound over chest or abdomen. These patients need to be evacuated/hospitalised in a facility with appropriate surgical (thoracic, abdominal) capability as soon as possible
 - delayed presentation (a day or more after injury) of any stings/wounds
 - any stings/wounds that cannot be adequately excised and cleaned
 - large or deep wounds
 - antibiotic prophylaxis may be required



Stingray injuries - adult/child

Recommend

- Any stingray wound on the trunk, even in the absence of apparently significant injury, should be treated as a medical emergency¹⁶
- Do not use the pressure immobilisation technique¹⁵
- Pain relief - immerse affected area in water or shower as hot as patient can tolerate (45°C). Put both limbs in hot water to gauge heat. Use with caution in young children and those with poor peripheral circulation e.g. elderly and diabetic

1. May present with

- History of injury from stingray
- Lacerations
- Local trauma and severe pain
- Barb or spine insitu

2. Immediate management Not applicable

3. Clinical assessment

- Include in history:
 - time of injury
 - first aid measures used
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - site, size and features of injury

4. Management

- Wash the wound site. Do not remove penetrating barbs, especially those affecting the chest and abdomen¹⁵
- Pain relief - immerse affected area in water or shower as hot as patient can tolerate (45°C). Put both

limbs in hot water to gauge heat. Use with caution in young children and those with poor peripheral circulation e.g. elderly and diabetic. Continue until resolution of pain or for at least 90 minutes¹¹

- Apply local pressure for bleeding
- Oral paracetamol may be sufficient analgesia or an intravenous opioid may be necessary. Give morphine or if allergic to morphine give fentanyl
- See [Simple analgesia pull out](#)

Schedule	8	Morphine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL	IM/Subcut	Adult only 0.1 mg - 0.2 mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
		IV (IHW and IPAP may not administer IV)	Adult only Initial dose of 2.5 mg then 0.5 mg - 2.5 mg increments slowly, repeated every 5 minutes if required to a max. of 10 mg	
Provide Consumer Medicine Information: advise patient morphine can cause nausea and vomiting, and drowsiness				
Note: a reduced dose should be considered in patients with significant renal/liver disease. Use the lower end of the dose range in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				
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- If allergic to morphine give fentanyl. **Note:** fentanyl has a rapid onset of action

Schedule	8	Fentanyl		DTP IHW/SM R&IP
Authorised Indigenous Health Worker must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	100 microgram / 2 mL	IM/Subcut	Adult only 1.5 microgram/kg to a max. of 100 microgram	Stat Further doses on MO/NP order
		IV	Adult only 25 microgram increments slowly, repeated every 10 minutes if required to a max. of 100 microgram	
Provide Consumer Medicine Information: advise patient fentanyl can cause nausea and vomiting, and drowsiness				
Note: use with caution in patients > 70 years				
Use in Pregnancy: Category C				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression. As naloxone counteracts the opioid, it may cause the return of pain. Consult MO/NP. See Toxicology/opioids, page 246				

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5. Follow up

- Advise daily wound care and review as required. See [Fish stings, page 279](#)

6. Referral/consultation

- Transport to hospital or medical intervention for possible wound debridement or surgery. See [Fish stings, page 279](#)

Sea urchin injuries - adult/child

Recommend

- Pain relief - immerse affected area in water or shower as hot as patient can tolerate (45°C). Put both limbs in hot water to gauge heat. Use with caution in young children and those with poor peripheral circulation e.g. elderly and diabetic

1. May present with

- Local pain
- Embedded or broken off spines

2. Immediate management Not applicable

3. Clinical assessment

- Include in history:

- time of injury
- first aid measures used
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination
 - site, size and features of injury

4. Management

- Wash the wound site
- Pain relief - immerse affected area in water or shower as hot as patient can tolerate (45°C). Put both limbs in hot water to gauge heat. Use with caution in young children and those with poor peripheral circulation e.g. elderly and diabetic. Continue until resolution of pain or for at least 90 minutes¹¹
- Removal of spines close to surface
- X-ray may be required to identify any embedded spines
- Oral paracetamol is usually sufficient analgesia
- See [Simple analgesia pull out](#)

5. Follow up

- Review if any ongoing pain or indication of retained spines. Further x-rays or ultrasound may be required

6. Referral/consultation

- Transport to hospital for medical intervention if required

Sponges - adult/child

1. May present with

- Mild local itching and stinging
- Occasionally prolonged symptoms of erythema, but also vesicles, local swelling and joint stiffness can develop¹¹
- Fire sponges are reported to cause delayed reactions and peeling of the skin can occur after 2 - 3 weeks¹¹

2. Immediate management Not applicable

3. Clinical assessment

- Include in history:
 - time of sting
 - first aid measures used
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - site, size and features of sting

4. Management

- Wash the site
- Oral paracetamol is usually sufficient analgesia

- See [Simple analgesia pull out](#)

5. Follow up

- Review if any ongoing symptoms

6. Referral/consultation

- Usually not required

Ciguatera poisoning - adult/child

Background

- Ciguatera is caused by the ingestion of pelagic or reef fish which contain ciguatoxins. The classic feature is temperature reversal i.e. paradoxical or reverse temperature perception

1. May present with

- Symptoms are grouped into neurological, gastrointestinal or non-specific:
 - neurological:
 - numbness and tingling of the hands and around the mouth
 - hot and cold sensation reversed such that cold items give a hot sensation and vice versa
 - headache, weakness, faintness
 - joint and muscle pain
 - pain on passing urine
 - itchy skin, sweating, chills
 - breathlessness
 - gastrointestinal:
 - nausea, vomiting, diarrhoea, abdominal pain
 - non-specific:
 - slow HR, hypotension
 - onset of symptoms can vary, usually within 1 to 48 hours of ingestion¹⁷
- Symptoms may be variable and vague and the diagnosis initially overlooked - may present with mood disorders (depression, irritability, anxiety)

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a full history including type and amount of fish ingested. Diagnosis is made on the history
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)

4. Management

- Consult MO/NP
- If bradycardia (slow HR), hypotension or moderate to severe symptoms - insert IV cannula
- Ciguatoxin may be passed through breast milk. Assessment of breastfed infants and advice with regard to the safety of breastfeeding may be necessary

5. Follow up

- If not evacuated/hospitalised review the next day
- Gastrointestinal symptoms usually settle in a few days
- The joint and muscle pains, weakness and temperature reversal may take weeks to months to

resolve completely

- Ingestion of very small amounts of toxin may lead to a recurrence of symptoms in those who have been recently affected by ciguatera. The patient should avoid eating pelagic or reef fish for at least 6 months to 1 year. Symptoms can be exacerbated by ingestion of nontoxic seafood, nuts, grains, alcohol and by exercise. Opioids can also exacerbate symptoms

6. Referral/consultation

- Consult MO/NP in all cases of suspected ciguatera poisoning
- ① Report any ciguatera poisoning based on clinical diagnosis to your local Public Health Unit by telephone: <http://disease-control.health.qld.gov.au/Condition/731/ciguatera-poisoning>

Section 3

General



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- Chronic conditions, page 412

Mild and moderate allergic reaction - adult/child

Recommend

- People with diagnosed allergies, e.g. nuts, bees and/or medicine, should avoid trigger agents and have a readily accessible action plan, carry an EpiPen®/Anapen® if prescribed and medical alert device¹
- Always check for medic alert jewellery available at: <http://qheps.health.qld.gov.au/psu/alerts/docs/ps-notice-07-13.pdf>

Background

- Mild allergic reactions typically involve skin features (urticarial rash or erythema/flushing, and/or angioedema). Severe (anaphylaxis) also involves respiratory and/or cardiovascular and/or gastrointestinal symptoms²
- **Note:** that mild-moderate allergic reactions may or may not precede anaphylaxis
- Acute urticaria can last from a few minutes to 24 hours. If it lasts longer than 6 weeks it is considered chronic urticaria³

Related topics

 [Anaphylaxis and severe allergic reaction, page 67](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)

[Oxygen delivery systems, page 44](#)

[Acute upper airway obstruction and choking, page 64](#)

1. May present with

Mild or moderate allergic reactions⁴

- Swelling of lips, face, eyes
- Hives or welts
- Tingling mouth
- Abdominal pain, nausea and vomiting

Watch for any one of the following signs of anaphylaxis:

- Difficult/noisy breathing
- Swelling of tongue
- Swelling/tightness in throat
- Difficulty talking and/or hoarse voice
- Wheeze or persistent cough
- Persistent dizziness or collapse
- Pale and floppy (young children)

2. Immediate management

- For patients with facial or airway swelling, cardiovascular collapse or those with severe respiratory distress. See [Anaphylaxis and severe allergic reaction, page 67](#)
- If moderate and indicated:
 - for adults and children give O₂ to maintain O₂ saturation > 93% adult - > 95% child. If not

maintained consult MO/NP. See [Oxygen delivery systems, page 44](#)

- For insect allergy - remove sting if visible
- For tick allergy - do not forcibly remove tick if allergic reaction is evident - seek urgent MO/NP advice⁵

3. Clinical assessment

- Obtain complete patient history as there are many potential causes/triggers such as:
 - recent febrile illness
 - known allergies - bees, foods, medicines
 - previous episodes, treatment used, was it effective
 - contact with irritant - such as nickel, detergents, cosmetics, rubber, topical medicines, shampoo, hair dye, clothing
 - contact with plants - stinging tree
 - contact with animals - caterpillars, bird lice, bees
 - recent intake of foods - seafood, peanuts
 - time of potential contact with irritant
 - geographical location of potential irritant
 - current medications
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note in particular any tachycardia or respiratory problems
- Perform physical examination:
 - inspect face and eyes for any swelling
 - inspect skin surface for urticaria, describe lesions - red, swollen, flat, linear pattern, diffuse itchy, painful, patient sweating?
 - inspect mucous membranes of mouth and throat for any swelling. If present consider anaphylaxis - See [Anaphylaxis and severe allergic reaction, page 67](#)
 - does the patient have difficulty breathing. If present consider anaphylaxis - See [Anaphylaxis and severe allergic reaction, page 67](#)
 - auscultate the chest for air entry and wheezes or stridor. If present consider anaphylaxis - See [Anaphylaxis and severe allergic reaction, page 67](#)

4. Management

- Consult MO/NP if suspected irritant is a medicine, before recommending to cease

Mild allergic reaction (only if indicated)

- Topical applications can be used to relieve itch/skin irritation
- Oral promethazine or loratadine (less-sedating antihistamine)³ may be given

Schedule	2	Loratadine		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	10 mg	Oral	Adult and child ≥ 30 kg 10 mg daily Child 2 - 12 years < 30 kg 5 mg daily Child 1 - 2 years 2.5 mg daily (tablet can be quartered and crushed)	Stat then once daily while symptoms present
Provide Consumer Medicine Information: can cause drowsiness, headache, and dry mouth. Can be crushed with water or food				
Note: Use in pregnancy: Category B1				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- Or

Schedule	3	Promethazine		DTP IHW/IPAP
Authorised Indigenous Health Worker may administer one dose then consult MO/NP				
Isolated Practice Area Paramedic must consult MO/NP				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	10 mg 25 mg	Oral	Adult and child ≥ 12 years 10 mg - 25 mg tds or 25 mg - 75 mg nocte	Stat and while symptoms present
Elixir	5 mg/5 mL		Child 2 - 12 years 0.125 mg/kg tds to a max. of 12.5 mg tds or 0.5 mg/kg nocte to a max. of 25 mg nocte	
Provide Consumer Medicine Information: may cause drowsiness, if sleepy do not drive or operate machinery, avoid alcohol and other medications that cause sedation				
Note: Use in pregnancy: Category C				
Use with caution in patients who are breastfeeding, have impaired renal or liver function, and epilepsy				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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Moderate allergic reaction

- Consult MO/NP
- Give promethazine deep IM stat
- Adrenaline may be required. For dose and administration see [Anaphylaxis and severe allergic reaction, page 67](#)
- MO/NP may order if indicated:
 - salbutamol nebulised with O₂
 - hydrocortisone IV stat (2 - 4 mg/kg, max. 100 mg¹³). **Note:** Systemic corticosteroids may be indicated if angioedema is not controlled by antihistamines alone
- Monitor patient response, promethazine may make patient drowsy

Schedule	4	Promethazine injection	DTP IHW/SM R&IP/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	25 mg/mL	IM Deep	Adult and child ≥ 12 years 25 - 50 mg Child > 2 years 0.5 mg/kg/dose to max. of 25 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: may cause drowsiness. Do not drive or operate machinery, avoid alcohol and other medications that cause sedation				
Note: promethazine can cause tissue necrosis - give by deep IM injection. Stop injection immediately if there is burning, swelling or pain at the injection site				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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5. Follow up

- Mild allergic reaction - review next day and if no symptoms or findings review at next MO/NP clinic
- Moderate allergic reaction - monitor response, discharge in consultation with MO/NP
- Document in medical record 'Allergic to...'
- Promptly report any significant adverse event following immunisation (AEFI) directly to Queensland Health by completing an AEFI form available at <http://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/aei-reporting-form.pdf> and send as fax or email to the address on the form. Queensland Health will forward the report to the Therapeutic Goods Administration
- For adverse reactions caused by medicines, report directly to the TGA Australian Adverse Reaction Reporting System available at <http://www.tga.gov.au/reporting-problems-o>
- If practising outside Queensland report adverse reactions caused by immunisations and medicines directly to the TGA Australian Adverse Reaction Reporting System available at <http://www.tga.gov.au/reporting-problems-o>
- Information on Medic Alert jewellery available at:
<http://qheps.health.qld.gov.au/psu/alerts/docs/ps-notice-01-13.pdf>
<http://qheps.health.qld.gov.au/psu/alerts/docs/ps-notice-01-13.pdf>
- Arrange MO/NP follow up

6. Referral/consultation

- Consult MO/NP for moderate allergic reaction
- Referral to an Allergist may need to be considered to identify the allergen(s)

Resources

- Action plans available at: www.allergy.org.au

Respiratory problems

Upper respiratory tract infection (URTI) - adult Common cold, influenza, sore throat, tonsillitis, bronchitis, pharyngitis

Recommend

- Always be alert to the relationship between group A streptococcal infections and acute rheumatic fever (ARF)/acute post streptococcal glomerulonephritis (APSGN) which are especially common in Aboriginal and Torres Strait Islander communities

Background

- The vast majority of URTI are caused by viruses and do not require antibiotics¹
- A viral upper respiratory tract infection can be complicated by secondary bacterial infection requiring antibiotics e.g. acute otitis media, sinusitis, bronchitis, pneumonia
- If the infection is due to *Streptococcus pyogenes*, infectious disease complications can result such as APSGN, ARF, scarlet fever, streptococcal toxic shock syndrome, pharyngitis and pancreatitis
- Other complications include exacerbation of asthma/chronic obstructive pulmonary disease (COPD)
- Influenza is an acute respiratory illness caused by influenza viruses of which there are many different types. Epidemics commonly occur over the winter months
- Recent years have seen the emergence of new influenza strains. Consult locally developed guidelines for appropriate precautions to limit onward transmission of the virus as well as individual patient management. This may include collection of specimens and commencing anti-viral treatment in high risk groups
- Influenza is probably over-diagnosed. Systemic symptoms such as fever, extreme lethargy, sore muscles and joints and headache differentiate it somewhat from a 'common cold'
- Patients at risk may develop pneumonia secondary to influenza and should be offered vaccination against influenza. See [Immunisation program, page 750](#)

Related topics

-  [Pneumonia, page 300](#)
-  [Acute abdominal pain, page 200](#)
-  [Acute asthma, page 81](#)
-  [Acute rheumatic fever, page 672](#)
-  [Acute post streptococcal glomerulonephritis, page 667](#)
-  [Acute bacterial sinusitis, page 298](#)
-  [Immunisation program, page 750](#)

[Chronic obstructive pulmonary disease, page 416](#)
[Bacterial skin infections, page 360](#)

1. May present with

- Watery nasal discharge, sneezing, purulent nasal discharge
- Sore throat, red throat and/or tonsils with or without pus, halitosis
- Cough, wheeze, earache
- Enlarged tender cervical (neck) lymph nodes
- Fever, headache
- General malaise, lethargy
- Muscular aches and pains
- Rash

2. Immediate management Not applicable

3. Clinical assessment

- Take patient history including:
 - past episodes or complications
 - any history of asthma/COPD/rheumatic fever/heart disease
 - history of pleuritic chest pain, fevers, shortness of breath, productive cough
- Ask about joint pain - consider acute rheumatic fever
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note in particular respiratory rate, temperature and oxygen saturation
- Perform physical examination:
 - examine upper respiratory tract - nose, sinuses, throat, tonsils and cervical lymph nodes and ears
 - urinalysis - if positive for blood, see [Acute post streptococcal glomerulonephritis, page 667](#)
 - listen to the chest for air entry and added sounds (crackles or wheezes)
 - palpate joints for any swelling
- Observe for signs of photophobia and meningism, with neck stiffness

4. Management

- If the patient:
 - has an increased respiratory rate or any chest findings, consider other diagnoses See [Pneumonia, page 300](#), [Acute asthma, page 81](#) and [Chronic obstructive pulmonary disease, page 416](#)
 - has a cough productive of mucopurulent sputum (bronchitis), consult MO/NP and treat. See [Pneumonia, page 300](#)
 - has facial pain or tenderness. See [Acute bacterial sinusitis, page 298](#)

For the adult patient with uncomplicated URTI, treatment is symptomatic

- Encourage rest and increase fluid intake
- Treat fever, aches and pains with paracetamol or aspirin. Aspirin may be gargled for sore throat.
Do not use aspirin in children
- For children with URTI. See [Upper respiratory tract infection - child, page 650](#)
- Other symptomatic treatments e.g. steam inhalation and lemon and honey drinks may have subjective benefits in some patients

- If severe nasal congestion consult MO/NP
- Give explanation and educate patient regarding viral illness and treatment protocol to avoid patient attending another MO/NP immediately requesting antibiotics
- For use of paracetamol see [Simple analgesia pull out](#)

Schedule	2	Aspirin soluble	DTP IHW/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Dispersible tablet	300 mg	Oral	Adult 2 tablets every 4 - 6 hours to max. 12 tablets/day	Stat
Provide Consumer Medicine Information: may cause gastrointestinal irritation or bleeding. Take with or after food. The patient can gargle 2 tablets four times a day				
Note: use with caution in patients with asthma				
Contraindication: aspirin must not be given to children < 12 years. Also contraindicated in patients with stomach ulcer, allergic reaction to aspirin or other NSAID, bleeding disorders such as severe hepatic impairment				
Use in pregnancy: Category C - contraindicated in third trimester. Use with caution in first 6 months of pregnancy or if breastfeeding				
Management of associated emergency: onslut MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

2,11,12

- For the complicated URTI antibiotic treatment is required. The indications for antibiotic treatment are:
 - patients aged 2 - 25 years with sore throat in communities with high incidence of acute rheumatic fever e.g. some Aboriginal and Torres Strait Islander communities in central and northern Australia³
 - pustular tonsillitis with fever and local lymphadenitis
 - existing rheumatic heart disease
 - quinsy (severe infection of the tonsils causing massive enlargement, evidence of pus on tonsil). If quinsy is present, consult MO/NP. May need evacuation/hospitalisation for IV penicillin and/or surgical drainage of pus
- If not allergic treat with oral penicillin³

Schedule	4	Phenoxymethylpenicillin		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg	Oral	Adult 500 mg bd	10 days
Tablet	500 mg			
Provide Consumer Medicine Information: should be taken on an empty stomach, ½ to 1 hour before meals. Take until course completed. Tell health professional if a sore white mouth, tongue or vagina develops				
Contraindication: in patients with a history of hypersensitivity to penicillins				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- If a lack of observance with oral medicine is anticipated, treat with IM penicillin

Schedule	4	Benzathine penicillin (Bicillin LA [®])		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Pre-filled syringe	900 mg in 2.3 mL	IM	Adult 900 mg	Stat
Provide Consumer Medicine Information: patients should report development of diarrhoea immediately to their health professional. Tell your health professional if you get severe pain in the muscle where the injection was given, or if you get a sore white mouth or tongue				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillin. If the patient develops severe diarrhoea contact the MO/NP immediately. Prolonged use of penicillins may lead to the development of oral candidiasis				
Contraindication: in patients with a history of hypersensitivity to penicillins. Be aware of cross-reactivity in patients with allergy to carbapenems and/or cephalosporins				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
Administration tips: see Administration tips for benzathine penicillin (Bicillin LA) and procaine penicillin, page 768				

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4,6,7

- If allergic to penicillin, treat with azithromycin⁴

Schedule	4	Azithromycin		DTP
IHW/SM R&IP/IPAP				
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	Adult 500 mg daily	5 days
Suspension	200 mg/5 mL		Child 12 mg/kg/dose daily to a max. of 500 mg daily	
Provide Consumer Medicine Information: take until course completed unless advised by health professional to stop. Patients should report development of diarrhoea immediately to health professional. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by azithromycin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

4

4

5. Follow up

- Review next day if not improving
- If antibiotics have been given for sore throat, review in 2 weeks. Ask about sore joints, breathlessness, rash and check urinalysis
- Consult MO/NP if symptoms persist. See [Acute rheumatic fever, page 672](#) or if abnormal urinalysis, see [Acute post streptococcal glomerulonephritis, page 667](#)

6. Referral/consultation

- Consult MO/NP as above or if symptoms persist despite symptomatic treatment

Acute bacterial sinusitis - adult/child

Related topics

-  [Upper respiratory tract infection, page 294](#)  [Upper respiratory tract infection - child, page 650](#)

1. May present with

- As per URTI and in addition:
 - significant facial pain and/or tenderness
 - frontal headache
 - systemically unwell, fever
 - mucopurulent nasal discharge (anterior and/or posterior)/nasal blockage
 - reduction/loss of smell
 - dental pain

2. Immediate management Not applicable

3. Clinical assessment

- Take patient history including:
 - past episodes
 - treatment received
 - medications used
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - inspect the patient's face for any swelling around the nose and eyes
 - palpate the frontal sinuses above the eyes by gently pressing the thumbs under the bony ridge of the upper orbit, near where eyebrows start - does the patient feel pain?
 - then palpate the maxillary sinuses on each side of the nose to cheekbones - does the patient feel pain?
 - percuss these areas using the middle or index finger of one hand onto the finger of the other hand, note the sound. Dullness indicates presence of fluid

4. Management

- Consult MO/NP who may advise:
 - antibiotics⁹
 - analgesia
 - nasal saline sprays or nasal douches may relieve nasal congestion from thick mucous⁹
 - oral decongestant
 - oral antihistamine
 - nasal decongestants should be used for less than 5 days, to prevent rebound congestion and not in children < 6 years old⁹
- Symptomatic treatment. See [Upper respiratory tract infection, page 294](#) and [Upper respiratory tract infection - child, page 650](#)
- See [Simple analgesia pull out](#)

5. Follow up

- Review next day. Consult MO/NP if not improving

6. Referral/consultation

- Consult MO/NP on all presentations of acute bacterial sinusitis. In particular, any associated symptoms of double or reduced vision, mental status deterioration or periorbital oedema require urgent MO/NP consultation⁹

Pneumonia - adult

Recommend

- For patients with moderate/severe pneumonia. See Immediate management
- Offer patients at risk of pneumonia (those with co-existent illnesses such as chronic diseases, alcohol misuse, previous splenectomy, impaired immunity), pneumococcal and influenza vaccination. See [Immunisation program, page 750](#)
- Consider melioidosis as possible cause of severe pneumonia in northern Australia particularly in patients who have diabetes +/- alcohol misuse and especially in the wet season. It has less classical symptoms and signs and may be resistant to initial treatment

Background

- A common condition, especially in Aboriginal and/or Torres Strait Islander peoples and a significant cause of morbidity and mortality

Related topics

-  [Acute post streptococcal glomerulonephritis, page 667](#) [Oxygen delivery systems, page 44](#)
 [Immunisation program, page 750](#)

1. May present with

- Shortness of breath
- Cough with sputum. A dry cough is typical of atypical pneumonia
- Fever, rash
- Rapid breathing
- Pleuritic chest pain (sharp pain made worse by deep breath)
- Cyanosis
- Confusion, drowsiness, loss of consciousness
- Hypotension/shock. See [Shock, page 55](#)

2. Immediate management

- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- O₂ to maintain O₂ saturation > 93%. If > 93% not maintained consult MO/NP
- See [Oxygen delivery systems, page 44](#)
- Insert IV cannula. It is usual to start with sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate
- Consult MO/NP who will advise:
 - antibiotics¹⁰
 - if possible take blood cultures prior to commencing antibiotics
 - evacuation/hospitalisation

3. Clinical assessment

- Take a complete patient history as soon as possible allowing for severity of condition, include past episodes or complications

- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination and describe findings:
 - inspect the patient breathing - are they lifting their shoulders, bending forward or sitting straight, using muscles in their neck or chest, is there any flaring of the nose?
 - is there pain on inhalation, is there any noise made when the patient breathes?
 - do they have a cough, is there sputum present? Note type, colour
 - listen to the air entry into the lungs - is there decreased air entry, are there crackles, wheezes?
 - percuss the lungs - note if there is any dullness and in what area
 - inspect lips, fingernails - are they pale or cyanosed?
 - urinalysis - if positive for blood. See [Acute post streptococcal glomerulonephritis, page 667](#)
- Check pneumococcal and influenza immunisation status

4. Management

- Consult MO/NP with findings of assessment:
 - if HR > 120 /min, respiratory rate > 30 /min, cyanosis, hypotension (systolic BP < 90 mmHg), shock or confusion. For patients with moderate/severe pneumonia. See Immediate management
 - if HR < 120 /min, respiratory rate < 30 /min, not cyanosed, normal BP and fully orientated treat as mild pneumonia

Mild pneumonia

- Consult MO/NP who may advise:
 - chest x-ray if available
 - oral or IM antibiotics. Antibiotics may not be indicated if typical of viral infection
 - encourage rest and increase oral fluids
- Treat fever and pleuritic chest pain with paracetamol or aspirin. Do not use aspirin in children. For children, see [Pneumonia - child, page 665](#)
- For use of paracetamol see [Simple analgesia pull out](#)

Schedule	2	Aspirin soluble	DTP IHW/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Dispersible tablet	300 mg	Oral	Adult 2 tablets every 4 - 6 hours to max. 12 tablets/day	Stat
Provide Consumer Medicine Information: may cause gastrointestinal irritation or bleeding. Take with or after food. The patient can gargle 2 tablets four times a day				
Note: use with caution in patients with asthma				
Contraindication: aspirin must not be given to children < 12 years. Also contraindicated in patients with stomach ulcer, allergic reaction to aspirin or other NSAID, bleeding disorders such as severe hepatic impairment				
Use in pregnancy: Category C - contraindicated in third trimester. Use with caution in first 6 months of pregnancy or if breastfeeding				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
2,11,12				

5. Follow up

- Patients with mild pneumonia who are not evacuated/hospitalised should be reviewed daily. Consult MO/NP if the patient is not improving
- See next MO/NP clinic
- If a smoker, encourage the patient to stop. See [Tobacco smoking, page 476](#)
- If eligible offer pneumococcal and influenza vaccination as per *Australian Immunisation Handbook*. Available at <http://www.immunise.health.gov.au>

6. Referral/consultation

- Consult MO/NP on all occasions pneumonia is suspected

Tuberculosis - adult/child

Recommend

- Consider tuberculosis (TB) when someone has a new or changed cough that has persisted for three or more weeks. Infectious TB is easily diagnosed by collecting three consecutive morning sputum specimens and testing for acid fast bacilli (AFB). AFB testing should always be included in investigations of patients with this presentation and abnormality on chest x-ray
- Consider TB in people of any age with unexplained weight loss and fever of unknown cause. TB is often overlooked in the elderly by attributing symptoms to age or bronchitis
- Consider TB as a cause for unexplained health problems in patients from high incidence countries (see Background) and in Aboriginal and/or Torres Strait Islander Australians
- ①Tuberculosis requires immediate notification to the local Public Health Unit¹¹ - <http://disease-control.health.qld.gov.au/Condition/786/tuberculosis>
- Tuberculosis Call Centre ① 1300 367 840
- Queensland Government. Tuberculosis Control in Queensland - https://www.health.qld.gov.au/chrisp/tuberculosis/about_TB.asp

Background

- TB is transmitted by infectious droplets produced by people with active pulmonary TB when they cough or perform other forceful expiratory manoeuvres e.g. singing, yelling, sneezing
- There should be an increased suspicion for TB in people from high risk countries - Papua New Guinea, China, south east Asia, India, Africa, Middle East, Pacific Islands, eastern Europe, some South American countries and Australian Aboriginal and/or Torres Strait Islander peoples plus those with close contact to people with infectious pulmonary TB and immuno suppressed people. See https://www.health.qld.gov.au/chrisp/tuberculosis/high_risk_index.asp

Related topics

 [HIV infection, page 616](#)

[History and physical examination - adult, page 13](#)

1. May present with

- Usually, abnormal respiratory symptoms and signs but may present with symptoms and signs emanating from the genitourinary system, meninges, cervical lymph nodes, skeletal system or indeed any organ or system
- Extra-pulmonary TB often mimics other diseases
- Cough for more than three weeks, haemoptysis (coughing blood)
- Pleuritic chest pain and breathlessness, unresolved pneumonia
- Hoarse voice
- Unexplained weight loss
- Night sweating, fever of unknown origin
- Doesn't look and feel well, with past history of, or close contact with TB
- Painless and non-tender swelling of lymph nodes
- Persistent low back pain with a fluctuant swelling at the groin or loin
- Headache, photophobia, confusion, neck stiffness of 1 to 8 weeks duration
- Pus cells in the urine but no growth on MC/S

2. Immediate management Not applicable

3. Clinical assessment

- Use personal protective equipment including high filtration mask e.g. duckbill mask
- Obtain a complete patient history, including past episodes or exposure to TB
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform a complete physical examination of patient:
 - collect sputum samples (AFB on at least 3 consecutive mornings) if any respiratory symptoms or any abnormality on chest x-ray, even if suspected site of TB is non-pulmonary
 - Consider HIV test. TB may be the initial presentation in HIV positive people. Perform chest x-ray

4. Management¹¹

- MO/NP will consult a Specialist MO whenever TB is suspected. Early diagnosis and treatment may prevent severe tissue damage, that can lead to permanent disability and sometimes death. It is important to ensure infection control practises are in place for infectious cases to minimise risk of further transmission while awaiting a response to treatment
- The Queensland Tuberculosis Call Centre ☎ 1300 367 840 will direct clinicians to a regional TB Control Centre which should be involved in all cases of active TB. They will advise on further testing in addition to the following which should always be performed:
 - chest X-ray. Mandatory in all patients suspected of TB, even if the patient presents with non-respiratory symptoms and signs
 - sputum specimen for AFB on at least 3 consecutive mornings. If the patient cannot produce sputum, Specialist MO may advise inhalation of hypertonic saline via a nebuliser

5. Follow up¹¹

- Follow up treatment should be done in consultation with specialised health services, regional TB Control Centre or Specialist Physician and will involve monitoring patient clinically, including:
 - regular weight
 - sputum for AFB if pulmonary TB, to ensure sputum has converted to negative culture within 2 - 3 months of treatment, as well as to guide early decisions about potential infectiousness of patient
 - chest x-ray if pulmonary TB, to ensure appropriate response to treatment
 - monitor for adverse medicine reactions in close consultation with Specialist MO and the Queensland Tuberculosis Call Centre ☎ 1300 367 840 or regional TB Control Centre
 - ensuring observation of patient taking medicine can be logistically difficult but may be essential for successful treatment and protection of others
- Adverse medicine reactions and interactions:
 - there are many side effects from anti-tuberculosis medicines
 - particular attention should be given to:
 - monitoring liver function
 - patients on ethambutol - visual problems, regular checks of visual acuity and colour vision
 - patients taking rifampicin should have all medicines reviewed as rifampicin can increase metabolism of many medicines
 - patients on medicines such as warfarin, corticosteroids, and methadone
 - females taking oral contraceptives - consider other means of contraception

6. Referral/consultation¹¹

- MO/NP will consult a Specialist MO whenever TB is suspected

- ① Tuberculosis requires immediate notification to the local Public Health Unit¹¹ - <http://disease-control.health.qld.gov.au/Condition/786/tuberculosis>
- Call the Queensland Tuberculosis Call Centre ① 1300 367 840
- Contact tracing will be supervised by the TB control centre or the appropriate Regional TB Control Unit using Queensland TB Control Centre guidelines

Nervous system problems

Acute and chronic headache - adult/child

Recommend

- Suspect subarachnoid haemorrhage (SAH) in any patient who presents with a headache of sudden onset described as the most severe headache they have ever had, sometimes described as a 'thunder clap'. Consult MO/NP immediately
- See [Subarachnoid haemorrhage \(SAH\), page 113](#)

Background

- Headache can be classified into two broad categories - primary and secondary
 - primary headaches include migraine, cluster or tension headache
 - secondary headaches are triggered by an underlying disorder - such as infection, injury or tumour, subarachnoid haemorrhage - and can be considered as a side effect of the main illness

Related topics

-  [Snakebite including sea snake, page 258](#)
-  [Meningitis, page 644](#)

- [Head injuries, page 131](#)
- [Subarachnoid haemorrhage \(SAH\), page 113](#)
- [Transient ischaemic attack \(TIA\) and stroke, page 114](#)

1. May present with

Primary headache

- Tension headaches are the most common type. Two out of three people will have at least one tension headache in their lifetime. This feels like a tight band of pressure around the head and can be caused by physical or emotional stress
- Migraine headache feels like a throbbing or pulsing pain and sometimes includes other symptoms, such as visual disturbances, numbness of the face or extremities, nausea and vomiting. It is associated with a spasm of the blood vessels leading to the brain. Migraines can be triggered by many different things, including food, stress, heat and cold, strong smells, emotions, fatigue or hormonal fluctuations
- Cluster headaches usually involve severe pain, localised to one eye and can include other symptoms, such as swelling and watering of the affected eye. They are relatively uncommon and tend to affect mainly men. Can be triggered by alcohol and cigarettes, but the underlying cause is unknown

Secondary headache is a side effect of:

- Head or neck injury
- Meningitis. See [Meningitis, page 644](#)
- Sinus infection
- Brain tumour

- Encephalitis
- Haemorrhage
- Head trauma - can be minor, leads to chronic subdural haematoma
- Hydrocephalus
- Eye diseases
- Subarachnoid haemorrhage
- Spinal injury
- Arthritis or inflammation of the arteries (temporal arteritis)
- High blood pressure
- Disorders of the nose, ear or throat, or dental problems e.g. abscesses
- Certain medicines may also cause headaches e.g. birth control pills, diabetes medicines
- Other physical causes of headache include - dehydration, hangover, loud noise, poor posture or hormonal causes

2. Immediate management

- If patient distressed, lie patient flat and reassure
- Consider snakebite

3. Clinical assessment

- Perform a complete patient history noting current medications, alcohol and other drug use, may be snakebite
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination - inspect skin for rashes
- Specific factors to consider when assessing patient with a headache include:
 - location of the pain, such as around one eye or over the scalp
 - the degree of pain experienced
 - onset and duration of the headache - does patient wake with pain?
 - other symptoms, such as visual disturbances, vomiting, a sore neck, fever (meningitis), coordination problems, fits (convulsions), changes in personality and weakness on one side of the body
 - how often the headache recurs
 - is the headache progressively worsening
 - factors that worsen the headache, such as certain foods
 - factors that improve the headache, such as massage
- Consult MO/NP. Persistent headaches need to be medically investigated. Tests can include scans, eye tests and sinus x-rays

4. Management

- Encourage rest and treat in a quiet darkened room
- Treating a headache depends on its cause
- Treatment for the underlying disorder if the headache is secondary
- Tension headache - lifestyle adjustments, e.g. exercise, diet, stress management and attention to posture
- Migraine headache - medicines and lifestyle modifications, such as identifying and avoiding factors

that trigger an attack

- Cluster headache - medicine or O₂ therapy
- Other management techniques include:
 - paracetamol, MO/NP may prescribe other medicines
 - relaxation techniques, such as massage, stress management
 - alterations to the diet
 - alternative therapies, such as acupuncture or chiropractic treatment are sometimes undertaken by patients
 - See [Simple analgesia pull out](#)

5. Follow up

- According to underlying cause
- Offer ongoing support and reassurance

6. Referral/consultation

- Consult MO/NP for all secondary headaches. Patients will need referral for further investigation as appropriate
- Consider referral for counselling and/or stress management for people with primary headaches

Mouth and dental problems



Trauma to teeth - adult/child

Displaced teeth, avulsed teeth, broken teeth

Recommend

- Caution should be exercised with ibuprofen or other NSAID for dental pain relief in patients with kidney disease. Consult with MO/NP¹
- Do not use water to rinse or store the avulsed (knocked out) tooth²

Background

- Analgesia
 - NSAID are particularly effective for bone pain. The most commonly used NSAID for dental, oral and facial pain is ibuprofen. An ibuprofen dose of 200 - 400 mgs 3 - 4 times daily is required to reduce inflammatory response
 - severe pain usually requires the additional use of another analgesic such as paracetamol³

Related topics

[Blunt eye injury, page 337](#)

[Tetanus immunisation, page 755](#)

[Human \(tooth-knuckle\) and animal bites, page 171](#)

[Head injuries, page 131](#)

[Fractured mandible/jaw, page 150](#)

[Traumatic rupture of the eardrum, page 699](#)

1. May present with

- Avulsed (knocked out), displaced and/or broken tooth/teeth
- Bleeding in mouth
- Injury and/or swelling to lips, tongue and/or face

2. Immediate management

Avulsed (knocked out) adult tooth

- Handle the top of the tooth, not the tooth root
- Do not scrape, rub or remove any tissue fragments from the tooth
- If tooth is dirty, gently rinse only in milk or sodium chloride 0.9%. Avoid water as this may damage tooth root surface²
- Immediately replace the tooth in the socket and hold tooth in place. The tooth will have significantly better prognosis if replaced within 15 minutes
- If unable to replace the tooth, keep it moist by placing it in milk (not water) or seal in plastic wrap with some of patient's saliva²
- Seek dental care immediately

3. Clinical assessment

- Obtain patient history including:
 - past episodes or complications
 - circumstances of injury
 - current medications
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination including:
 - inspect oral cavity, teeth, soft tissues
 - assess bite - suspect jaw or facial fracture if bite is abnormal. See [Fractured mandible/jaw, page 150](#)
 - assess bleeding, duration and amount

4. Management

- Control bleeding with gentle pressure
- Give analgesia. See [Simple analgesia pull out](#)

Broken/fractured tooth/teeth

(Most common presentation)

- A broken tooth or filling is rarely an urgent problem. After analgesia refer to Dentist or Dental clinic visit, preferably within 24 hours if dental pulp is exposed (red soft tissue)
- In most cases, pain is due to exposure of dentine or dental pulp, and is usually reversible if dental treatment is provided early. If a Dentist is not available orthodontic wax or other inert material (such as Blu tack[®]) may be used to cover the broken tooth/teeth and decrease pain
- If the patient continues to experience pain consult MO/NP or Dentist who may advise continuing to use orthodontic wax or Blu tack[®] until next Dentist visit or use of a temporary sealing compound e.g. Cavit^{®4}

Displaced permanent (adult) tooth/teeth

- Reposition tooth/teeth still in socket to original position with firm finger pressure
- Splint - temporary splinting is achieved by fixing the tooth to the adjacent teeth either by folding aluminium foil over them or using beeswax. This is intended to be a temporary measure only. Patient will require evacuation for further treatment by Dentist
- Advise soft diet for 2 weeks and chlorhexidine (0.2%) mouthwash 10 mL rinsed in the mouth for one minute 12 hourly while the tooth is splinted

- Administer analgesia

Avulsed permanent (adult) tooth/teeth (completely out of socket)

- If a tooth appears to be missing and has not been found at the site of the accident, assess if patient has inhaled the tooth using chest x-ray²
- A tooth replaced within 15 minutes has a much better chance of survival therefore it should be a priority to replace teeth as soon as possible
- If tooth is dirty, wash briefly (10 seconds) with sodium chloride 0.9% or milk. Avoid touching the root
- Replace tooth in the socket with firm finger pressure. It may be useful to encourage the patient to bite on a piece of gauze to assist in positioning the tooth
- Splint as above. This is intended to be a temporary measure only. Patient will require evacuation for further treatment by Dentist
- Check last tetanus vaccination. See [Tetanus immunisation, page 755](#)
- If bleeding continues see [Post extraction haemorrhage, page 319](#)
- Administer oral doxycycline if not allergic. If doxycycline is contraindicated or for children 8 years of age or less give amoxycillin
- Advise soft diet for 2 weeks and chlorhexidine (0.2%) mouthwash 10mL rinsed in the mouth for one minute 12 hourly while the tooth is splinted

Avulsed and displaced primary (baby) tooth/teeth

- Assess avulsed teeth in children under 5 years of age to determine if they are primary or permanent teeth. In general, primary teeth are much smaller than permanent teeth, although permanent teeth in young children may have short, undeveloped root²
- Do **not** replace or reposition primary (baby) teeth. There is a risk of damaging the permanent (adult) tooth underneath
- Administer analgesia

Schedule	4	Doxycycline		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet / capsule	50 mg 100 mg	Oral	Adult Initial dose 200 mg then 100 mg daily	7 days
			Child > 8 years Initial dose 5 mg/kg/dose to max. of 200 mg then 2.5 mg/kg/dose daily to a max. of 100 mg daily	
Provide Consumer Medicine Information: take with a large glass of water plus some food or milk. Remain upright (do not lie down) for an hour after taking a tetracycline. Do not take iron, calcium, zinc, or antacids within 2 hours of taking doxycycline. Avoid sun exposure, wear protective clothing and use sunscreen while taking doxycycline. Take until course completed unless advised by your health professional to stop. Tell health professional if a sore white mouth, tongue or vagina develops. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the doxycycline has been stopped				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by doxycycline. Patients should report development of diarrhoea immediately to their health professional. Interacts with warfarin - monitor INR				
Contraindication: in patients with allergy to tetracyclines				
Use in pregnancy: Safe in the first 18 weeks of pregnancy. Doxycycline can cause enamel loss and staining of developing teeth and should not be taken after 18 weeks pregnancy, the neonatal period, and the first 8 years of life				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- If doxycycline is contraindicated or for children 8 years of age or less give amoxycillin

Schedule	4	Amoxycillin		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Adult and child ≥ 12 years 1 g for the first dose then 500 mg tds	7 days
Suspension	125 mg/5 mL 250 mg/5 mL		Child < 12 years 25 mg/kg/dose up to a maximum of 1 g for the first dose then 12.5 mg/kg/dose tds to a max. of 500 mg tds	
Provide Consumer Medicine Information: take until course is completed unless advised by your health professional to stop. Tell health professional if a sore white mouth, tongue or vagina develops. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the amoxycillin has been stopped				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by amoxycillin. If the patient develops severe diarrhoea contact the MO/NP immediately. Be aware of cross reactivity between penicillins, cephalosporins and carbapenems. Interacts with warfarin - monitor INR				
Contraindication: if history of severe or immediate allergic reaction to a penicillin				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- If allergic to penicillin and if doxycycline is contraindicated (child < 8 years) give clindamycin

Schedule	4	Clindamycin		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	150 mg	Oral	Adult and child ≥ 12 years 300 mg tds	5 days
			Child < 12 years 7.5 mg/kg/dose tds to a max. of 300 mg tds	
There is no oral liquid, however a 50 mg/mL clindamycin solution can be made before each dose by:				
• dissolving the contents of 1 capsule in 2 mL water • draw this solution into a syringe and make the volume up to 3 mL • discard any excess solution so that the required dose remains in the syringe • mix the dose in juice or soft food to disguise the taste before giving				
Provide Consumer Medicine Information: take with a full glass of water. Take until course completed unless advised by your health professional to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the clindamycin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by clindamycin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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5. Follow up

- Consult MO/NP or Dentist
- Refer for next Dentist clinic visit
- Educate regarding good oral hygiene such as:
 - twice daily toothbrushing with fluoride toothpaste
 - daily cleaning between the teeth with floss or interdental brushes
 - limit sugary and acidic snacks and drinks
- Promote smoking cessation
- Advise regular dental checkups when available

6. Referral/consultation

- Consult Dentist or MO/NP on all occasions
- Temporary splint/bridge is only intended for overnight stabilisation of the tooth
- Evacuation for a patient will be required for further treatment

Toothache - adult/child

Recommend

- Encourage morning and night brushing with a fluoride toothpaste to prevent tooth decay and limit snacks containing sugar and acid

Background

- There is no evidence to support the use of Oil of Cloves. It can cause kidney and liver toxicity and should not be used in children or pregnant women⁶. Discourage use and do not supply

1. May present with

- Dental pain
- Tooth/teeth sensitive to hot/cold
- Bad breath (halitosis) and/or bad taste in mouth
- Tooth decay - hole in tooth, broken down tooth, darkened tooth
- Facial swelling and/or dental abscess (gum boil)

Causes of acute dental pain⁸

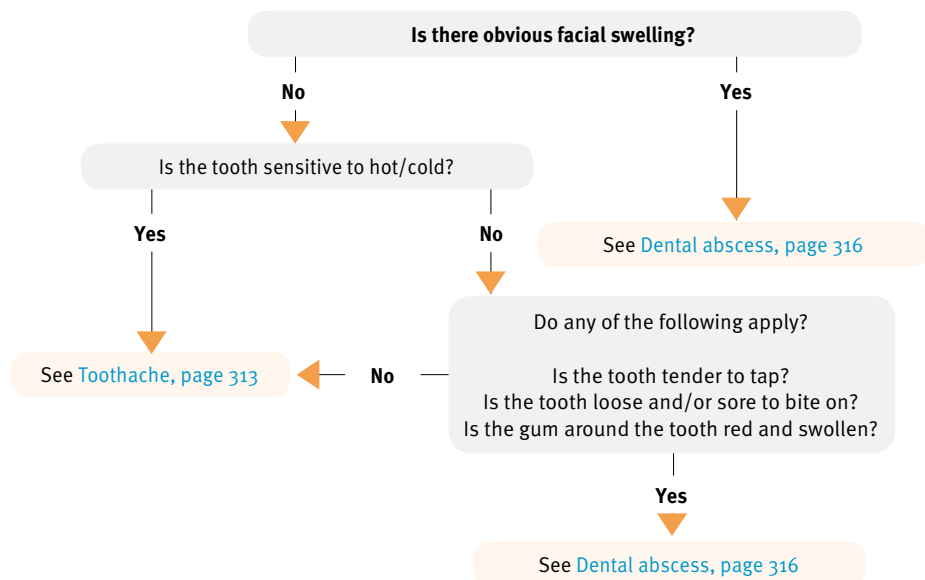
May present with	Probable cause	Management
• Short, sharp pain, disappears when stimulus removed, sensitive to hot/cold/sweet • Sharp, severe pain, becomes dull throb that persists, sensitive to hot/cold/sweet • Dull ache, throb, maybe sore to bite, not sensitive to hot/cold/sweet	Inflammation of the tooth nerve	Analgesics if indicated, especially NSAID if not contraindicated Antibiotics not indicated Avoid foods that provoke pain
• Tender to pressure and biting +/- swelling in the region of pain	Localised infection/ collection of pus around the tooth	See Dental abscess, page 316
• Pain worsens when head is tilted forwards	Maxillary sinusitis	Antibiotics, inhalations and nasal sprays or solutions may be indicated See Acute bacterial sinusitis, page 298

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history including dental history
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - inspect oral cavity, teeth, soft tissues, lymph nodes, ears

Dental pain presentation flowchart



4. Management

- Give analgesia if indicated
- See [Simple analgesia pull out](#)
- If severe consult MO/NP
- If associated tenderness, swelling, redness see [Dental abscess, page 316](#)

Schedule	2	Lignocaine lotion (Seda Lotion®)		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Lotion	2.5%	Topical	Dip cotton bud in lotion and apply to biting surface of tooth until numbed. Max. of every 2 hours	Supply in original pack (15 mL) Advise patient to use for 2-3 days only
Provide Consumer Medicine Information: not for use in infants. Caution with hot drinks as numbness can result in burns				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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5. Follow up

- Refer for next Dentist/Therapist clinic
- Educate regarding good oral hygiene such as:

- regular dental check-ups
- twice daily toothbrushing with fluoride toothpaste
- daily cleaning between the teeth with floss or interdental brushes
- drink water or milk rather than soft drinks or juice
- limit sugary and acidic snacks and drinks
- promote smoking cessation
- use sugar free chewing gum to stimulate saliva flow

6. Referral/consultation

- If severe consult MO/NP/Dentist



Mouth ulcers - adult/child

Recommend

- Management of ulcers should initially address possible causes and then monitor resolution of the ulcers
- Ulcers persisting for longer than three weeks are potentially serious and patients should be referred to a Dentist or MO/NP for management

Background

- Ulcers may occur for a range of reasons, but most commonly are due to: trauma within the mouth, cheek and tongue biting, sharp or hot foods, rough or sharp teeth, orthodontic appliances, dentures¹⁰
- Other causes of mouth ulcers include: STIs, medicine(s) reaction, viral and fungal infections, carcinoma, systemic disease e.g. blood disorders, gastrointestinal disease, skin/mucocutaneous disease
- Recurrent aphthous ulcers are round/oval ulcers usually 3 - 5 mm in diameter with a red margin and sloughing base¹¹. May occur spontaneously as painful solitary or multiple ulcerations on cheek, lip or floor of mouth. May occur acutely with smoking cessation¹²

Related topics

 [Candidiasis/oral \(thrush\), page 324](#)

[Sexually transmitted infections, page 578](#)

1. May present with

- Ulcers on mucosa of mouth - vary greatly in size, pain and duration

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history including dental history
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - inspect mucous membranes of the oral cavity, lips and tongue

4. Management

- Ensure patient can maintain oral intake and hydration (especially in children)
- Initial management of mouth ulcers must address possible causes of the ulcers, such as trauma within the mouth
 - minor ulcer - < 5 mm in diameter - lasts 5 - 10 days without scarring. Usually occur on cheeks, lips and floor of the mouth
 - major ulcer - > 8 mm - can persist for up to 6 weeks. Usually occur on lips, soft palate and fauces (back of the mouth to the pharynx) and tongue
 - non-healing ulcers - consider squamous cell carcinoma
 - recurrent ulcers - consider Behçet syndrome, aphthous ulcers or neutropenia. Check serum iron and folate¹¹
- If in pain, give analgesia: paracetamol. See [Simple analgesia pull out](#)
- Chlorhexidine mouth wash (0.2%) or topical anaesthetics such as lignocaine lotion (Seda lotion®), Ora-sed® gel may be effective for symptomatic relief. Not salty water rinses. **Note** that Ora-sed® gel is contraindicated in both pregnancy and for use in young children
- Refer to MO/NP/Dentist if ulcer persists for longer than three weeks

5. Follow up

- Ulcers persisting for longer than three weeks are potentially serious and patients should be referred to a Dentist or MO/NP¹⁰

6. Referral/consultation

- See next Dentist/Therapist clinic
- Consult Dentist or MO/NP if not improving within expected timeframe

Dental abscess - adult/child

Recommend

- Consult MO/NP for patients with facial swelling who present with severe trismus (reduced mouth opening), difficulty swallowing or breathing
- These patients require evacuation and should not be sent away with oral antibiotics

1. May present with

- Dental pain (however can be painless)
- Earache
- Facial swelling and/or localised swelling around tooth
- Enlarged lymph glands
- Bad breath (halitosis)
- Fever

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- For patients with severe trismus, breathing and/or swallowing difficulty, marked swelling on face or neck, are systemically unwell, consult MO/NP for evacuation/hospital admission and IV antibiotics

3. Clinical assessment

- Obtain patient history including dental history
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL if patient has diabetes
- Perform physical examination:
 - inspect oral cavity looking for soft tissue swelling, there may be a collection of pus
 - inspect and palpate face, lymph nodes of neck and behind ears
 - check ability of patient to open mouth, swallow, breathe

4. Management

- Give analgesia especially NSAID if not contraindicated
- See [Simple analgesia pull out](#)
- Give oral antibiotics. If not allergic to penicillin:
 - for superficial infections (swelling in the region of pain, discrete swelling of gum) give amoxycillin
 - if unresponsive to amoxycillin or facial swelling give amoxycillin/clavulanic acid
- If severe admit to hospital for IV antibiotics
- Advise patient that they will need dental treatment as soon as possible
- All patients with infection should be reviewed within 48 hours. If no improvement or deteriorating consult MO/NP/Dentist
- For superficial infections give amoxycillin, if not allergic to penicillin

Schedule	4	Amoxycillin		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Adult and child ≥ 12 years 500 mg tds	5 days
Suspension	125 mg/5 mL 250 mg/5 mL		Child < 12 years 12.5 mg/kg/dose tds to a max. of 500 mg tds	
Provide Consumer Medicine Information: take until course is completed unless advised by your health professional to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the amoxycillin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: contraindicated if history of severe or immediate allergic reaction to a penicillin. Be aware of cross reactivity between penicillins, cephalosporins and carbapenems. Interacts with warfarin - monitor INR. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by amoxycillin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- If facial swelling or a simple infection is unresponsive to amoxicillin after 48 hours or deteriorating, cease amoxicillin and give amoxicillin/clavulanic acid

Schedule	4	Amoxicillin/clavulanic acid		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	875 mg/125 mg	Oral	Adult and child ≥ 12 years 875 mg/125 mg bd	5 days
Suspension	400 mg/57 mg per 5 mL		Child > 2 months to < 12 years 22.5 mg/3.2 mg/kg/dose bd up to a max. of 875 mg/125 mg bd (Calculate dose based on the amoxicillin component)	
Provide Consumer Medicine Information: take medicine with food. Take until course completed unless advised by your health profession to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the amoxicillin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware of cross-reactivity between penicillins, cephalosporins and carbapenems. Consult MO/ NP for children < 2 months of age or patients with severe renal impairment. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by amoxicillin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: if history of severe or immediate allergic reaction to a penicillin				
Use in pregnancy: Category B1. If pregnant consult MO/NP				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- If allergic to penicillin, give clindamycin

Schedule	4	Clindamycin		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	150 mg	Oral	Adult and child ≥ 12 years 300 mg tds Child < 12 years 7.5 mg/kg/dose tds to a max. of 300 mg tds	5 days
There is no oral liquid, however a 50 mg/mL clindamycin solution can be made before each dose by:				
• dissolving the contents of 1 capsule in 2 mL water • draw this solution into a syringe and make the volume up to 3 mL • discard any excess solution so that the required dose remains in the syringe • mix the dose in juice or soft food to disguise the taste before giving				
Provide Consumer Medicine Information: take with a full glass of water. Take until course completed unless advised by your health professional to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the clindamycin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by clindamycin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
5,15,16,17				

5. Follow up

- See Dentist as soon as possible
- Review swelling daily for next 5 days
- If unresponsive to oral antibiotic after 48 hours or deteriorating consult MO/NP/Dentist
- Inform patient to return to clinic if their condition deteriorates
- Educate regarding good oral hygiene such as:
 - twice daily toothbrushing with fluoride toothpaste
 - daily cleaning between the teeth with floss or interdental brushes
 - limit sugary and acidic snacks and drinks
- Promote smoking cessation
- Advise regular dental checkups and see next Dentist clinic if not evacuated

6. Referral/consultation

- Consult Dentist and MO/NP

Post extraction haemorrhage - adult/child

1. May present with

- Bleeding soon after tooth extraction.

Note: a small amount of bleeding is normal following a dental extraction and requires no treatment

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history including dental history - date of tooth extraction, when bleeding started and the amount of blood loss. Medical history for bleeding tendencies
- Medication history - anticoagulants/antiplatelets e.g. warfarin, aspirin
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination of the oral cavity

4. Management

- If bleeding is profuse (flowing) reassure the patient and advise them to sit calmly and upright:
 - apply pressure (bite) at the site of the bleed with gauze roll for 15 minutes
 - if there is an MO/NP/Dentist on site they may be able to:
 - infiltrate local anaesthetic with a vasoconstrictor e.g. lignocaine with adrenaline solution close to the site, apply hemostatic agents such as a gelatin sponge or Surgicel® if available and
 - suture the socket with a dissolving suturing material
 - if bleeding continues beyond these measures, systemic causes should be investigated
 - consult MO/NP/Dentist who may advise patient to bite on gauze soaked in lignocaine 1% with adrenaline solution at the site of the bleed

5. Follow up

- Review the next day
- See at, or refer to, next Dentist clinic
- Educate regarding good oral hygiene such as:
 - twice daily toothbrushing with fluoride toothpaste
 - daily cleaning between the teeth with floss or interdental brushes
 - limit sugary and acidic snacks and drinks
- Promote smoking cessation
- Advise regular dental checkups when available

6. Referral/consultation

- Consult MO/NP if bleeding heavy or continuing

Dry socket/alveolar osteitis - adult/child

Background

- Dry socket/alveolar osteitis presents as postoperative pain in and around an extraction socket. Pain increases in severity between 1 - 4 days after extraction¹⁸

1. May present with

- Extremely painful socket 24 - 72 hours after tooth extraction. Some pain after an extraction is normal and can usually be managed with paracetamol
- Bad breath (halitosis) and/or bad taste in mouth
- Possible trismus (spasm of jaw/difficulty opening mouth)

- Partial or total disintegrated blood clot in socket

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history including dental history - when dental extraction occurred, smoking habits. Patients are advised not to smoke for 24 - 48 hours after an extraction as this may delay healing
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - inspect oral cavity with care - an empty socket without a clot is very tender
 - how well can patient open mouth, does the patient have halitosis?

4. Management

- Irrigate socket gently with sodium chloride 0.9% to remove debris and place Alvogyl® (antiseptic and analgesic) dressing loosely into socket if available. Dressing does not require removal later. **Note:** Alvogyl® should not be used if patient is allergic to iodine
- If Alvogyl® not available irrigate socket gently with sodium chloride 0.9%
- Give analgesia. See [Simple analgesia pull out](#)
- Should heal spontaneously within 2 - 3 weeks
- Treatment with antibiotics is of no benefit¹⁸
- If severe or continues more than 3 weeks consult MO/NP or Dentist for review of diagnosis

5. Follow up

- Review daily initially. Consult Dentist or MO/NP if not improving
- Refer for next Dentist clinic visit
- Educate regarding good oral hygiene such as:
 - gentle warm sodium chloride 0.9% mouth rinses - at least 4 times daily
 - twice daily toothbrushing with fluoride toothpaste
 - daily cleaning between the teeth with floss or interdental brushes
 - limit sugary and acidic snacks and drinks
- Promote smoking cessation
- Advise regular dental checkups when available

6. Referral/consultation

- Consult Dentist or MO/NP as above

Periodontal disease - adult/child

Gum disease, gingivitis (inflamed gums), periodontitis (inflamed gums and bone loss)

Recommend

- Gingivitis is best treated with improved oral hygiene (brushing, flossing, interdental brushes) and cleaning by a Dentist or Dental Hygienist
- In addition to this, periodontitis requires cleaning of the root surfaces under the gums by a Dentist or Dental Hygienist and regular follow-up of at risk patients e.g. people with diabetes¹⁹

Background

- Gingivitis is chronic inflammation of the gums caused by a build up of dental plaque and calculus (scale, tartar) on the teeth due to poor oral hygiene
- Periodontitis is also caused by plaque and poor oral hygiene. It can result in loss of the bone that supports the teeth and, if left untreated, can result in loss of teeth. Uncontrolled diabetes and smoking can exacerbate the disease progression¹⁹
- Acute ulcerative gingivitis. Most commonly seen in young adult smokers, often associated with stress, poor oral hygiene and smoking, rarely seen in children²⁰

Related topics

 [Dental abscess, page 316](#)

1. May present with

- Red, swollen gums that bleed easily, plaque $\pm$ calculus, rarely painful (gingivitis)
- Gum recession, loose/missing teeth, bad breath, bleeding and/or swollen gums, not normally painful (periodontitis)
- Localised swelling, pain, infection (acute periodontal abscess)
- See [Dental abscess, page 316](#)
- Very painful ulcers on the gums, possibly greyish in colour, bad mouth odour, fever may be present (acute ulcerative gingivitis)
- Poorly controlled diabetes

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history including dental history:
 - does the patient smoke?
 - do they have diabetes?
 - what is the patient's cleaning regimen?
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
- Perform physical examination:
 - inspect lips, gums, teeth, tongue, lymph glands in neck

4. Management

- Encourage twice daily cleaning with a soft toothbrush using fluoride toothpaste and nightly interdental cleaning with floss or interdental brushes
- Short term use of a chlorhexidine mouthwash (0.2%) may be indicated when inflammation of the gums restricts normal brushing. Rinse mouth with 10 mL for 1 minute 8 - 12 hourly for 5 - 10 days²¹. Routine use of chlorhexidine mouthwash (0.2%) is not recommended
- In addition to these measures, periodontitis requires regular, deeper plaque and calculus removal by a Dentist or Dental Hygienist to clean the root surfaces of teeth
- If in pain, give analgesia: paracetamol. See [Simple analgesia pull out](#)
- Management of uncontrolled diabetes
- Promote smoking cessation
- If not allergic give metronidazole for acute ulcerative gingivitis
- Antibiotic therapy alone without professional cleaning and oral hygiene improvement will lead to recurrence or progression¹⁹
- Oral antibiotics are rarely required for either gingivitis or periodontitis. If not allergic, give metronidazole for acute ulcerative gingivitis. For periodontal abscess see [Dental abscess, page 316](#)

Schedule	4	Metronidazole	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed to treat adults, must consult MO/NP for children

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg 400 mg	Oral	Adult 400 mg bd	5 days
Suspension	200 mg/5mL		Child > 2 years 10 mg/kg/dose bd to a max. of 400 mg bd Child < 2 years requires MO/NP consult	

Provide Consumer Medicine Information: avoid alcohol while taking and for 24 hours after taking this medicine. Take tablets with food or immediately after food to reduce stomach upset, the suspension is best absorbed if taken 1 hour before food. Take until course completed unless advised by health professional to stop. Tell health professional if a sore white mouth, tongue or vagina develops. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the metronidazole has been stopped

Note: be aware that metronidazole potentiates the effect of warfarin - monitor INR. Be aware that severe colitis due to *Cl. difficile* can be caused by metronidazole. If the patient develops severe diarrhoea contact the MO/NP immediately

Use in pregnancy: Category B2. Consult MO/NP for advice

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

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5. Follow up

- See next Dentist/Therapist clinic

- Consult Dentist/MO/NP if:
 - acute, painful conditions are not improving
 - systemic signs and symptoms
 - patient has an underlying medical condition e.g. has uncontrolled diabetes or is immunocompromised
- Educate regarding good oral hygiene such as:
 - twice daily toothbrushing with fluoride toothpaste
 - daily cleaning between the teeth with floss or interdental brushes
 - limit sugary and acidic snacks and drinks
- Promote smoking cessation
- Advise regular dental checkups when available

6. Referral/consultation

- Consult MO/NP for children
- See Dentist/Therapist as soon as possible

Candidiasis/oral (thrush) - adult/child

1. May present with

- In infants, discrete white patches that are easily removed (bleed on removal) and resemble milk curd
- Joined patches may be found on the tongue, roof of mouth, inside the cheeks and on the gums
- Severe cases may show ulceration
- May present in:
 - irritable infant or feeding problem
 - patient with ill fitting dentures
 - patient with immunosuppression illness e.g. leukaemia, HIV
 - patient with history of taking medicines (antibiotic, inhaled or systemic corticosteroids)²³
- White fixed lesion (with or without history of smoking/alcohol use)

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history including:
 - current medications - particularly oral/inhaled steroids, antibiotics
 - medical history, past episodes of candidiasis
 - dental history including denture care - when and how are dentures cleaned?
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) - oral candidiasis is uncommon in healthy individuals
- Perform physical examination:
 - inspect oral cavity - are the patches easily removed or are they fixed?
 - inspect infant's nappy area for candidiasis
 - inspect mother's nipples for evidence of candidiasis

4. Management

- Consult MO/NP or Child Health Nurse if condition is in children, or severe

- Treat with miconazole gel or nystatin drops
- Treat nipples if breastfeeding
- Advise denture wearers with oral candidiasis to apply the antifungal gel/drops to the cleaned fitting surface of the dentures before inserting them²³. At night, dentures should be removed, cleaned thoroughly and left out. They are best soaked in commercial denture cleaner (e.g. Steradent®) to destroy *Candida* infection
- Educate regarding cleaning and sterilisation of teats, dummies and dentures
- If fails to respond to nystatin or miconazole consult MO/NP/Dentist for amphotericin lozenge
- Those with severe candidiasis or immunocompromised patients may require systemic antifungal medicines and should consult a specialist
- Consult MO/NP if oral candidiasis in adult to exclude oral cancer

Schedule	3	Nystatin		DTP IHW/IPAP/SRH
Authorised Indigenous Health Worker, Isolated Practice Area Paramedic and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Suspension	100,000 units/mL	Topical	Adult and child 1 mL topically then swallowed qid	7 - 14 days
Provide Consumer Medicine Information: continue for one week after symptoms resolve. Take until course completed. Place under the tongue or in the buccal cavity. Use after eating, not before. If breastfeeding treat nipples with miconazole 2 % cream after feeding. Wipe nipple clean of cream before feeding. See Fungal skin infections, page 379				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- Or

Schedule	3	Miconazole		DTP IHW/IPAP/SRH
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Oral Gel	2%	Oral topical	Adult and child ≥ 2 years 2.5 mL oral topically then swallowed qid	7 - 14 days
			Child 6 months to 2 years 1.25 mL oral topically then swallowed qid	
Provide Consumer Medicine Information: continue for one week after symptoms resolve. Take until course completed. After eating place directly in mouth and on tongue. If breastfeeding treat nipples with miconazole 2 % cream after feeding. Wipe nipple clean of cream before feeding. See Fungal skin infections, page 379				
Note: miconazole can potentiate the effect of warfarin - monitor INR				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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5. Follow up

- If mild, review in one week
- If moderate, review daily initially
- Consult Child Health Nurse if child or infant
- Consult MO/NP if severe or not improving or if an immunocompromised patient

6. Referral/consultation

- Consult MO/NP or Child Health Nurse as above

Eye problems

Assessment of the eye - adult/child

Recommend

- Identify cause of eye disorder through systematic and thorough history and examination of the eye. Failure to do so may lead to loss of sight

Background

- Visual acuity of 6/6 does not exclude a serious eye condition¹
- Equipment - small powerful torch, visual acuity chart such as Snellen or Snellen E chart, magnification, cotton bud, fluorescein drops or strip, ophthalmoscope

History

It is important to establish:

- Is the eye disorder a result of trauma?
 - a history of how the injury was sustained is vital
 - in any high velocity injury, a penetrating injury must be strongly suspected
 - if there has been a forceful blunt injury, suspect a 'blow out' fracture of the orbit
- The nature of visual symptoms:
 - loss of vision, pain or grittiness, redness, discharge, double vision
 - one or both eyes affected?
 - rate of onset
 - associated symptoms e.g. flashing lights, floaters, haloes around lights
- Any past history of eye problems:
 - current medical problems e.g. diabetes or autoimmune disease
 - medicines that can affect the eyes, eye drops/ointment used?
 - does the patient wear contact lenses, any surgery on the eyes?
- Any family history of eye problems e.g. in chronic glaucoma there is a 1:10 risk in first degree relatives

Examination

Visual acuity (VA)

- Test VA of each eye using a Snellen chart at 6 metres in good light. Vision should be tested with the patient's usual distance glasses or contact lenses
- VA is recorded as 2 numbers. The first number is the distance the patient is from the chart in metres e.g. 6. The second number is under the smallest line of letters the patient was able to see e.g. 6/5, 6/6, 6/12, etc.
- If any abnormality, check VA with the patient looking through a pinhole
- If the patient cannot read the top line at 6 metres the patient can move closer to the chart e.g. 3 metres. The first number then becomes 3
- Further assessment may involve Snellen E or animal charts if literacy issues or counting fingers, hand movements or perception of light if marked visual loss
- A visual acuity of 6/6 does not exclude a serious eye condition¹

Examine the eye systematically

- Ensure good lighting and use magnification
- Check the cornea, sclera, conjunctiva, eyelid and periorbital areas. Check the movements of the eye are equal and there is no double vision. The lower lid should be pulled down to examine the conjunctival lining. Care should be taken not to apply any pressure to the globe if there is any suggestion of a penetrating eye injury. The lids can be separated by using traction over the orbital margins thus avoiding any pressure. Never try to pry the eyelids of a child apart to see the eye
- If there is a strong suspicion of a penetrating eye injury place a rigid shield on the eye and evacuate the patient to an appropriate facility
- If the patient has a red eye or a history of a foreign body or a sensation of grittiness in the eye, the inner aspect of the upper eyelid should be examined by everting the lid. See diagram of [Procedure for eversion of the eyelid, page 329](#). Eversion of the upper eyelid should not be done if there is any suggestion of a penetrating eye injury
- The anterior chamber (between the cornea and iris) should be examined for the presence of blood

(hyphaema) or pus (hypopyon)

Examine the pupils

- Check the shape of both pupils. Pupils are normally round, regular and equal size
- Check both pupils' reaction to light. Coming from the side of the face bring a light to shine on one eye. Repeat the procedure to the other eye. Both pupils should constrict when a light is shone on either eye
- Check both pupils align equally e.g. no obvious squint/deviation

Fluorescein examination of the cornea

- Contraindicated if penetrating eye injury is obvious or suspected
- Fluorescein dye is taken up by areas of damaged corneal epithelium. When exposed to blue U.V. light it fluoresces, allowing assessment of the nature and extent of corneal injury
 - use fluorescein strips. Moisten the strip with a drop of sodium chloride 0.9% and apply to the lower conjunctival sac or
 - instil one fluorescein drop into the lower conjunctival sac unless a high velocity or penetrating injury is suspected
- Ask the patient to blink, this will distribute the fluorescein over the cornea
- Gently dab the closed eye with a tissue to remove the excess fluorescein
- Darken the room and expose the eye to blue filtered, cobalt or 'black' light
- Corneal fluorescence will reveal the extent of corneal injury

Eversion of the eyelid

- Contraindicated if penetrating eye injury is obvious or suspected
- This simple procedure is an essential step in assessment of an injured or red eye
- Foreign bodies are commonly located under the upper lid
- Everting the upper eyelid may reveal signs of eye disease such as trachoma and chalazion
- See diagram of [Procedure for eversion of the eyelid, page 329](#)

Padding of the eye¹

- Routine padding of an eye is not necessary for minor corneal or conjunctival trauma
- **Use eye shield or cut down styrofoam cup**
 - to protect eye from further compression when penetrating eye injuries suspected
 - for suspected perforation
- There are no indications for continued use of topical anaesthesia
- Do not drive with eye padded
- Double padding of an eye acts as a pressure bandage and should not be used unless advised by Ophthalmologist
- There are no indications to pad the unaffected eye unless instructed by the Ophthalmologist

Procedure for eversion of the eyelid

- Grasp the lashes and lid margin of the upper eyelid between your thumb and index finger
- Ask the patient to look down, pull the eyelid gently down and away from the eye. Place the end of a cotton bud across the top of the eyelid
- Pull the lashes and lid margin out and upward. Place cotton bud at the lid crease and apply very light pressure. Evert the eyelid over the cotton bud to expose the underside of the upper eyelid
- Hold the eyelid in this position while you remove the cotton bud
- Having assessed the underside of the lid and performed what procedures are necessary, ask the patient to blink. The lid will return to its normal position
- The inside of the lower lid is assessed by placing your thumb or index finger on the skin below the lower lid and pressing downward. Ask the patient to look upward, to the left and to the right

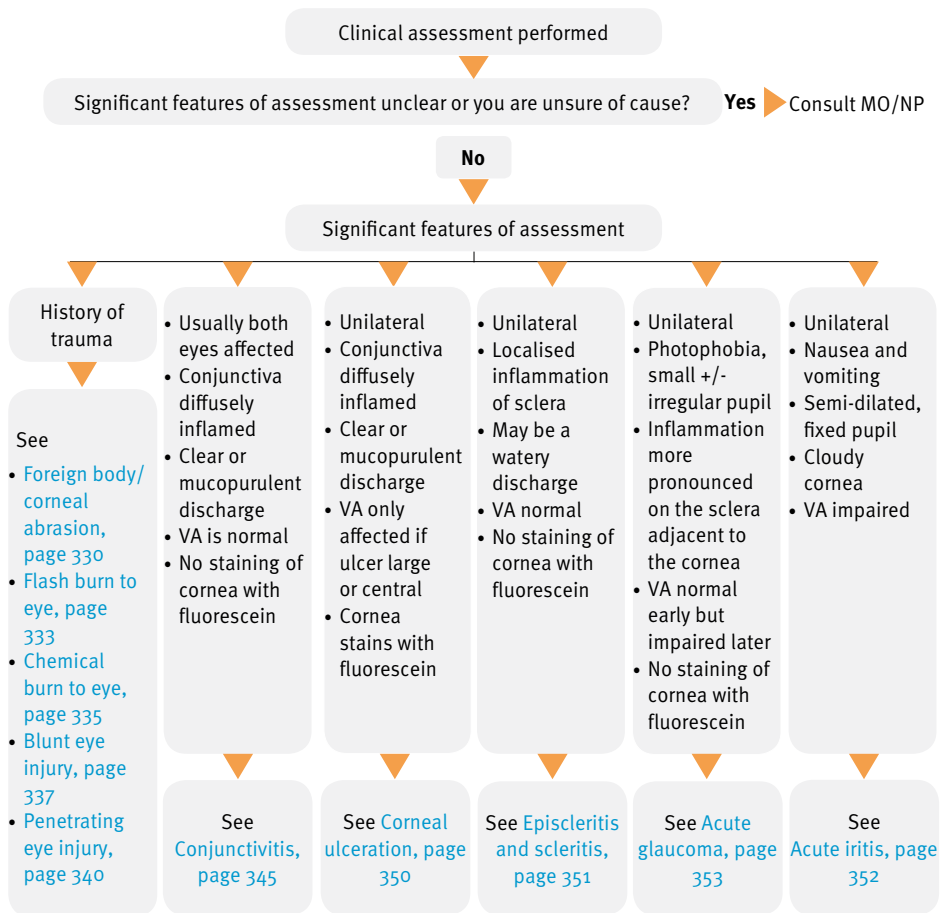
**Eye Tips****Do**

- ✓ Always check visual acuity and record it
- ✓ Test pupillary reaction
- ✓ Evert the upper lid when examining the eye
- ✓ Consider padding an eye which has had local anaesthetic in it unless driving (because monocular vision may invalidate insurance)
- ✓ Stain the cornea with fluorescein when examining the eye unless a high velocity or penetrating injury is suspected
- ✓ X-ray the orbit of a patient who may have suffered a penetrating eye injury from a high velocity metal fragment, e.g. a hammer striking steel. Consult MO/NP

Don't

- ✗ Give patient local anaesthetic eye drops to take home
- ✗ Try to remove a protruding object from a penetrating eye injury
- ✗ Put drops or ointment in an eye which has suffered a penetrating injury
- ✗ Use steroid eye drops, unless on MO/NP orders
- ✗ Double pad eye unless advised by Ophthalmologist

Red or painful eye - adult/child



Foreign body/corneal abrasion - adult/child

Recommend

- Consult MO/NP if foreign body in child's eye or over or near pupil of any patient
- Eye pad is not routinely used¹

Related topics

- Corneal ulceration, page 350
- Penetrating eye injury, page 340

Assessment of the eye, page 326

1. May present with

- A history of, or visible, foreign body, eye pain or grittiness
- Contact lens related abrasion, inability to open eye

- Photophobia

2. Immediate management

- See patient as soon as conveniently possible

3. Clinical assessment

- Obtain patient history including mechanism of injury:
 - **high velocity** e.g. hammer striking metal, angle grinding
 - **low velocity** e.g. dust blowing into eye
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes starting with VA. Test unaffected eye first
- If pain restricts examination instil oxybuprocaine eye drops unless a high velocity or penetrating injury is suspected
- Stain eye(s) with fluorescein - foreign bodies and abrasions are usually obvious under blue light of ophthalmoscope. Fluorescein will pool in the defect

4. Management

- Manage patient in a darkened room to decrease pain
- Consult MO/NP if:
 - high velocity foreign body. MO/NP may order x-ray if available
 - decreased visual acuity, large or central (over pupil) corneal abrasion
- If foreign body is visible on the cornea or pain restricts adequate examination, instil oxybuprocaine eye drops unless a high velocity or penetrating injury is suspected

Schedule	4	Oxybuprocaine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Single use eye drops	0.4%	Topical	Adult and child 3 - 6 drops for pain	Stat Repeat in 1 - 2 minutes if necessary. Up to 6 drops may be used for foreign body removal or minor surgery
Provide Consumer Medicine Information: may cause transient blurring of vision therefore should not drive or operate hazardous machinery until vision is clear				
Note: oxybuprocaine eye drops should never be used for ongoing pain relief and should never be given to the patient to self administer				
Contraindication: if a penetrating eye injury is obvious or suspected				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- Most corneal foreign bodies can be removed by irrigating with sodium chloride 0.9%. Gently syringe

or use an IV bag with a giving set and regulator fully open

- If unsuccessful use moistened cotton bud. Gently wipe the cornea with the bud, many foreign bodies will stick to it
- If foreign body still present, an 18 G needle may be used, if the clinician is experienced to perform, as the cornea is very thin 0.5 to 1.0 mm:
 - attached to a 2 mL syringe to provide support
 - steady your hand on the patient's cheek
 - using the tip of the needle, gently dislodge the foreign body out
 - then irrigate with sodium chloride 0.9%
- Consult MO/NP
 - if foreign body over or near pupil
 - if unsuccessful or uncertain regarding skill at removal of foreign body
- Metal foreign bodies may leave a rust ring. This can be gently scraped away with an 18 G needle (again only if clinician is experienced to perform) and irrigated with sodium chloride 0.9%
- If foreign body successfully removed or simple corneal abrasion only, instill chloramphenicol eye ointment into the eye

Schedule	3	Chloramphenicol		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Ointment	1%	Topical	Adult and child > 2 years Apply 1.5 cm of ointment qid	7 days until healed or reviewed by MO/NP
Provide Consumer Medicine Information: advise the patient to discard ointment after one month. Can be stored at room temperature once opened				
Note: if child ≤ 2 years consult MO/NP				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- Analgesia - paracetamol. See [Simple analgesia pull out](#)

5. Follow up

- Review daily until healed. Re-examine eye, including visual acuity and fluorescein staining
- Consult MO/NP if:
 - not improving on first review, not healed by second review
 - visual acuity deteriorates at any time
- Chloramphenicol ointment 4 times a day for 7 days
- See next MO/NP clinic

6. Referral/consultation

- Consult MO/NP and see next MO/NP clinic as above

Flash burn to eye - adult/child

Recommend

- Reassure patient that the outcome is usually a full recovery

Background

- Intense UV light, most commonly from welding arc in the workplace, may damage the corneal epithelium

1. May present with

- History of welding or sun lamp use without eye protection
- Pain several hours after exposure
- Red eye(s)
- Blepharospasm (involuntary winking from muscles of the eye)
- Tearing of the eye(s)
- Foreign body sensation

2. Immediate management

- Administer oxybuprocaine eye drops

3. Clinical assessment

- Obtain patient history including mechanism of injury
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes starting with visual acuity after instilling oxybuprocaine eye drops
- Stain eye(s) with fluorescein and examine under blue light of ophthalmoscope. Fluorescein staining will show superficial epithelial defects on the cornea. There may be conjunctival injection in both eyes¹

4. Management

- Consult MO/NP if:
 - large or central (over pupil) corneal abrasion
 - decreased visual acuity
- Apply chloramphenicol eye drops and ointment into the eye
- Explain to the patient the importance of not rubbing the eye(s)

Schedule	4	Oxybuprocaine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Single use eye drops	0.4%	Topical	Adult and child 1 drop	Stat A further drop can be repeated after 90 seconds if required
Provide Consumer Medicine Information: may cause transient blurring of vision therefore should not drive or operate hazardous machinery until vision is clear				
Note: oxybuprocaine eye drops should never be used for ongoing pain relief and should never be given to the patient to self administer				
Contraindication: if a penetrating eye injury is obvious or suspected				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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Schedule	3	Chloramphenicol		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Drops	1%	Topical	Adult and Child > 2 years 1 to 2 drops qid	3 days
Ointment			Adult and Child > 2 years 1 to 1.5 cm applied to inner lower lid nocte	
Provide Consumer Medicine Information: advise the patient to discard drops and ointment after one month. Can be stored at room temperature once opened. If symptoms worsen at any time or if the eye infection does not improve within 48 hours, seek urgent medical advice. Contact lenses should not be worn during course of treatment				
Note: if child ≤ 2 years consult MO/NP				
Contraindication: if a penetrating eye injury is obvious or suspected				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- Analgesia: paracetamol. See [Simple analgesia pull out](#)

5. Follow up

- Review next day and re-examine eye(s)
- Chloramphenicol ointment should be continued for 3 days

- Consult MO/NP if not improving
- Advise patient flash burn can be prevented by the use of appropriate protective eyewear

6. Referral/consultation

- Consult MO/NP as above



Chemical burn to eye - adult/child

Recommend

- Immediate and prolonged eye irrigation for chemical burns¹
- Consult MO/NP regarding chemical burns to the eyes in all instances
- Poisons Information Centre ☎13 11 26 (24 hours)
- Patients with alkaline chemical burns to the eyes require urgent assessment by an Ophthalmologist

Background

- Acid substances include: toilet cleaner, car battery fluid, pool cleaner¹
- Alkaline substances include: lime, mortar and plaster, drain cleaner, oven cleaner, ammonia¹
- Alkali burns are more harmful to the eye¹. May result in rupture of the globe within 24 hours if not treated

1. May present with

- History of contact with acid or alkaline chemical
- Pain

2. Immediate management

- Consult MO/NP urgently
- Instil local anaesthetic drops (oxybuprocaine eye drops) to affected eye(s)
- Irrigate copiously with sodium chloride 0.9%. Use an IV bag with giving set and set regulator fully open
- Evert the eyelid and clear the eye of any debris/foreign body that may be present by sweeping the conjunctiva with moistened cotton bud
- Continuous irrigation is required for 30 minutes¹
- Review the patient's pain level every 10 minutes and instil another drop of local anaesthetic (oxybuprocaine eye drops) as required on MO/NP instructions
- After 1 litre of irrigation review
- Wait 5 minutes after ceasing the irrigation and check pH with litmus paper (should be between 6.5 and 8.5)

3. Clinical assessment

- Obtain an emergency patient history¹:
 - when did it occur? what is the chemical, acid or alkali?
 - any first aid given and how soon after incident?
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes. If pain restricts examination instil oxybuprocaine eye drops:
 - any opacity of the cornea indicates severe chemical burns

- perform visual acuity if possible

4. Management

- Perform irrigation. See Immediate management
- Contact Poisons Information Centre ☎13 11 26 (24 hours) for further information on particular chemical
- Consult MO/NP who will advise further management depending on:
 - particular chemical acid or alkaline
 - extent of corneal injury/fluorescein staining
- **Note:** particular alkalis may adhere to conjunctival surfaces and not rinse off. These may continue to cause damage and need to be physically removed. Rupture of the globe of the eye may result if not treated within 24 hours. These patients need urgent assessment by Ophthalmologist
- Evacuation for review by Ophthalmologist if indicated

Schedule	4	Oxybuprocaine		DTP
				IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Single use eye drops	0.4%	Topical	Adult and child 1 - 2 drops for pain	Stat
Provide Consumer Medicine Information: may cause transient blurring of vision therefore should not drive or operate hazardous machinery until vision is clear				
Note: oxybuprocaine eye drops should never be used for ongoing pain relief and should never be given to the patient to self administer				
Contraindication: if a penetrating eye injury is obvious or suspected				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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5. Follow up

- If severity of chemical burn to eye does not require evacuation follow up according to MO/NP instructions
- Most will be treated as corneal abrasions using chloramphenicol ointment with daily review until healed

6. Referral/consultation

- Consult MO/NP urgently on all occasions of chemical burns to the eyes

Blunt eye injury - adult/child

Recommend

- Consult MO/NP immediately
- Do not insert local anaesthetic eye drops or use fluorescein staining if penetrating eye injury is suspected

Related topics

 [Head injuries, page 131](#)

1. May present with

- History of injury, pain, decreased/loss of vision
- Double vision, hyphaema (blood in the anterior chamber of the eye)

2. Immediate management

- Consult MO/NP immediately
- If ruptured globe of eye has occurred contact MO/NP urgently

3. Clinical assessment

- Obtain patient history with particular note of mechanism of injury¹:
 - type of projectile, high or low velocity
 - any history suggestive of penetrating injury
 - note if patient wearing eye protection
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- If pain restricts examination instil oxybuprocaine drops provided you are certain there is no penetrating eye injury
- Examine both eyes:
 - start with visual acuities. This will determine the extent of the injury and will be required for medicolegal cases
 - check red eye reflex
 - orbital fractures are common. The following should be looked for:
 - step in the bony rim of the orbit especially below the eye
 - restricted eye movements
 - anaesthesia of the cheek below the eye
 - is there a subconjunctival haemorrhage? If so, can the posterior limit be seen. If not, this may be suggestive of basal skull fracture
 - is the anterior chamber of the eye clear or cloudy or contain blood - hyphaema?
 - examine the pupils: size, shape, reactivity
 - if there is considerable eyelid oedema, carefully lift up the lid while viewing the eye to ensure there is no obvious rupture¹
 - examine the eyelid(s) for lacerations

4. Management

- Consult MO/NP who will advise:

- analgesia
- may prescribe topical antibiotic drops for superficial trauma
- further management according to assessment
- evacuation/hospitalisation depending on findings
- Discuss eye lid lacerations with MO/NP as considerations include lid margin damage, lacrimal duct damage, and suspicion of foreign body or penetrating eye injury
- Patients with significant hyphaema (blood in the anterior chamber of the eye) are at risk of re-bleeding in 7 - 10 days
- Nausea is common in eye injuries and vomiting can aggravate the injury. Treat adults with metoclopramide or prochlorperazine
- Children should not receive metoclopramide (Maxolon®) or prochlorperazine (Stemetil®) because of the high risk of dystonic reactions. If an antiemetic is required for a child the MO/NP may advise ondansetron wafer or IV

Schedule	4	Oxybuprocaine	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Single use eye drops	0.4%	Topical	Adult and child 1 - 2 drops for pain	Stat

Provide Consumer Medicine Information: may cause transient blurring of vision therefore should not drive or operate hazardous machinery until vision is clear

Note: oxybuprocaine eye drops should never be used for ongoing pain relief and should never be given to the patient to self administer

Contraindication: if a penetrating eye injury is obvious or suspected

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

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Schedule	4	Metoclopramide		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: advise your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Note: give IV slowly over 1 - 2 minutes				
Contraindication: in patients with epilepsy and Parkinson's disease				
Use in Pregnancy: Category A				
Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction (e.g. oculogyric crisis) develops give benztropine 2 mg IM or oral. Consult MO/NP. See Mental health behavioural emergencies, page 437				

4

- Or

Schedule	4	Prochlorperazine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	5 mg	Oral	Adult only 20 mg	Stat
Provide Consumer Medicine Information: this medication may cause may cause drowsiness and increase the effects of alcohol. Avoid driving or operating machinery until you know how you are affected. Advise your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Contraindication: not for use in patients with Parkinson's disease or people < 18 years and use caution in women < 20 years of age				
Use in pregnancy: Catagory C. Consult MO/NP before proceeding				
Management of associated emergency: dystonic reactions e.g. oculogyric crisis is extremely rare (unless repeated doses or in children). If oculogyric crisis develops in an adult give benztropine 2 mg IM or oral. Consult MO/NP. See Mental health behavioural emergencies, page 437				

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5. Follow up

- If not evacuated/hospitalised follow up according to MO/NP instructions
- Review next day and re-examine eye

- Review in 7 - 10 days as patients with significant hyphaema are at risk of re-bleeding

6. Referral/consultation

- Consult MO/NP on all occasions of blunt eye injury

Penetrating eye injury - adult/child

Recommend

- Do not remove any penetrating foreign body
- Do not instil local anaesthetic (oxybuprocaine) eye drops or use fluorescein staining or eye drops/ointment if penetrating eye injury is suspected or obvious
- Never pad an eye where penetrating eye injury is suspected or present. Use an eye shield or cut down styrofoam cup
- Any penetrating eye injury (obvious or suspected) requires specialist management. Consult MO/NP urgently

Related topics

-  [Foreign body/corneal abrasion, page 330](#)
-  [Tetanus immunisation, page 755](#)

[Assessment of the eye, page 326](#)
[Oxygen delivery systems, page 44](#)

1. May present with

- History of high velocity foreign body injury
- Obvious injury
- Pain

2. Immediate management

- Give O₂ via Hudson mask to maintain O₂ saturation > 93% adult or > 95% child. If O₂ saturation not maintained consult MO/NP. See [Oxygen delivery systems, page 44](#). The eye has a high O₂ requirement and it is important to maintain this when injured
- Consult MO/NP

3. Clinical assessment

- Obtain patient history with particular note of mechanism of injury¹:
 - type of projectile
 - high velocity
 - note if patient wearing eye protection
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Do not use local anaesthetic eye drops
- Do not use fluorescein staining
- Examination may only need to be cursory if the trauma is obvious, otherwise¹:
 - perform visual acuities
 - describe extent of injury
 - check red eye reflex. Loss of reflex may suggest retinal trauma or detachment¹

4. Management

- Do not remove penetrating object
- Do not pad the eye
- Consult MO/NP who will advise:
 - x-ray (if available) if history of high velocity foreign body and if unsure eye penetrated
 - analgesia - it is important the patient's pain is controlled
 - antiemetic - it is very important to prevent vomiting which can raise intraocular pressure and cause extrusion of eye contents
 - antibiotics e.g. IV ceftriaxone plus gentamicin
 - preparation for evacuation/hospitalisation
- Keep nil by mouth
- A solid eye shield either pre-made or constructed from cardboard or styrofoam cup should be fixed over the injured eye to prevent accidental pressure on globe. The base should rest on the orbital margin. The injured eye should not be padded as any extruded ocular contents may stick to the pad causing further injury
- Nausea is common in eye injuries, treat adults with metoclopramide or prochlorperazine
- Children should not receive metoclopramide (Maxolon®) or prochlorperazine (Stemetil®) because of the high risk of dystonic reactions. If an antiemetic is required for a child the MO/NP may advise ondansetron wafer or IV
- Check when had last tetanus vaccination. See [Tetanus immunisation, page 755](#)

Schedule	4	Metoclopramide		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: advise your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Note: give IV slowly over 1 - 2 minutes				
Contraindication: in patients with epilepsy and Parkinson's disease				
Use in Pregnancy: Category A				
Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction (e.g. oculogyric crisis) develops give benztropine 2 mg IM or oral. Consult MO/NP. See Mental health behavioural emergencies, page 437				

4

- Or

Schedule	4	Prochlorperazine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	5 mg	Oral	Adult only 20 mg	Stat
Provide Consumer Medicine Information: this medication may cause may cause drowsiness and increase the effects of alcohol. Avoid driving or operate hazardous machinery until you know how you are affected. Advise your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Contraindications: not for use in patients with Parkinson's disease or people < 18 years and use caution in women < 20 years of age				
Use in pregnancy: Catagory C. Consult MO/NP before proceeding				
Management of associated emergency: dystonic reactions e.g. oculogyric crisis is extremely rare (unless repeated doses or in children). If oculogyric crisis develops in an adult give benztropine 2 mg IM or IV. Consult MO/NP. See Mental health behavioural emergencies, page 437				

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5. Follow up

- All patients with penetrating eye injury require evacuation/hospitalisation under the care of an Ophthalmologist
- If the patient is to be evacuated by aircraft and:
 - the characteristics of the injury are suggestive of **significant intraocular air**, e.g. large penetrating foreign body, prolapse of globe contents or there is detectable intraocular air on examination or CT scan (if available), then the patient **should be transferred at sea level cabin pressure**
 - if the likelihood of significant intraocular air is **minimal**, e.g. small, high velocity foreign body, then a **cabin altitude of ≤ 4,000 feet is acceptable**
 - if in any doubt the characteristics of the injury should be discussed with the receiving Ophthalmologist

6. Referral/consultation

- Consult MO/NP on all occasions of suspected penetrating eye injury

Sudden loss of vision - adult/child

Recommend

- Consult MO/NP urgently. Sudden loss of vision is an ophthalmological emergency

Background

- Sudden vision loss may be transient or persistent¹
- Transient vision loss may be due to transient ischaemic attack (TIA)¹

1. May present with

- Abrupt loss of vision
- Some patients may present with blurred vision, other symptoms such as floaters or flashing lights,

haloes (may indicate incipient retinal damage)

- The visual loss may be partial e.g. in retinal detachment the visual loss may be in the upper or lower field of vision

2. Immediate management

- Assess eye and consult MO/NP urgently

3. Clinical assessment

- Obtain a complete patient history:
 - past eye history/past visual acuities
 - medications
 - vision loss sudden or over hours to days
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
- Examine both eyes:
 - starting with visual acuities
 - note if any pain associated with vision loss
 - any floaters or flashing lights seen
 - check red eye reflex - loss of reflex may indicate retinal detachment[†]
 - vision loss in one eye or both

4. Management

- Consult MO/NP who will advise urgent evacuation/hospitalisation for Ophthalmologist/Neurologist review if acute physical cause likely e.g. detached retina, vitreous haemorrhage, retinal artery occlusion, retinal vein thrombosis/suspected TIA or other medical conditions

5. Follow up

- If not evacuated/hospitalised, see next MO/NP clinic

6. Referral/consultation

- Consult MO/NP:
 - on all occasions of sudden loss of vision
 - if symptoms of progressive or potential visual loss such as blurring, floaters, flashing lights or if sudden field defects

Orbital cellulitis/periorbital cellulitis - adult/child

Recommend

- Consult MO/NP urgently
- Orbital cellulitis is a potentially blinding and life threatening emergency

Background

- Orbital cellulitis is usually the result of an infected paranasal sinus infection and affects the eye socket as well as the skin surrounding it
- Periorbital cellulitis is not generally a threat to vision and is an infection of the eyelid and the skin surrounding it

Related topics

 [Acute bacterial sinusitis, page 298](#)

1. May present with

- Usually presents with swelling (oedema) of the lids in one eye that may be red
- The eye is painful
- Often there is a prior history of sinusitis, generally unwell, often with a fever
- Swelling and redness of the conjunctiva
- Any alteration in visual acuity (VA), pupillary response, restricted or painful eye movements are suggestive of orbital cellulitis
- Visual acuity is normal in periorbital cellulitis
- There is no staining of the cornea with fluorescein
- Tenderness over the sinuses
- Restriction of eye movements

2. Immediate management

- Consult MO/NP

3. Clinical assessment

- Obtain a comprehensive patient history
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - start with visual acuity, observe extent of swelling
 - examine for tenderness, check range of eye movement
- Percuss sinuses for tenderness

4. Management

- Orbital cellulitis is a potentially blinding and life threatening emergency therefore if there is any alteration in VA, pupillary response or restricted or painful eye movements consult MO/NP who will advise:
 - evacuation/hospitalisation

- IV antibiotics
- Analgesia
- **Note:** In severe cases the patient will require ENT and Ophthalmological consultation regarding surgical intervention to preserve sight
- Periorbital cellulitis - consult MO/NP who will advise appropriate antibiotics and follow up

5. Follow up

- If not evacuated, will require IV antibiotics and close supervision and monitoring in consultation with MO/NP
- See next MO/NP clinic

6. Referral/consultation

- Consult MO/NP on all occasions of suspected orbital cellulitis

Conjunctivitis - adult/child

Recommend

- Patient is given a separate box of tissues to clean eye(s) for their sole use to prevent cross infection
- Observe standard precautions as conjunctivitis is very infectious



Bacterial conjunctivitis - adult/child

1. May present with

- Unilateral red eye that feels gritty. May begin in one eye and spread to the other³
- Both eyes are uniformly red because of widespread engorgement of conjunctival vessels
- Purulent discharge
- May have difficulty opening eyes due to sticking of eye lashes in the morning
- There may be a history of contact with a person with conjunctivitis

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a comprehensive patient history with particular note of contact with other(s) with conjunctivitis
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - starting with VA. VA should be normal in bacterial conjunctivitis
 - there is no staining of the cornea with fluorescein
 - note type of discharge from eye

4. Management

- Wash hands and use separate box of tissues for patient to clean eyes to avoid infection of the other eye or others¹
- The eyes should be cleaned (always from the inner margin to outer margin) and irrigated of any discharge regularly with sodium chloride 0.9% or cooled boiled water

- To clean eye lids stroke lids outwards
- Instruct the patient about hygiene e.g. frequent washing of hands, avoid sharing towels etc.
- Treat with chloramphenicol eye drops or ointment

Schedule	3	Chloramphenicol		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Drops	0.5%	Topical	Adult and Child > 2 years 1 - 2 drops tds during the day	7 days
Ointment	1%		Adult and Child > 2 years 1 to 1.5 cm applied to inner lower lid nocte	
Provide Consumer Medicine Information: advise the patient to discard drops and ointment after one month. Can be stored at room temperature once opened. If symptoms worsen at any time or if the eye infection does not improve within 48 hours, seek urgent medical advice. Contact lenses should not be worn during course of treatment				
Note: if child ≤ 2 years consult MO/NP				
Contraindication: if a penetrating eye injury is obvious or suspected				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

3

5. Follow up

- Review the next day and consult MO/NP if not improving

6. Referral/consultation

- Refer to MO/NP if vision is affected, condition does not improve after 2 days of treatment or worsens, or condition persists after treatment for 5 days¹
- Consult MO/NP as above

Viral conjunctivitis - adult/child

Recommend

- Viral conjunctivitis is extremely contagious and hygiene measures are important. Give advice on hygiene measures such as frequent hand washing, not sharing towels
- Patient is given a separate box of tissues to clean eye(s) and take home with them for their sole use to prevent cross infection
- Ensure standard precautions are used as highly infectious¹

1. May present with

- Red eyes that feel gritty. Classically begins in one eye and spreads to the other (especially adenoviral, which is associated with preauricular lymph node enlargement)
- Both eyes are diffusely red and may have watery discharge
- Burning sensation¹

- History of viral upper respiratory tract infection
- May be epidemic - 'pink eye' or 'red eye'

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a comprehensive patient history with particular note of URTI or contact with other(s) with conjunctivitis
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - starting with VA. VA is normal in viral conjunctivitis
 - there is no staining of the cornea with fluorescein
 - note type of discharge from eye

4. Management

- Wash hands and use separate box of tissues for patient to clean eyes to avoid infection of other eye or other people¹
- Symptomatic relief can be provided by:
 - cool compresses¹
 - simple eye lubricants - drops or gel
- The eyes should be cleaned (always from the inner margin to outer margin) and irrigated of any discharge regularly with sodium chloride 0.9% or cooled boiled water
- Instruct the patient about hygiene e.g. frequent handwashing, avoid sharing towels etc.
- Reassure patient that condition is self limiting however may take weeks to resolve¹
- MO/NP will prescribe aciclovir (Zovirax[®]) eye ointment 5 times a day for the most important viral condition - herpes simplex keratitis¹

5. Follow up

- Review the next day and consult MO/NP if not improving

6. Referral/consultation

- Refer to MO/NP if lasting longer than 3 weeks, photophobia and marked decrease in visual acuity¹
- Consult MO/NP as above

Allergic conjunctivitis - adult/child

1. May present with

- Itchy red eyes +++. Usually both eyes are affected
- The conjunctivae are diffusely inflamed
- Any discharge is clear and stringy
- Often there is a history of allergies (such as asthma/eczema) or similar episodes in the past
- Oedema of the conjunctival surface of the inner eyelids results in round swellings (papillae). When these are large they are referred to as cobblestones

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a comprehensive patient history with particular note of contact with other(s) with conjunctivitis
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - starting with VA. VA is normal in allergic conjunctivitis
 - there is no staining of the cornea with fluorescein
 - note type of discharge from eye

4. Management

- Cool compresses as required¹
- Use simple lubricants (artificial tears) to ease irritation
- Consult MO/NP if first episode or severe. MO/NP may advise trial of topical antihistamine and vasoconstrictor eye drops for short term use
- If recurrent and not severe, see next MO/NP clinic

5. Follow up

- If first episode review the patient next day and repeat examination of both eyes

6. Referral/consultation

- Consult MO/NP or see next MO/NP clinic as above

Acute gonococcal and chlamydial conjunctivitis - newborn

Recommend

- Swab for MC/S gonorrhoea and chlamydia

1. May present with

- Purulent discharge in the eyes
- May occur within the first month of life (ophthalmia neonatorum)¹

2. Immediate management Not applicable

3. Clinical assessment

- Review antenatal/birth history notes (if available) otherwise contact facility where baby born
- Examine eyes

4. Management

- Take swab MC/S
- Consult MO/NP and treat as advised
- Arrange for mother and infant to be seen in hospital if baby < 1 month old

5. Follow up

- Result of MC/S and treat any [Sexually transmitted infections, page 578](#) in parent

6. Referral/consultation

- Consult MO/NP/Paediatrician

Trachoma - adult/child

Chlamydia trachomatis conjunctivitis

Recommend

- For successful treatment conjunctival swabs are required to confirm diagnosis

Background

- Chronic chlamydial infection causes persistent follicles on the inside of the eyelid which can result in severe scarring of the conjunctiva and the underlying eyelid. The eyelashes are turned inwards resulting in permanent scarring of the cornea

1. May present with

- Patients are usually children with a history of chronic bilateral conjunctivitis with a mucopurulent discharge
- Both eyes are red and can have a watery or mucopurulent discharge
- Lymphoid aggregates in the conjunctiva give the characteristic follicles most easily seen on the inner upper eyelid

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a comprehensive patient history
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - look under the eyelids - evert eyelid
 - look for signs of trachoma - follicles under the eyelid, velvety redness hiding normal blood vessels, or scar tissue bands
 - in advanced trachoma one or more eyelashes are turned in to touch the cornea. The cornea becomes scarred and white together with blood vessels growing over it

4. Management

- Consult MO/NP. Diagnosis is clinical
- Treatment for neonates, children and adults with azithromycin as advised by MO/NP
- Treat all household contacts within two weeks to prevent re-infection
- Encourage face and hand washing to reduce spread

5. Follow up

- See next MO/NP clinic

6. Referral/consultation

- Consult Ophthalmologist if corneal damage

Corneal ulceration - adult/child

Recommend

- Consult MO/NP urgently¹
- Use fluorescein to ascertain nature of any corneal defect¹
- Oxybuprocaine eye drops should never be used for ongoing pain relief and should never be given to the patient to self administer

Related topics

 [Foreign body/corneal abrasion, page 330](#)

1. May present with

- Patients usually present with a painful red eye, though some ulcers are painless
- There may be a watery discharge due to reflex lacrimation
- Purulent discharge may be present with bacterial ulcers
- Inflammation in the anterior chamber of the eye may lead to a collection of pus called a hypopyon

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history:
 - ask about similar episodes in the past, facial cold sores, trauma and the wearing of contact lenses
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - if pain restricts examination instil oxybuprocaine eye drops
 - start with VA. VA may be impaired depending on the location and size of the ulcer
 - stain eye(s) with fluorescein and examine under blue light of ophthalmoscope. Corneal ulcers are usually obvious with fluorescein staining

Schedule	4	Oxybuprocaine	DTP IHW/SM R&IP/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Single use eye drops	0.4%	Topical	1 - 2 drops for pain	Stat
Provide Consumer Medicine Information: may cause transient blurring of vision therefore should not drive or operate hazardous machinery until vision is clear				
Note: oxybuprocaine eye drops should never be used for ongoing pain relief and should never be given to the patient to self administer				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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4. Management

- Consult MO/NP and discuss further management including whether:
 - can be treated locally. See [Foreign body/corneal abrasion, page 330](#)
 - evacuation/hospitalisation is needed for Ophthalmologist review depending on findings
- Unusual ulceration e.g. herpes dendritic ulcer or large and non-healing ulcers will need Ophthalmologist review

5. Follow up

- If not evacuated/hospitalised review daily until healed
- Consult MO/NP if:
 - not improving on first review
 - not healed by second review
 - visual acuity deteriorates at any time
- See next MO/NP clinic

6. Referral/consultation

- Consult MO/NP and see next MO/NP clinic as above

Episcleritis and scleritis - adult/child

Recommend

- Urgent Ophthalmologist referral within 24 hours¹

Background

- The episclera and sclera is thickened and discoloured

1. May present with

- A red sore eye
- Episcleritis and scleritis differ from conjunctivitis in that they usually present as localised tender areas of inflammation

- Scleritis is more florid and much more painful than episcleritis
- The episcleral and scleral blood vessels are larger than the conjunctival vessels
- There may be a watery discharge

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a comprehensive patient history with particular note of:
 - medical history. Any rheumatoid arthritis or any autoimmune disease, vascular or connective tissue disease
 - family history
 - current medications. Is the patient taking medicines that involve systemic steroids, NSAID or antimetabolites (medicines which inhibit normal metabolic process)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - starting with VA - vision may be impaired in scleritis¹
 - sclera is thickened and discoloured
 - the globe is tender to palpation, with eyelid closed

4. Management

- Consult MO/NP and discuss further management
- Patients with scleritis require evacuation/hospitalisation for Ophthalmologist review within 24 hours

5. Follow up

- If not evacuated/hospitalised, review daily
- Consult MO/NP if:
 - not improving on each review
 - visual acuity deteriorates at any time
- See next MO/NP visit

6. Referral/consultation

- Consult MO/NP and see next MO/NP clinic as above

Acute iritis - adult/child

Recommend

- Consult MO/NP immediately
- Urgent Ophthalmologist referral within 24 hours¹

Background

- Several groups of patients are at risk including those who have had past attacks of iritis, those with a seronegative arthropathy and those who have had infections such as herpes zoster (shingles) of the ophthalmic nerve, syphilis and/or tuberculosis

1. May present with

- Pain, photophobia, unilateral red eye
- The inflammation is more pronounced on the sclera adjacent to the cornea
- The pupil is small and may be irregular
- Inflammatory (pus) cells may settle at the bottom of the anterior chamber forming a collection called a hypopyon

2. Immediate management

- Consult MO/NP

3. Clinical assessment

- Obtain a comprehensive patient history with particular note of:
 - medical history - history of infections, STI, inflammation?¹
 - family history, current medications
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - start with VA. VA may be normal at first, but impaired later
 - there is no staining with fluorescein
 - check if patient has photophobia
 - is the anterior chamber of the eye cloudy? Is there a collection of white at the bottom of the anterior chamber?

4. Management

- Consult MO/NP (if not already done) and discuss management including whether:
 - can be treated with topical steroids
 - evacuation/hospitalisation for Ophthalmologist review within 24 hours is required
- Analgesia: paracetamol. See [Simple analgesia pull out](#)

5. Follow up

- If not evacuated/hospitalised review daily and consult MO/NP on each review
- See next MO/NP visit

6. Referral/consultation

- Consult MO/NP on all occasions if acute iritis is suspected

Acute glaucoma - adult/child

Recommend

- Consult MO/NP for urgent referral to Ophthalmologist

1. May present with^{7,8}

- Severe unilateral painful eye
- Associated with nausea and vomiting which may be so severe as to mimic acute abdomen, head injury or raised intracranial pressure
- Reduced vision

- Halo and/or 'rainbow' effect around lights
- Fixed, irregular mid-dilated pupil
- Hazy cornea
- Patients may have had similar episodes in the past that were resolved by sleeping

2. Immediate management

- Consult MO/NP urgently

3. Clinical assessment

- Obtain a comprehensive patient history with particular note of:
 - medical history - previous episodes, family history of glaucoma
 - current medications
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - start with VA. VA is impaired in glaucoma
 - there is no staining with fluorescein
 - there is an increase in intraocular pressure, measured by Optometrist or Ophthalmologist

4. Management

- Consult MO/NP who will likely order:
 - analgesia, antiemetic
 - acetazolamide, IV and/or oral
 - a range of eye drops from various classes^{7,8}
 - urgent evacuation/hospitalisation in an appropriate facility with ophthalmological and laser capability
- Usually specific treatments will involve ophthalmological consultation and may need prophylactic treatment to the unaffected eye

5. Follow up

- If not evacuated review daily, consult MO/NP on each review
- See next MO/NP visit

6. Referral/consultation

- Consult MO/NP on all occasions acute glaucoma suspected

Urinary tract problems

Urinary tract infection (UTI) - adult **Cystitis/pyelonephritis**

Recommend

- Any woman presenting with low abdominal or suprapubic pain without dysuria or frequency should be assessed for pelvic inflammatory disease (PID)
- Screen for both UTI and STI in sexually active people
- See [Urinary tract infection in pregnancy, page 510](#) if patient is pregnant

Background

- UTI is more common in females as the urethra is short
- UTI is rare in males < 50 years of age
- After the age of 50 years men may have predisposing factors such as prostatitis and urethral obstruction due to prostatic hypertrophy
- Dysuria in younger males is usually caused by a STI
- E. coli* causes approximately 80% of acute UTI
- The incidence of UTI is increased if there is:
 - any obstruction to the flow of urine (tumour, stone, stricture, prostatic hypertrophy)
 - abnormal renal anatomy
 - catheterisation
 - in people who have diabetes

Related topics

 [Low abdominal pain in female, page 597](#)

[Sexually transmitted infections, page 578](#)

 [Group B Streptococcus prophylaxis, page 513](#)

 [Urinary tract infection in pregnancy, page 510](#)

 [Diabetes, page 424](#)

1. May present with

- Abnormal findings on urinalysis - nitrites (breakdown of bacteria)/protein/blood/white blood cells (leukocytes)

Cystitis

- Lower abdominal pain and sometimes mild low back pain
- Urinary frequency, dysuria (discomfort or burning on passing urine)

Pyelonephritis

- Fever, rigors, nausea, vomiting, loin pain
- Elderly patient with UTI may present with confusion or falls

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history including:

- past episodes of UTI, treatment provided and effectiveness
- any genitourinary tract problems such as kidney stones, prostate problems (in men), renal abnormalities
- past medical history, particularly diabetes
- sexual infection history
- medication history
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - urinalysis
 - collect midstream urine for microscopy and culture (MC/S) as follows:
 - wash hands
 - hold labia apart or retract foreskin, wash urethra with sodium chloride 0.9% (do not use anti-septic). Women are to wash from front to back
 - obtain midstream specimen¹
- Perform physical examination:
 - palpate abdomen especially for suprapubic or loin tenderness
 - check/ask patient if they have inguinal region lymph node enlargement
- If STI suspected perform STI check

4. Management

- A urinary alkaliniser e.g. Ural® or Citravescent® may relieve some of the signs and symptoms of UTI. This is for acute use only, as does not treat or prevent UTI
- Females (not pregnant) with uncomplicated UTI give trimethoprim for 3 days
- Use cephalexin if allergic to trimethoprim²
- If pregnant see [Urinary tract infection in pregnancy, page 510](#)
- In males with uncomplicated or complicated UTI consult MO/NP
- If clinical assessment indicates pyelonephritis consult MO/NP who will advise IV amoxycillin/ampicillin plus gentamicin. Patient may need evacuation/hospitalisation

Schedule	4	Trimethoprim		DTP IHW/SM R&IP/IPAP/SRH
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	300 mg	Oral	Adult 300 mg daily	3 days
Provide Consumer Medicine Information: best taken before bed time. Take until course completed. Advise your health professional if you develop a rash. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the trimethoprim has been stopped				
Note: trimethoprim potentiates the anticoagulant effect of warfarin - monitor INR. Caution in renal impairment and in patients taking ACE inhibitors - may cause hyperkalaemia. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by trimethoprim. If the patient develops severe diarrhoea contact the MO/NP immediately				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- Females (not pregnant) with trimethoprim allergy

Schedule	4	Cephalexin		DTP IHW/SM R&IP/IPAP/SRH
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Adult 500 mg bd	5 days
Provide Consumer Medicine Information: tell health professional a sore white mouth or tongue develops. Take until course completed unless advised to stop by your health professional. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the cephalexin has been stopped				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by cephalosporins. If the patient develops severe diarrhoea contact the MO/NP immediately. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems. Use with caution in patients with impaired renal function				
Contraindication: if history of allergy to cephalosporin, or if severe or immediate allergic reaction to penicillin				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
				2,4

- In males with complicated and uncomplicated UTI consult MO/NP¹

Schedule	4	Trimethoprim		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	300 mg	Oral	Adult 300 mg daily	7 days
Provide Consumer Medicine Information: best taken before bed time. Take until course completed. Advise your health professional if you develop a rash. Patients should report development of diarrhoea immediately to health professional even if it occurs several weeks after the trimethoprim has been stopped				
Note: trimethoprim potentiates the anticoagulant effect of warfarin - monitor INR. Caution in renal impairment and in patients taking ACE inhibitors - may cause hyperkalaemia. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by trimethoprim. If the patient develops severe diarrhoea contact the MO/NP immediately				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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5. Follow up

- Check culture and sensitivity results and consult MO/NP if organism resistant to antibiotics given
- Consult MO/NP if symptoms persist, recur or worsen after treatment in men or women
- All patients other than the initial uncomplicated lower urinary tract infection in a non-pregnant woman may need urological investigations. See next MO/NP clinic

6. Referral/consultation

- Consult MO/NP as above

Skin problems

Assessment and examination of skin, hair and nails - adult /child

Assessment

Obtain a complete patient history including:

- Past episodes, length of time lesion(s)/condition has been present
- Document what helps/exacerbates and/or prevents condition e.g. combing hair conditioner through hair
- Ask if any measures have been used to treat lesion(s)/condition
- Ask parents/carer of child or adult patient if there has been any swelling of face/eyelids
- Ask if the patient had acute post streptococcal glomerulonephritis (APSGN) or acute rheumatic fever/rheumatic heart disease (ARF/RHD) in the past
- Environmental history may point to predisposing factors, such as sharing hair brushes/combs and may include a number of people in the household that also need treatment
- Ask if any family members or close contacts have similar skin lesion(s)

- Ask if the patient has diabetes, other medical conditions or has had recent surgery
- History of possible injury, trauma, foreign body or other skin conditions such as insect bites or scabies
- Presence of any rigors, malaise or fevers
- If the lesion(s) are painful, itchy or red
- Medication history

Examination

Perform physical examination:

- Inspect all skin surfaces, skin folds, moist areas, nails and hair, mucous membranes
- Note skin:
 - colour, redness, swelling or surrounding cellulitis. It may be worth marking the affected area for a baseline measure or take a photo with scale with appropriate consent
 - is there a rash present
 - are there scratches or broken skin from scratching
- Describe the lesions:
 - colour of lesions
 - pustule(s), on a small red base, blistering
 - size and shape of lesions? Nodular?
 - painless or painful
 - itch present, all the time, when?
 - raised or flat
 - exudate, colour, dried yellow crust
 - odour
 - bleeding, warm to touch
 - scaly lesions, central clearing
 - white patches or curd-like material on a red base
 - pigmentation
 - lesions well/poorly demarcated
 - fine scale
 - site or location of lesions. Are they scattered over one part of the body or generalised over the whole body?
 - signs of secondary infection or inflammation
 - palpate regional lymph nodes - swollen or painful
 - are there other skin conditions present such as scabies or fungal infections
 - check for entry site of possible injury or pre-existing skin wound or condition
 - patient able to move the affected area (if on limb)

Bacterial skin infections - adult/child

Recommend

- Be vigilant for group A streptococcal skin infections which are especially common in Aboriginal and Torres Strait Islander communities. Group A streptococcal can lead to APSGN and ARF if untreated. See [Acute post streptococcal glomerulonephritis, page 667](#) and [Acute rheumatic fever, page 672](#)
- If skin infections caused by foreign body, fish spines or other marine creatures. See [Marine lacerations, page 168](#)
- Treat bacterial skin infection first if co-existing with scabies or other skin condition

Background

- The majority of bacterial skin infections in affluent communities are due to *Staphylococcus aureus*. Less commonly by *Streptococcus pyogenes*. In some locations, such as remote Aboriginal and Torres Strait Islander communities in central and northern Australia, *Streptococcus pyogenes* is often the primary pathogen¹
- If the infection is due to *Streptococcus pyogenes*, glomerulonephritis may follow within 8 weeks¹ plus other infectious disease complications such as acute rheumatic fever (ARF), scarlet fever, streptococcal toxic shock syndrome, pharyngitis and pancreatitis

Related topics

-  [Acute abdominal pain, page 200](#)
 -  [Acute wounds, page 157](#)
 -  [Marine lacerations, page 168](#)
 -  [Acute post streptococcal glomerulonephritis, page 667](#)
 -  [Acute rheumatic fever, page 672](#)
 -  [Cellulitis/erysipelas, page 370](#)
 -  [Upper respiratory tract infection, page 294](#)
- [How to collect a wound swab/culture, page 401](#)

Impetigo - adult/child

Recommend

- Review in 2 weeks and check BP and urinalysis if antibiotics have been given for impetigo
- Mupirocin 2% intranasal ointment may be used for those with recurrent staphylococcal infections once all lesions are healed, for eradication of staphylococcal carriage (after nasal and/or perineal swabs taken)¹

Background^{2,3,4,5}

- Impetigo is highly infectious, it occurs primarily in school age children
- Impetigo can lead to serious systemic complications from streptococcal skin infection, including APSGN and ARF
- In affluent communities the pathogen is most commonly *Staphylococcus aureus*, and less commonly *Streptococcus pyogenes*. These organisms can occur in combination
- In socioeconomically disadvantaged areas, such as remote Indigenous communities, *Streptococcus pyogenes* is often the primary pathogen
- It may complicate pre-existing skin conditions such as scabies, eczema, tinea, insect bites and minor abrasions

1. May present with

- There are two distinct presentations (both are contagious):
 - crusted or nonbullous impetigo presents as yellow crusts and erosions that are itchy or irritating, but not painful
 - bullous impetigo presents as irritating blisters that erode rapidly. Bullous impetigo is caused by *Staphylococcus aureus*⁴

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. See [Assessment and examination of skin, hair and nails, page 358](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weight
 - urinalysis as baseline data
- Perform physical examination. See [Assessment and examination of skin, hair and nails, page 358](#) (wear gloves as impetigo is highly contagious)

4. Management

- Consult MO/NP:
 - if BP or urinalysis is abnormal it may indicate the presence of APSGN
 - if patient is systematically unwell
 - if patient has fever, see [Cellulitis/erysipelas, page 370](#)
 - if recurrent infections in individual or family
- In mild/isolated cases e.g. single lesion:
 - remove crusts and debris and clean by soaking in soap and water
 - clothing/bedding/towels/toys of patient and close contacts should be washed in hot water and dried in direct sunlight
 - personal hygiene, especially hands and fingernails, should be emphasised
- In severe/widespread cases e.g. 2 or more lesions:
 - take MC/S culture swabs from lesions. See [How to collect a wound swab/culture, page 401](#)
 - commence oral antibiotic. Until culture results are available, suspect *Staphylococcus aureus* as a pathogen in non disadvantaged communities, and *Streptococcus pyogenes* in disadvantaged communities. Medicines that are active against *Staphylococcus aureus* will also cover *Streptococcus pyogenes*⁴
 - use measures outlined above for skin sores, clothing and personal hygiene
- Advise parent/carer/patient that impetigo is highly infectious and that the child/patient should exclude themselves from contact with others e.g. by not attending school, pre-school or child care centre until they have taken antibiotics for at least 24 hours⁵
- Sores on exposed areas should be covered with a watertight dressing⁵
- In remote Indigenous communities in central and northern Australia use trimethoprim/sulfamethoxazole

Schedule	4	Trimethoprim/Sulfamethoxazole	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	80 mg/400 mg 160 mg/800 mg	Oral	Adult 320 mg/1600 mg dose daily	5 days
Suspension	8 mg/40 mg per mL		Child ≥ 1 month 8 mg/40 mg per kg/per dose daily up to a max. of 320 mg/1600 mg dose daily	

Provide Consumer Medicine Information: drink lots of water (adults: 2 - 3 L of water per day) while taking this medicine. Take with food to reduce stomach upset. To reduce risk of rash from the sun avoid sun exposure, wear protective clothing and use sunscreen. Take until course completed. Contact your health professional if you get a sore throat, fever, rash, cough, difficulty breathing, joint pain, dark urine or pale stools. Patients should report development of diarrhoea immediately to health professional even if it occurs several weeks after the trimethoprim has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops

Note: avoid use in the elderly due to increased risk of severe adverse effects; reduce dose in those with renal impairment and CrCl greater than 15 mL/min; may worsen systemic lupus erythematosus; may increase risk of hyperkalaemia in patients taking medication that cause potassium retention eg. ACE inhibitors. Be aware that severe colitis due to *Cl. difficile* can be caused by trimethoprim. If the patient develops severe diarrhoea contact the MO/NP immediately

Contraindication: in patients with: serious allergic reaction to sulphonamides; renal impairment with CrCl less than 15 mL /minute; severe impairment of liver function, and G6PD deficiency

Use in pregnancy: Category C. Avoid in first trimester

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

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- If lack of adherence with oral medicine is anticipated treat with benzathine penicillin

Schedule	4	Benzathine penicillin (Bicillin LA®)		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Pre-filled syringe	900 mg in 2.3 mL	IM	3 kg to < 6 kg 225 mg = 0.5 mL 6 kg to < 10 kg 337.5 mg = 0.76 mL 10 kg to < 15 kg 450 mg = 1 mL 15 kg to < 20 kg 675 mg = 1.52 mL ≥ 20 kg 900 mg = 2.3 mL	Stat
Provide Consumer Medicine Information: patients should report development of diarrhoea immediately to their health professional. Tell your health professional if you get severe pain in the muscle where the injection was given, or if you get a sore white mouth or tongue				
Note: use a concentration of 442 mg/mL when measuring part doses - refer to product information. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillin. If the patient develops severe diarrhoea contact the MO/NP immediately. Prolonged use of penicillins may lead to the development of oral candidiasis				
Contraindication: in patients with a history of hypersensitivity to penicillin. Be aware of cross-reactivity in patients with allergy to carbapenems and/or cephalosporins				
Use in pregnancy: Category A				
Administration tips: See Administration tips for benzathine penicillin (Bicillin LA) and procaine penicillin, page 768				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
4,7,8,9,10,11				

4,7,8,9,10,11

- In non-remote community settings use dicloxacillin/flucloxacillin

Schedule	4	Di/flucloxacillin	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Adult ≥ 12 years 500 mg qid	10 days. Review the patient in 3 - 4 days to determine if antibiotic treatment may be ceased earlier
Suspension <i>Only flucloxacillin is available as a suspension</i>	125 mg /5 mL 250 mg/5 mL		Child < 12 years 12.5 mg/kg/dose qid to a max. of 500 mg qid	

Provide Consumer Medicine Information: should be taken on an empty stomach, ½ to 1 hour before, or 2 hours after, food. Take until course completed unless advised by your health professional to stop. Patients should report development of jaundice or diarrhoea immediately to their health professional. Tell health professional if a sore white mouth, tongue or vagina develops

Note: can cause severe hepatitis and cholestatic jaundice, which may be protracted. Risk of hepatitis increases in people > 55 years, females, and with courses > 2 weeks. Be aware of potential cross-sensitivity in patients allergic to carbapenems or cephalosporins; Use with caution in patients with renal impairment - reduce dose if CrCl < 10mL/min. Pre-existing hepatic impairment is not a risk factor. Be aware that severe colitis due to *Cl. difficile* can be caused by di/flucloxacillin. If the patient develops severe diarrhoea contact the MO/NP immediately

Contraindication: in patients with: history of cholestatic hepatitis with dicloxacillin or flucloxacillin, a history of severe or immediate allergic reaction to a penicillin

Use in Pregnancy: dicloxacillin is Category B2. Flucloxacillin is B1

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

1,51,52

- Cephalixin can be used for patients in non-remote community settings with penicillin hypersensitivity, excluding immediate hypersensitivity i.e. do not have anaphylaxis to penicillin use. Cephalixin may also be a more tolerable and palatable alternative to flucloxacillin as a liquid formulation for children⁴

Schedule	4	Cephalexin		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Adult and child ≥ 12 years 500 mg qid	10 days. Review the patient in 3
Suspension	125 mg/5 mL 250 mg/5 mL		Child < 12 years 12.5 mg/kg/dose qid to a max. of 500 mg qid	- 4 days to determine if antibiotic treatment may be ceased earlier
Provide Consumer Medicine Information: take until course completed unless advised by your health professional to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the cephalexin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware of cross-reactivity between penicillins, cephalosporins and carbapenems. Use with caution in patients with impaired renal function - consider reducing dose if CrCL <20 ml/min. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by cephalosporins. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: if history of allergy to cephalosporin, or if severe or immediate allergic reaction to penicillin				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

4,12,14

- If immediate hypersensitivity to penicillin or if reduced dosing frequency will improve adherence use trimethoprim/sulfamethoxazole

Schedule	4	Trimethoprim/Sulfamethoxazole	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	80 mg/400 mg 160 mg/800 mg	Oral	Adult 160 mg/800 mg dose bd	5 days
Suspension	8 mg/40 mg per mL		Child ≥ 1 month 4 mg/20 mg per kg/dose bd up to a max. of 160 mg/800 mg dose bd	

Provide Consumer Medicine Information: drink lots of water (adult 2 - 3 L of water daily) while taking this medicine. Take with food to reduce stomach upset. To reduce risk of rash from the sun avoid sun exposure, wear protective clothing and use sunscreen. Take until course completed. Contact your health professional if you get a sore throat, fever, rash, cough, difficulty breathing, joint pain, dark urine or pale stools. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the trimethoprim has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops

Note: avoid use in the elderly due to increased risk of severe adverse effects; reduce dose in those with renal impairment and CrCl greater than 15 mL/min; may worsen systemic lupus erythematosus; may increase risk of hyperkalaemia in patients taking medication that cause potassium retention eg. ACE inhibitors. Be aware that severe colitis due to *Cl. difficile* can be caused by trimethoprim. If the patient develops severe diarrhoea contact the MO/NP immediately

Contraindication: in patients with: serious allergic reaction to sulphonamides; renal impairment with CrCl less than 15 mL/minute; severe impairment of liver function, and G6PD deficiency

Use in pregnancy: Category C. Avoid in first trimester of pregnancy

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

4,6

5. Follow up

- Review daily initially. Consult MO/NP if not improving
- If antibiotics have been given for impetigo review in 2 weeks and check BP and urinalysis
- Consult MO/NP if abnormal blood pressure and/or urinalysis. See [Acute post streptococcal glomerulonephritis, page 667](#)

6. Referral/consultation

- Consult MO/NP as above



Folliculitis/furunculosis (boils)/carbuncles - adult/child

Recommend

- Not all cases will require antibiotics
- Do not squeeze lesions. Squeezing may result in the spread of infection via the bloodstream, which can produce osteomyelitis, acute bacterial endocarditis (heart) and brain abscesses
- Do not incise boils in children or adults if affecting hands, face or breast - consult MO/NP
- Do not incise the perianal region for patients with a history of inflammatory bowel disease (IBD). Consult MO/NP in this case
- Patients who experience recurrent boils should be seen by MO/NP
- A swab for MC/S should always be performed if possible to check for MRSA. Consult MO/NP if methicillin resistant *Staphylococcus aureus* (MRSA) is cultured¹⁵
- MO/NP may order intranasal mupirocin 2 - 3 times daily to nostrils for 5 - 7 days and/or triclosan washes daily for 5 days for patients who experience recurrent boils.
Note: intranasal ointment is a different formula to the topical application

Background

- Folliculitis is an infection of the hair follicle. It presents as a pustule on a small red base¹⁵. It is easily distinguished from furunculosis (boil) by the absence of both a significant redness and a hardened mass or formation
- A boil or acute furunculosis, is a hair follicle-associated cutaneous abscess that extends into the subcutaneous tissue. They are tender and very painful and often occur in clusters or crops in the axillae, inguinal area or buttocks¹⁶
- A carbuncle is a cluster of boils (furuncles) with multiple pustular heads
- *Staphylococcus aureus* is usually the cause of these skin infections, occasionally in combination with *Streptococcus Pyogenes*¹⁶

Related topics



[Acute post streptococcal glomerulonephritis, page 667](#)



[Acute rheumatic fever, page 672](#)

 [Cellulitis/erysipelas, page 370](#)

1. May present with

- Folliculitis, furuncle (boil), carbuncle (multiple head abscess)
- Fever and/or malaise

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history
- See [Assessment and examination of skin, hair and nails, page 358](#) +
 - does the patient have a history of inflammatory bowel disease
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
 - weight

- urinalysis
- Perform physical examination (wear gloves). See [Assessment and examination of skin, hair and nails, page 358](#)

4. Management

- Take a swab for MC/S to check for MRSA
- Consult MO/NP if:
 - infection in a child requiring incision
 - infection involving the face or hands
 - breast abscess. See [Mastitis, page 550](#)
 - results of swab show MRSA
 - perianal abscess/boil in a patient with inflammatory bowel disease
 - recurrent boils/carbuncles (for intranasal mupirocin order)
- Folliculitis:
 - may be treated by the application of moist heat which relieves discomfort, aids in the localisation of infection and promotes drainage
- Furuncle (boil)/carbuncle (cluster of boils):
 - if the lump is not fluctuant then apply daily magnesium sulfate (Magnoplasm[®]) dressings to soften the overlying skin and encourage 'pointing'
 - when a head appears and the boil feels fluid-like underneath it is ready for incision and drainage. See Incision of abscess below
- Antibiotics are not always needed, as furuncles tend to 'wall off' from the surrounding tissues
- Regardless of whether antibiotics are used a swab should be taken for microbiology to look for MRSA
- Antibiotics are indicated when there is a fever, enlargement of regional lymph nodes, surrounding cellulitis or when there is finger (pulp space) infection. See [Cellulitis/erysipelas, page 370](#)
- Give paracetamol for analgesia. See [Simple analgesia pull out](#)

Incision of abscess

- Do not incise **any** boils in children; or boils in adults if affecting hands, face or breast; or the perianal region of a patient with a history of inflammatory bowel disease. Consult MO/NP in this case
- If the abscess is superficial and 'pointing', local anaesthetic is not necessary as the affected skin does not anaesthetise easily and it will cause further pain and trauma
- If the abscess is fluctuant, but not superficial or 'pointing', then the overlying skin should be infiltrated with 1% lignocaine local anaesthetic before incision. Do not inject into the abscess because this causes increased pain
- Incise the abscess using a scalpel blade. A cross cut incision may be appropriate to prevent the wound from closing prematurely
- Express the pus by gently separating the edges of the incision. Do not squeeze
- Irrigate the wound cavity copiously using sodium chloride 0.9% via a 20 mL syringe with a blunt 18 G needle
- In large abscess insert a ribbon gauze wick to prevent premature closure and aid drainage of pus
- After adequate drainage has occurred, lesions should then be covered with a dry dressing
- Dressings should be changed at least daily

Schedule	4	Lignocaine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	1% 50 mg/5 mL	Subcutaneous	Adult and child ≥ 12 years and/or > 50 kg up to max. of 3 mg/kg/dose to a total max. infiltration of 200 mg Child up to max. of 3 mg/kg/dose based on actual body weight except in obese children the max. dose should be based on ideal body weight	Stat Consult MO/NP for further doses
Provide Consumer Medicine Information: if performing a digital block advise patient about onset and duration of action, and how to avoid injury to anaesthetised area. Report any drowsiness, dizziness, blurred vision, vomiting or tremors				
Note: use the lowest dose necessary. Determine child's ideal weight on 50 th centile on an appropriate weight - for - age percentile chart available from http://www.rch.org.au/childgrowth/Growth_Charts				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

19,20,51

5. Follow up

- Review the patient daily initially to assess progress and change dressings
- At the first review remove the wick, if present, and gently express any residual pus. If a lot of pus is expressed, insert another ribbon gauze wick
- If MRSA is cultured consult MO/NP
- Close follow up by an MO/NP is recommended for patients with inflammatory bowel disease

6. Referral/consultation

- Consult MO/NP as above

Cellulitis/erysipelas - adult/child

Recommend

- If cellulitis caused by foreign body, fish spines and other marine creatures, see [Marine lacerations, page 168](#)
- Consult MO/NP if MRSA is known or suspected
- Consider osteomyelitis and septic arthritis if a skin infection is taking a long time to resolve or occurs over a joint

Background

- Cellulitis presents with spreading, tender erythema. It is associated with fever and systemic toxicity, as opposed to a simple wound infection or impetigo which is a superficial skin infection¹³
- Erysipelas is a type of cellulitis with marked epidermal involvement with a clear line of demarcation between the involved and uninvolved tissue. It is more common among infants, young children and older adults²¹

Related topics

 [Acute wounds, page 157](#)

 [Acute post streptococcal glomerulonephritis, page 667](#)

 [Acute rheumatic fever, page 672](#)

 [Bacterial skin infections, page 360](#)

 [Bone and joint infections, page 738](#)

 [Folliculitis/furunculosis \(boils\)/carbuncles, page 367](#)

 [Marine lacerations, page 168](#)

1. May present with

- Usually there is a preceding history of skin trauma or skin disease followed within a day or two by erythema (redness), tenderness and heat
- Erythema which intensifies and spreads
- Local pain is sometimes quite marked
- Tender regional lymph node involvement is common
- Systemic symptoms - malaise, fever and rigors may develop rapidly
- Erysipelas is hot, shiny and bright red and has a sharply defined border, in contrast to other forms of cellulitis
- 'Wispy' lymphangitis along the medial aspect of a limb

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. See [Assessment and examination of skin, hair and nails, page 358](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
 - urinalysis
 - pain score
- Perform physical examination (gently as condition painful). See [Assessment and examination of skin, hair and nails, page 358](#)

- Check for deterioration in any underlying medical condition such as diabetes

4. Management

- Mild early cellulitis and erysipelas:
 - to cover *Staphylococcus aureus* and *Streptococcus pyogenes* treat with oral dicloxacillin OR flucloxacillin²¹
- Consult MO/NP if:
 - infection in a child
 - infection involving the face or hands
 - if MRSA is known or suspected
 - severe cases or if systemically unwell the MO/NP may advise:
 - blood cultures
 - IV cannula
 - IV antibiotics
 - appropriate analgesia
 - evacuation/hospitalisation if necessary
- Rest and elevation of the affected limb is very important
- Dress any wound/site of injury
- If possible photograph to monitor response to treatment
- Measure by outlining inflamed area by tracing onto Opsite® or use ruler to measure
- If *Streptococcus pyogenes* is confirmed or suspected due to clinical presentation or local disease patterns e.g. in Aboriginal and Torres Strait Islander communities in central and northern Australia, use phenoxymethylpenicillin if not allergic

Schedule	4	Di/flucloxacillin	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Adult ≥ 12 years 500 mg qid	10 days. Review the patient at 3 - 4 days to determine if antibiotic treatment may be ceased earlier
Suspension <i>only</i> <i>Flucloxacillin is available as a suspension</i>	125 mg /5 mL 250 mg/5 mL		Child 12.5 mg/kg/dose qid to a max. of 500 mg qid	

Provide Consumer Medicine Information: should be taken on an empty stomach, ½ to 1 hour before, or 2 hours after, food. Take until course completed unless advised by your health professional to stop. Patients should report development of jaundice or diarrhoea immediately to their health professional. Tell health professional if a sore white mouth, tongue or vagina develops

Note: can cause severe hepatitis and cholestatic jaundice, which may be protracted. Risk of hepatitis increases in people > 55 years, females, and with courses > 2 weeks. Be aware of potential cross-sensitivity in patients allergic to carbapenems or cephalosporins; Use with caution in patients with renal impairment - reduce dose if CrCl < 10mL/min. Pre-existing hepatic impairment is not a risk factor. Be aware that severe colitis due to *Cl. difficile* can be caused by penicillin. If the patient develops severe diarrhoea contact the MO/NP immediately

Contraindication: in patients with: history of cholestatic hepatitis with dicloxacillin or flucloxacillin, a history of severe or immediate allergic reaction to a penicillin

Use in Pregnancy: Dicloxacillin is Category B2. Flucloxacillin is B1

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

21,51,52

- If *Streptococcus pyogenes* is confirmed or suspected due to clinical presentation or local disease patterns e.g. in Aboriginal and Torres Strait Islander communities in central and northern Australia, use phenoxymethylpenicillin if not allergic

Schedule	4	Phenoxymethylpenicillin		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule Tablet	250 mg 500 mg	Oral	Adult 500 mg qid	10 days. Review the patient at 3 - 4 days to determine if antibiotic treatment may be ceased earlier
Suspension	30 mg/mL 50 mg/mL		Child 12.5 mg/kg /dose qid to a max. of 500 mg qid	
Provide Consumer Medicine Information: should be taken on an empty stomach ½ to 1 hour before meals or 2 hours after meals. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the penicillin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillin. If the patient develops severe diarrhoea contact the MO/NP immediately. Prolonged use of penicillins may lead to the development of oral candidiasis				
Contraindication: in patients with: history of cholestatic hepatitis with dicloxacillin or flucloxacillin, a history of severe or immediate allergic reaction to a penicillin				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

22,54

- If a lack of adherence with oral medicine is anticipated treat with IM procaine penicillin

Schedule	4	Procaine penicillin	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Pre-filled syringe	1.5 g	IM	Adult 1.5 g daily Child 50 mg/kg/dose daily to a max. of 1.5 g daily	3 days

Provide Consumer Medicine Information: patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the penicillin has been stopped. Tell your health professional if you get severe pain in the muscle where the injection was given. Tell health professional if a sore white mouth, tongue or vagina develops

Note: be aware that severe colitis due to *Cl. difficile* can be caused by penicillin. If the patient develops severe diarrhoea contact the MO/NP immediately. Prolonged use of penicillins may lead to the development of oral candidiasis. Inadvertant IV administration may lead to severe neurological damage; CNS effects including anxiety, agitation, fear of death and hallucinations may also occur - usually resolved in 15 - 30 minutes but rarely last for up to 24 hours. This is not an allergic reaction

Contraindication: in patients with a history of hypersensitivity to penicillin. Be aware of cross-reactivity in patients with allergy to carbapenems and/or cephalosporins

Use in pregnancy: Category A

Administration tips

See [Administration tips for benzathine penicillin \(Bicillin LA\) and procaine penicillin, page 768](#)

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

21,23,24

- Cephalexin can be used for patients with penicillin hypersensitivity, excluding immediate hypersensitivity i.e. do not have anaphylaxis to penicillin use. Cephalexin may be more tolerable and palatable alternative to flucloxacillin as a liquid formulation for children

Schedule	4	Cephalexin		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Adult and child ≥ 12 years 500 mg qid	10 days. Review the patient at 3 - 4 days to determine if antibiotic treatment may be ceased earlier
Suspension	125 mg/5 mL 250 mg/5 mL		Child < 12 years 12.5 mg/kg/dose qid to a max. of 500 mg qid	
Provide Consumer Medicine Information: take until course completed unless advised by your health professional to stop. Patients should report development of diarrhoea immediately to their health professional. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware of cross-reactivity between penicillins, cephalosporins and carbapenems				
Contraindication: if history of allergy to cephalosporin, or if severe or immediate allergic reaction to penicillin. Use with caution in patients with impaired renal function - consider reducing dose if CrCL <20 mL/min. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by cephalosporins. If the patient develops severe diarrhoea contact the MO/NP immediately				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
				12,13,25

- Patients with penicillin hypersensitivity i.e. have anaphylaxis to penicillin use clindamycin

Schedule	4	Clindamycin	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	150 mg	Oral	Adult and child ≥ 12 years 450 mg tds Child < 12 years 10 mg/kg/dose tds to a max. of 450 mg tds	5 - 10 days

Provide Consumer Medicine Information: take with a full glass of water. Take until course completed unless advised by health professional to stop. Patients should report development of diarrhoea immediately to health professional even if it occurs several weeks after the clindamycin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops

Note: be aware that severe colitis due to *Cl. difficile* can be caused by clindamycin. If the patient develops severe diarrhoea contact the MO/NP immediately

Use in pregnancy: Category A

Administration tip: There is no oral liquid, however a 50 mg/mL clindamycin solution can be made before each dose by:

- dissolving the contents of 1 capsule in 2 mL water
- draw this solution into a syringe and make the volume up to 3 mL
- discard any excess solution so that the required dose remains in the syringe
- mix the dose in juice or soft food to disguise the taste before giving

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

21,26,27,55

- For severe cellulitis under direction of MO/NP treat with cephazolin + probenecid combination

Schedule	4	Cephazolin		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	1 g	IV Give slowly over 3 - 5 minutes Dissolve to a minimum of 10 mL	Adult only 2 gm daily	Stat, 30 minutes after probenecid administration MO/NP to determine length of treatment
Provide Consumer Medicine Information: patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the cephazolin has been stopped. Cephazolin can make some people feel dizzy therefore take care in driving a car, or operating machinery, until you know how you react to cephazolin. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: administer slowly. Give IV slowly to avoid seizures. Cephalosporins C derivatives should be given cautiously in penicillin sensitive patients. There is some evidence of partial cross allergenicity of the penicillins and cephalosporins. Use with caution in patients with history of gastrointestinal disease, patients on sodium restriction, bleeding disorders/patients on warfarin - monitor INR. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by cephazolin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: impaired renal function (CrCl < 30 mls/min)				
Use in pregnancy: Category B1				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

28,29,30

- Plus

Schedule	4	Probenecid		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	Adult only 1 g daily	Stat, 30 minutes prior to cephazolin administration MO/NP to determine length of treatment
Provide Consumer Medicine Information: may cause nausea and vomiting - take with food. Drink plenty of fluids while taking probenecid. Talk to your health care professional before taking any medicines containing aspirin				
Note: used as adjunct to prolong the duration of action of cephazolin				
Contraindication: in patients : with impaired renal function (CrCl < 30 mL/min), uric acid renal stones present; suffering an acute attack of gout; taking aspirin (low dose aspirin is acceptable); and with blood dyscrasias. Use with caution in patients with history peptic ulcer, breastfeeding women. G6PD deficiency				
Use in pregnancy: Category B2. Consult MO/NP for advice				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
28,31,32,33,54				

5. Follow up

- Review the patient daily initially, monitor inflammation
- Perform dressings as required
- Consult MO/NP if not improving

6. Referral/consultation

- Consult MO/NP as above

Tinea/ringworm - adult /child

Recommend

- Prevent transmission of ringworm(s). Always treat secondary infection
- Perform a skin scraping from the edge of an affected area for microscopy/mycology if there is any doubt about the diagnosis

Background

- Tinea or ringworm can infect any part of a person's skin, hair and nails. It is caused by dermatophytes, a fungus parasite, and has a typical appearance which is described as annular (forming a ring) or arcuate (bow shaped). It is usually scaly and itchy with a definite edge and central clearing as it expands³⁴
- Transmission is fostered by overcrowding, shared bathroom facilities, poor hygiene, humid conditions and being in a malnourished state
- Can be transmitted by direct contact with others or by infected animals or objects such as combs, caps, clothing, footwear, linen and wet floors, including occupational exposure

Related topics

 [Bacterial skin infections, page 360](#)

1. May present with

Tinea corporis

- May be diverse in its presentation but most commonly presents as an itchy lesion or rash with an advancing, irregularly shaped, raised red scaly border with central clearing. Excoriation from scratching and secondary infection is common³⁵

Tinea capitis

- Also has a variable appearance ranging from small lumps about the hair shafts to a kerion, which is an inflammatory boggy mass, studded with broken hairs and oozing purulent material. It is usually itchy or painful. Occurs almost exclusively in children³⁴ and is commonly acquired from cats and dogs. If smooth patches devoid of hair are seen, non-tinea conditions may need to be considered e.g. alopecia areata or telogen effluvium

Tinea cruris

- Predominantly occurs in males. Unlike candidiasis, satellite lesions are unusual. Often the inner thigh is affected

Tinea pedis

- Usually occurs between the toes and is characterised by itching, scaling and fissuring. Secondary infection is common and this may be a site of entry of streptococcal infection

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. See [Assessment and examination of skin, hair and nails, page 358](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL

- Review nutritional status
- Perform physical examination (wear gloves). See [Assessment and examination of skin, hair and nails, page 358](#)

4. Management

- Consult MO/NP if there is widespread skin involvement or tinea capitis present
- Perform a skin scraping from the edge of an affected area for microscopy/mycology, if there is any doubt about the diagnosis
- Treat any secondary bacterial infection first. See [Impetigo, page 360](#)
- Efforts to decrease occlusion and moisture are helpful. This can be done by avoiding synthetics and wearing lighter and better ventilated clothing and footwear, and by the judicious use of an absorbent powder
- For isolated lesions treat with a topical agent such as miconazole 2% or clotrimazole 1%

Schedule	2	Miconazole	DTP IHW/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Cream	2%	Topical	bd	For 2 weeks after resolution
Provide Consumer Medicine Information: clean and dry affected area before application. Complete course				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- Or

Schedule	2	Clotrimazole	DTP IHW/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Lotion	1%	Topical	2 - 3 times daily	For 2 weeks after resolution
Provide Consumer Medicine Information: clean and dry affected area before application. Complete course				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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5. Follow up

- Review the patient in 2 weeks
- See next MO/NP clinic if:
 - widespread skin involvement
 - tinea capitis
 - fingernails or toenails involved
- These patients usually require oral antifungal treatment e.g. terbinafine

6. Referral/consultation

- Consult MO/NP as above



Candidiasis/skin - adult/child

Recommend

- Provide education on predisposing factors and personal hygiene

Background

- Candidiasis is a yeast infection usually confined to the skin, nails, mucous membranes and gastrointestinal tract
- Predisposing factors include diabetes, pregnancy, oral contraceptives and antibiotics (for vulvovaginal infections), obesity, occlusive and tight fitting garments, humid conditions, immunocompromised status and corticosteroid use

Related topics

 [Candidiasis/oral \(thrush\), page 324](#)

1. May present with

- Cutaneous candidiasis:
 - most commonly found in moist skin folds
 - connecting moist red patches, sometimes with vesicles and satellite pustules³⁸
 - common locations include the groin and genitals, armpits, between the buttocks, under pendulous breasts, between the folds of skin on the abdomen and between the digits
- Vaginal candidiasis: See [Candidiasis/vaginal \(thrush\), page 592](#)
 - patients present with a thick white 'cheesy' vaginal discharge associated with burning or itching and sometimes dysuria³⁵
 - it may spread to the labia and perineal areas
- Oral candidiasis. See [Candidiasis/oral \(thrush\), page 324](#)

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. See [Assessment and examination of skin, hair and nails, page 358](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +

- BGL if diabetic and candidiasis is persistent and recurrent
- Review nutritional status
- Perform physical examination of skin. See [Assessment and examination of skin, hair and nails, page 358](#)

4. Management

- Remove/modify predisposing factors where possible:
 - investigate for diabetes, treat other skin conditions if present
- Provide education on personal hygiene and not sharing towels etc.
- Vaginal candidiasis. See [Candidiasis/vaginal \(thrush\), page 592](#)
- Cutaneous candidiasis - treat with a topical agent such as miconazole 2% or clotrimazole 1%

Schedule	2	Miconazole	DTP IHW/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Cream	2%	Topical	bd	For 2 weeks after resolution
Provide Consumer Medicine Information: clean and dry affected area before application. Complete course				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- Or

Schedule	2	Clotrimazole		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Liquid Cream	1%	Topical	2 - 3 times daily	For 2 weeks after resolution
Provide Consumer Medicine Information: clean and dry affected area before application. Complete course				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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5. Follow up

- Review the patient in 2 weeks
- See next MO/NP clinic:
 - if persistent or recurrent candidiasis

- if fingernails or toenails involved
- These patients may require oral antifungal treatment

6. Referral/consultation

- Consult MO/NP as above

Tinea versicolor/pityriasis versicolor - adult/child

Recommend

- Perform a skin scraping for microscopy/mycology if there is doubt about the diagnosis
- Apply selenium sulfide 2.5% shampoo e.g. Selsun® Gold shampoo 1 or 2 times a month after initial treatment to help prevent recurrence³⁹

Background

- Pityriasis versicolour/tinea versicolor is caused by *Malassezia* yeasts which are normal commensals of the skin. It is common in tropical climates and is exacerbated by heavy sweating

1. May present with

- Tinea versicolor is characterised by well defined, irregularly shaped macules (a discoloured flat spot on the skin)
- The macules vary in colour from reddish brown in fair skinned people to hypopigmented lesions in dark skinned people
- The macules are covered with a fine scale and are most commonly found on the upper trunk, neck and shoulders
- Itchiness is usually mild but may be more marked after swimming in salt water, or heavy sweating

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. See [Assessment and examination of skin, hair and nails, page 358](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform a skin scraping for microscopy/mycology if there is doubt about the diagnosis
- Review nutritional status
- Perform physical examination of skin. See [Assessment and examination of skin, hair and nails, page 358](#)

4. Management

- Remove/modify predisposing factors where possible
- Perform a skin scraping for microscopy/mycology if there is a doubt about the diagnosis
- The cheapest, safest and most convenient treatment is selenium sulfide e.g. Selsun® Gold shampoo
 - there are a variety of application schedules e.g. after showering, apply the shampoo liberally to wet skin over and beyond the affected area. This is left on for at least 10 minutes or overnight and then washed off. This is repeated daily for 7 - 10 days⁴⁰
 - note that even after successful treatment, it may take several weeks for new normally pigmented skin to replace the discoloured skin

- recurrence is common
- Alternative treatments⁴⁰:
 - apply econazole 1% foaming solution e.g. Pevaryl® to wet skin and leave overnight for 3 nights and repeat in 1 and 3 months
 - ketoconazole 2% shampoo once daily for 3 - 5 minutes then wash off for 5 days
 - miconazole 2% shampoo once daily for 10 minutes for 10 days
 - notify MO/NP if not responding
 - MO/NP may consider oral treatment with fluconazole. For children consult with specialist

Schedule	Unscheduled	Selenium sulfide shampoo		NON DTP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Shampoo	25 mg/mL (2.5 %)	Topical Apply liberally to wet skin over and beyond the affected area. Leave on 10 minutes or overnight then wash off	Amount as required	7 - 10 days treatment
Provide Consumer Medicine Information: complete course				
Management of associated emergency: consult MO/NP				

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- Or

Schedule	2	Ketoconazole shampoo		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Shampoo	2%	Topical Apply liberally over and beyond the affected area. Leave on 3 - 5 minutes then wash off	Amount as required	Repeat daily for 7 - 10 days
Provide Consumer Medicine Information: complete course				
Management of associated emergency: consult MO/NP				

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40

5. Follow up

- To help prevent recurrence selenium sulfide can be applied 1 or 2 times a month after initial treatment
- See next MO/NP clinic if persistent or recurrent tinea versicolor

6. Referral/consultation

- Consult MO/NP as above

Leprosy (Hansen's Disease) - adult/child

Recommend

- Think of leprosy in any patients with any unexplained peripheral lesion or any chronic skin lesion which fails to respond to 'conventional' treatment
- Because leprosy has a strong social stigma attached, confidentiality is especially important

Background

- Leprosy is caused by *Mycobacterium leprae*. It is a slow developing disease and is transmitted via droplets from the nose and mouth but is not highly infectious
- Leprosy is curable⁴¹

1. May present with

- Skin lesions, nerve pain, numbness and tingling, weakness, ulcers and injuries
- Areas of skin discolouration may appear coppery on dark skin and pink on fair skin
- Limb deformities and chronic ulceration and scarring on hands and feet as a result of trauma to areas with loss of sensation
- Weakness, particularly the small joints in the hands and feet
- Sharp shooting pains in the legs, arms, body and face are rare
- Eye pain and worsening vision
- Lagophthalmos (unable to completely close eyes)
- Loss of eyebrows and lashes

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. Enquire specifically about the presence and duration of lesions, nerve pain, numbness and tingling, weakness, ulcers and injuries, eye pain and worsening vision. Ascertain previous possible exposure to leprosy
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - inspect and palpate the entire skin surface for lesions which can include macules, papules, plaques, nodules and urticaria-like lesions. Patches may appear coppery on dark skin and pink on fair skin. Sometimes the only lesions may be on the buttocks
 - skin lesions
 - good immunity (tuberculoid leprosy) is characterised by:
 - pale patches, never totally white, may be red in light skins, single or few in number, with well demarcated edge, may be a little thickened, anaesthesia to light touch (e.g. with a piece of cotton wool), destruction of hair follicles and loss of sweat and sebaceous glands
 - little or no immunity (lepromatous leprosy) is characterised by:
 - skin lesions are multiple, often a coppery or violaceous colour, no anaesthesia to touch and showing leprosy bacilli on skin smears
 - nerve damage
 - peripheral neuropathy affects most commonly the ulnar nerve, which is thickened, and may be

- tender in the groove behind the elbow. Damage to the ulnar nerve leads to anaesthesia first, then to loss of motor function, then to deformity in the area of the 4th and 5th fingers
- other nerves involved are:
 - posterior tibial: anaesthesia of the sole of the foot
 - common peroneal: foot-drop
 - radial: wrist drop
 - facial: agophthalmus i.e. inability to fully close the eye
 - trigeminal: corneal anaesthesia. Nerve damage affects both sensory and motor functions. Sensation is more often the first symptom
- the nose: lepromatous leprosy
 - mucoid discharge, containing high levels of bacteria
 - ulceration of the mucosa may occur
 - there may be destruction of the septum and adjacent bone
- the eyes: lepromatous leprosy
 - iritis, corneal scarring
- other lesions
 - swelling of infected lymph glands which may breakdown and discharge
 - testicular atrophy

4. Management

- Consult MO/NP
- Untreated acute reactions can cause functional loss that can become irreversible very rapidly, within hours or days
- Multi-drug therapy (MDT) of diagnosed cases is the key to achieving cure in the individual and breaking the cycle of transmission. MDT consists of three medicines - dapsone, rifampicin and clofazimine
- Public Health Unit will provide contact tracing of household/family and provide advice

5. Follow up

- Ensure patient is compliant with medicines. Involve family members as much as possible
- It is vital to teach the patient to avoid injury, mainly burns of the hands and friction damage to the feet due to loss of sensation. Encourage the wearing of suitable footwear
- Ensure the patient receives regular long term follow up. Reinforce to patient and family members that the patient should present if they have any sudden or increasing weakness/numbness or skin problems
- All patients with leprosy require life long follow up

6. Referral/consultation

- Consult MO/NP on all occasions if leprosy is suspected
- ① Leprosy requires immediate notification to the local Public Health Unit - <http://disease-control.health.qld.gov.au/Condition/799/leprosy>

Scabies - adult/child

Recommend

- Inspect all skin surfaces in patients with marked itchiness looking for scabetic lesions
- Provide a second treatment 1 week after first treatment to kill all eggs
- All household/family members and close contacts need to be treated at the same time to avoid re-infestation. Even contacts who do not have any symptoms need to be treated⁴²
- Severe crusted scabies (Norwegian scabies) requires very intensive treatment

Background

- Scabies is caused by a mite that burrows into the skin. An allergic reaction to the presence of the mite is responsible for the signs and symptoms⁴³
- Usually spread by skin to skin contact, although clothing and bedding can be a source of infestation. The mite can live away from the skin for 1 - 2 days or, if near a host e.g. in bed linen, for up to 4 days
- Multiple family members/householders tend to be affected
- Secondary bacterial infection occurs frequently
- Dog scabies is a different species to human scabies and it is very unlikely that dogs play any significant role in maintaining scabies transmission in humans

Related topics

 [Impetigo, page 360](#)

 [Acute post streptococcal glomerulonephritis, page 667](#)

1. May present with

- No signs or symptoms
- As a family member/household contact of primary case
- Marked itchiness
- Excoriations, eczematous eruptions and secondary bacterial infection are the most common skin lesions
- Scabetic lesions are usually small raised itchy nodules that are typically found in the softer hairless skin areas e.g. between fingers and toes, elbows, wrists, genitalia, buttocks, axillae and head in infants
- Burrows, e.g. on hands, are diagnostic of scabies but often difficult to find. They are short and superficial and have a small distal vesicle overlying the site of the female mite
- Crusted (Norwegian) scabies occurs when literally thousands of mites are present rather than the usual 3 - 50. It is not a different species. It is usually associated with immunocompromised, mentally or physically incapacitated people and is highly contagious. The itchiness may be unexpectedly mild

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. See [Assessment and examination of skin, hair and nails, page 358](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note in particular BP, weight, urinalysis

- In recurrent or chronic cases in children secondary bacterial infection can lead to APSGN and ARF/RHD⁴⁴
- Perform physical examination of the skin. See [Assessment and examination of skin, hair and nails, page 358](#)
 - also look for any signs of secondary infection. See [Impetigo, page 360](#)
- Consider skin scraping for fungal elements/scabies

4. Management

- Consult MO/NP if:
 - BP or urinalysis abnormal
 - severe crusted scabies
 - infant < 6 months of age
 - secondary dermatitis develops requiring treatment
- Treat any secondary bacterial infections at the same time. See [Impetigo, page 360](#)
- Permethrin 5% is the treatment of choice⁴³. Although permethrin 5% is not approved for use in children < 6 months of age, this must be balanced against the high morbidity of untreated scabies
- Permethrin 5% can be applied to scratched/broken skin only avoiding open lesions if obvious irritation occurs
- If scabies is confirmed in an infant < 2 months of age consult MO/NP

Schedule	Unscheduled	Permethrin 5% (Lyclear®)		NON DTP
Authorised Indigenous Health Worker, Isolated Practice Area Paramedic and Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Cream 30 g tube	5%	Topical	Approximate requirements for a single application Adult and Child ≥ 12 years up to 1 x 30 g tube Child aged 5 - 12 years ½ of 1 x 30 g tube Child aged 1 - 5 years ¼ of 1 x 30 g tube Infant aged 6 months - 1 year ⅛ of 1 x 30 g tube	Stat Wash off in 8 - 24 hours Repeat treatment in 7 days
Provide Consumer Medicine Information: apply to cool, dry, and clean skin from neck down, rub in thoroughly. In central and northern Australia, in infants and older people, or in the context of a community outbreak of scabies it is important to ensure ALL the body skin is treated, including the face, scalp, head and neck area, avoiding eyes and mouth/mucous membranes. The cream should be applied in the evening, left on overnight and washed off in the morning. Minimum of 8 hours is required. Particular attention should be paid to the groin/perianal area around genitals and anus, between fingers and toes, and creases at the knees, elbows and armpits. Fingernails and toenails should be clipped short and cream rubbed in under the nails with a nail brush if necessary. If hands are subsequently washed with soap and water within 8 hours of application, the permethrin cream should be reapplied. Treatment should be repeated in 7 days to eradicate newly hatched mites Note: a patient cannot adequately apply the cream to all required areas. Safe for breastfeeding women Use in pregnancy: Category B2. Consult MO/NP for advice Management of associated emergency: consult MO/NP				
42,43,45				

- Simultaneous treatment of all family members and close personal contacts is crucial otherwise reinfestation is inevitable
- Permethrin 5% should be left on for at least 8 hours but no longer than 24 hours. For convenience, it could be applied in the evening, left on overnight and washed off the next morning. If, for example, the hands are washed within 8 hours of application the cream should be reapplied
- Inadequate coverage is a frequent cause of treatment failure. Fully supervised treatment of patients and contacts increases the likelihood of cure
- The morning following the overnight application of permethrin 5% clothes and bedding used in the 48 hours prior to treatment should be washed in hot water, heated in the hot cycle of a dryer for 10 minutes or aired in direct sunlight, or kept in a plastic bag for 48 hours. Mattresses should be washed in hot water or left in direct sunlight for a day. This should be done prior to washing the permethrin 5% off so as to avoid reinfestation
- A secondary irritant dermatitis can develop due to retained insect products that may require treatment with topical steroids. Consult MO/NP
- If a school-aged child, the school should be notified. Children with scabies can return to school 24

hours after commencement of treatment

- If Norwegian or crusted scabies is present apply topical permethrin treatment as above on alternate days for a week, then twice weekly until cured. Topical keratolytics e.g. salicylic acid 5% to 10% in sorbolene cream, or lactic acid 5% plus urea 10% in sorbolene cream to reduce scaling. In addition treatment with oral ivermectin is recommended - consult MO/NP. The ivermectin should be given on days 1, 2, 8. If unresolved at day 8, give additional doses on day 9 and 15. If still not resolved give additional dose on day 22 and 29⁴³
- MO/NP may consider ivermectin oral therapy if topical may be difficult

5. Follow up

- Repeat treatment with permethrin 5% in 7 days to eradicate newly hatched mites⁴³
- After topical treatment consider other diagnosis, unidentified source of reinfestation or co-morbid condition (immunocompromised). May require supervised treatment or specialist referral. Oral ivermectin may be required
- Itchiness after treatment is common and can last up to a month or more, especially if nodular scabies is present. This does not indicate treatment failure

6. Referral/consultation

- Consult MO/NP if recurrent or chronic case or crusted (Norwegian) scabies
- See Queensland Health Fact Sheet at: <http://conditions.health.qld.gov.au/HealthConditions/2/Infections-Parasites/101/Parasites/545/Scabies>
- ① Severe crusted (Norwegian) scabies requires notification to the local Public Health Unit as intensive treatment and household decontamination will be required - <http://conditions.health.qld.gov.au/HealthCondition/condition/14/165/558/scabies>

Head lice/nits - adult/child

Recommend

- Treat all family members and close personal contacts simultaneously
- Repeat all head lice treatment 7 days after first treatment⁴⁶
- Wash contaminated combs, brushes and hats in hot water and dry in direct sunlight
- Wet comb hair every day for 10 - 14 days by applying hair conditioner to wet hair and use a fine tooth comb until no lice are found. This has about a 40% success rate⁴⁶
- Applying heat with a hair dryer to small section of hair for 1 - 3 minutes over a period of 30 minutes is more effective in killing eggs than live lice. It is more effective in achieving a cure than wet combing⁴⁷

Background

- Head lice are crawling (*Pediculus capitis*) insects the size of a sesame seed, that live on the scalp but lay eggs (nits) on the hair⁴⁶
- Lice are mainly transmitted by direct head to head contact and possibly by combs, hairbrushes or hats if used within a short period of time
- Hair conditioner on dry hair stuns lice and stops them crawling for about 20 minutes⁴⁶
- Infestation affects all socioeconomic groups

Related topics

 Impetigo, page 360

1. May present with

- Itchy, 'crawling' scalp
- Evidence of white eggs in hair
- Outbreak in school or other facility

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history. See [Assessment and examination of skin, hair and nails, page 358](#)
- Perform physical examination of the scalp and hair:
 - eggs (nits) cemented securely to the hairs may be seen by the naked eye on close inspection of the scalp but may persist for many months after successful treatment
 - finding many nits close to the scalp is more significant
 - mobile lice may also be seen
 - thorough use of a fine toothed comb is a faster and more effective way of finding live lice, especially if thick white hair conditioner can be combed through hair to find lice
- Inspect the nape and occiput of the neck for excoriations and papules - signs of secondary bacterial infection. See [Impetigo, page 360](#)

4. Management

- Treat any secondary bacterial infection at the same time. Permethrin 1% is the chemical treatment of choice⁴⁶ and can be applied to scabbed/broken skin only avoiding open lesions if obvious irritation occurs
- An effective non-chemical method of treatment is:
 - apply sufficient thick white hair conditioner to dry hair to completely cover the scalp and hair from roots to tips. Hair conditioner on dry hair stuns the lice and stops them crawling for about 20 minutes⁴⁶
 - use an ordinary comb to detangle hair and evenly distribute the conditioner
 - divide the hair into sections and comb from roots to tips using a fine tooth head lice comb
 - after each stroke, wipe comb onto a white tissue, checking the comb and tissue for head lice. Comb the whole head, checking for lice
 - put all the tissues into a plastic bag, tie the top and put the bag in a rubbish bin
 - repeat every day until no lice are found over 10 - 14 consecutive days
- Do not apply chemical treatment more than once per week. If three treatments have not worked use the non-chemical method of treatment described above
- Removal of nits after effective chemical treatment is not necessary but may be psychologically important and can be done with a fine tooth head lice comb and thick, white hair conditioner by combing from the roots to the tips
- All family members and close personal contacts should be treated simultaneously
- Contaminated combs, hairbrushes and hats should be washed in hot water or dried in direct sunlight for a day after each use
- It is not necessary to exclude children from school after the initial treatment of head lice⁴⁶

Schedule	Unscheduled	Permethrin 1% (Quellada®)	NON DTP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Lotion	1%	Topical Apply to freshly shampooed hair and scalp whilst hair is still damp. Amount depends on length of hair. Leave for 10 minutes then wash thoroughly with water and towel dry. Use a fine toothed plastic comb to remove nits	Adult and child > 2 months Amount as required	Stat Repeat the treatment after 7 days as treatment will not kill all the eggs (eggs hatch in 7 days)
Provide Consumer Medicine Information: avoid contact with eyes, mouth and inside nose. Complete course. One 10 minute application is usually sufficient to kill lice and the majority of eggs. To ensure complete eradication examine the scalp after 7 to 10 days and reapply if necessary				
Use in pregnancy: Category B2. Consult MO/NP for advice				
Management of associated emergency: consult MO/NP				

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5. Follow up

- Review the patient 7 days after last treatment (eggs hatch in 7 days) as treatment may need to be altered

6. Referral/consultation

- Consult MO/NP if persistent or recurrent head lice
- See Queensland Health Fact Sheet at the Head lice website: www.conditions.health.qld.gov.au/HealthCondition/condition/14/165/351/headlice

Nappy rash - child

Recommend

- Change nappy frequently - at least every 2 hours during the day and as needed overnight⁴⁸
- Use of barrier creams such as Sudocrem[®] (zinc oxide 15.25%) which are available in supermarkets

Background

- Most nappy rash is a simple irritant dermatitis, but there are many causes of nappy rash⁴⁸
- Irritant nappy rash is due to the loss of the epidermal barrier of the skin due to over hydration, friction and exposure to faecal enzymes⁴⁸
- Virtually all cases become colonised with *Candida albicans* (thrush)⁴⁸

Related topics

 [Impetigo, page 360](#)

 [Candidiasis/skin, page 381](#)

1. May present with

- Red, weeping skin rash

- Irritability, especially with nappy changing

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. See [Assessment and examination of skin, hair and nails, page 358](#)
- Perform physical examination of the skin. See [Assessment and examination of skin, hair and nails, page 358](#)
- Look for evidence of skin disease elsewhere e.g. atopic eczema, psoriasis

4. Management

- Consult Child Health Nurse or MO/NP if severe or not improving after simple measures
- Change nappies frequently
- When changing nappy do not use soap. It is best to use a damp cloth and a soap substitute. If using nappy wipes use alcohol free and soap free ones
- Apply a barrier cream such as Sudocrem® (zinc oxide 15.25%)⁴⁸ or zinc and castor oil, which usually has 7.5% zinc to prevent progression
- Avoid plastic pants or nappy liners⁴⁸
- Expose the skin to air wherever feasible
- If there are satellite lesions. See [Candidiasis/skin, page 381](#)
- If there is evidence of secondary bacterial infection. See [Impetigo, page 360](#)

5. Follow up

- If mild, review in one week
- If moderate, review daily initially. Consult Child Health Nurse or MO/NP if not improving

6. Referral/consultation

- Consult Child Health Nurse or MO/NP as above

Foot infection with diabetes

Infection in foot of patient with diabetes

Recommend

- Consult MO/NP or specialist diabetic foot service for any patient who has diabetes and has a foot lesion/infection
- Early treatment with appropriate antibiotics and wound care may prevent the need for the patient with diabetes to be evacuated, hospitalised and undergo an amputation
- Reducing pressure or improving vascularisation is required to heal a diabetic foot ulcer

Background

- Foot infections in patients with diabetes are a serious complication that frequently lead to amputation
- Precipitating causes of foot ulceration and infection include: friction in ill fitting shoes, untreated or self treated callus, foot injuries, burns, corn plaster, nail infections, heel friction when immobile, foot deformities, poor self foot care and awareness of risks, diabetic peripheral neuropathy - sensory loss

Related topics [Diabetes, page 424](#)[Chronic wounds, page 397](#)
[Osteomyelitis/patient with diabetes, page 395](#)**1. May present with**

- Patient with diabetes:
 - foot injury/trauma, signs of infection - swollen, inflamed foot
 - ulcer or wound on foot
- 'Painless' foot injury secondary to diabetic peripheral neuropathy
- Septicaemia

2. Immediate management Not applicable**3. Clinical assessment**

- Obtain a complete patient history including:
 - known or newly diagnosed diabetic peripheral neuropathy or peripheral vascular disease
 - past episodes of foot infections
 - any surgical treatment patient may have received for foot infections, such as amputation
 - measures patient has taken to prevent or manage foot infection(s) such as footwear, managing blood glucose levels, taking medicines/insulin, caring for feet
 - assess usual foot care and footwear practises
 - current medications
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Collect bloods and MC/S for pathology:
 - HbA_{1c}, FBC, CRP, urea, creatinine and GFR, random venous BGL
 - wound swab - microscopy and culture (MC/S) then commence empirical treatment. See [How to collect a wound swab/culture, page 401](#)
- Perform physical examination:
 - inspect all surfaces of the foot and conduct foot assessment
 - check for skin pallor, discolouration, oedema
 - ulcers, cracks between toes, calluses or deformities
 - describe size, location, depth of any lesion(s) or take photo where available and with consent
 - signs of infection if present - redness, swelling, warmth, exudate (colour and odour)
 - assess pulses - dorsalis pedis and posterior tibial
 - assess protective sensation using a monofilament
 - assess groin lymph nodes for enlargement and tenderness if lymph node involvement

4. Management

- Consult MO/NP if/for:
 - systemic toxicity present, metabolic instability, poor observance with therapy or wound care, or poor home support, focal infection evidenced by purulent discharge, surrounding or ascending cellulitis or visible bone
 - limb threatening ischaemia i.e. absent pedal pulses with one or more of the following: pain at rest, gangrene or ischaemic ulcer

- antibiotic order if MRSA is cultured
- For severe cases or if systemically unwell consult MO/NP who may advise:
 - blood cultures, IV cannula, IV antibiotics
 - evacuation and hospitalisation
- Manage hyperglycaemia in consultation with MO/NP and diabetes team, if available. Insulin may be required in the short term to control BGL
- Check footwear and ensure correct fit. Leave footwear off if compromises infected foot
- Encourage rest and elevation of foot
- If deep penetrating ulcer is present or lesion not healing consider osteomyelitis. An x-ray is useful
- Determine in consultation with specialist diabetic foot service type of primary dressing and secondary dressing where required. See [Chronic wounds, page 397](#)
- The most likely organisms to infect a superficial ulcer are *Staphylococci*, *Streptococci* and sometimes anaerobes. Consult MO/NP who may order:
 - for mild to moderate infection with no evidence of osteomyelitis or septic arthritis, use: amoxycillin/clavulanate 875/125 mg bd or cephalexin 500 mg qid plus metronidazole 400 mg bd. If immediate hypersensitivity to penicillin use ciprofloxacin 500 mg bd plus clindamycin 450 mg tds⁴⁹

5. Follow up

- Review the patient daily initially to assess progress and change dressings
- Provide ongoing education on good foot care practises
- Ensure feet are inspected at each visit

6. Referral/consultation

- Consult MO/NP on all occasions
- Refer to Diabetes Educator if available for education on preventing infections
- All presentations must be referred to the high risk foot service or other specialist team for assessment, for pressure relief and long term management

Resources

- <http://www.health.qld.gov.au/caru/networks/docs/sdcn-foot-form-guide.pdf>
- <http://www.health.qld.gov.au/caru/networks/docs/sdcn-foot-form.pdf>
- www.health.wa.gov.au/woundswest/home/

Osteomyelitis in the foot of patient with diabetes

Recommend

- Consult MO/NP/specialist diabetic foot service immediately if a patient with diabetes has suspected osteomyelitis in the foot

Background

- Patient often has a history of diabetic peripheral neuropathy with sensory loss
- The patient with diabetes who has a foot lesion/infection is at risk of having underlying osteomyelitis
- Clinical diagnosis is difficult
- If the ulcer is > 2 x 2 cm or bone is palpable, then osteomyelitis is likely. Further non-invasive testing is not necessary to initiate treatment

Related topics [Diabetes, page 424](#)[Chronic wounds, page 397](#)**1. May present with**

- A foot ulcer, red hot swollen foot, which may be painless
- Inflammation may not be present, osteomyelitis may be an incidental finding on x-ray

2. Immediate management Not applicable**3. Clinical assessment**

- Obtain a complete patient history including:
 - known or newly diagnosed diabetic peripheral neuropathy or peripheral vascular disease
 - past episodes of foot infection(s)
 - surgical treatment received for foot infection(s), such as amputation
 - measures taken to prevent or manage foot infection(s) e.g. footwear, managing blood glucose levels, taking medicines/insulin, foot care
 - assess usual foot care and footwear practises
 - current medications
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Collect bloods and swabs for pathology:
 - HbA_{1c}, FBC, CRP, urea, creatinine and GFR, random venous BGL
 - wound swab - microscopy and culture (MC/S)
- Perform physical examination:
 - inspect all surfaces of the foot and conduct foot assessment
 - note skin pallor, discolouration, oedema, ulcers, cracks between toes, calluses or deformities
 - measure the size, depth of any lesion(s)
 - is bone palpable
 - describe or draw location of lesion or take photo (where available)
 - signs of infection - redness, swelling, warm, exudate (colour and odour)
 - assess pulses - dorsalis pedis and posterior tibial
 - assess protective sensation using a monofilament
- assess if lymph node involvement

4. Management

- Consult MO/NP who may advise:
 - blood cultures
 - IV cannula
 - IV antibiotics
 - evacuation and hospitalisation
- Investigations:
 - white cell count (WCC) may not be elevated
 - erythrocyte sedimentation rate (ESR) may be normal. If > 100 mm/hour highly specific in absence of end stage renal failure or nephrotic syndrome, but insensitive for the diagnosis of osteomyelitis

- CRP - usually > 5 mg/L
- x-ray plain films may be normal for up to 6 weeks
- Treat with antibiotic. Consult MO/NP

5. Follow up

- Follow up patient after discharge from hospital, monitor wound, glycaemic control, nutritional supplements and CRP
- Provide ongoing education on good foot care practises
- Confirm follow up appointment with high risk foot service or other specialist team
- Continue oral antibiotic therapy for 3 - 6 months

6. Referral/consultation

- Consult MO/NP on all occasions
- Refer to Diabetes Educator, if available, for education on preventing infections
- Refer for surgical management

Chronic wounds

Chronic wounds - adult/child

Recommend

- A thorough evaluation of the wound is required
- Underlying diseases or factors contributing to poor wound healing should be assessed and their management optimised
- Diabetic foot wounds should be reviewed regularly (at least twice weekly) and a Podiatrist or specialist high risk foot service/diabetic foot service consulted
- Extreme care must be taken if arterial disease (ischaemia) is suspected due to the risk of lower limb amputation

Background

- Chronic wounds do not go through the phases of wound healing i.e. haemostasis, inflammation, reconstruction and maturation, in an orderly and timely manner
- Chronic wounds are often complicated by underlying co-morbidities and drug therapies
- The primary aim of chronic wound management is to identify and correct the intrinsic and extrinsic factors that inhibit healing
- Wound care should promote moisture balance in wounds with the selection of appropriate dressings and adjuvant therapies e.g., compression therapy

Related topics

 [Diabetes, page 424](#)

[Acute wounds, page 157](#)

[Infection in foot of patient with diabetes, page 393](#)

1. May present with

- Acute wound that is not healing due to:
 - size and nature of wound

- secondary infection
- retained foreign body
- underlying co-morbidities
- Ulcer - an ulcer is a loss of skin integrity. They are a sign of underlying disease, trauma or allergic response. The causes of leg ulcers are multifactorial and their origin may be:
 - arterial - involving arteries and arterioles
 - venous - involving veins and venules
 - mixed etiology e.g. neuroischaemic, arteriovenous
 - neuropathic - due to loss of protective sensation e.g. diabetic
 - lymphoedema
 - pressure injury
- Consider wounds of uncommon etiology
 - cancer (skin cancer, fungating wound)
 - inflammatory conditions e.g. vasculitis
 - less common causes of ulceration e.g. pyoderma gangrenosum, necrobiosis lipoidica diabetorum, mycobacterium ulcerans, meliodiosis

2. Immediate management Not applicable

3. Clinical assessment

- Obtain thorough patient history:
 - relevant medical & surgical history including risk factors: diabetes, smoking history, alcohol use, hypertension, hyperlipidaemia, ischaemic heart disease, cerebrovascular disease, obesity, DVT
 - current medications and allergies
 - likely cause, duration, progression of wound, wound pain, type and frequency of dressing changes, history of wound infection
 - interventions used to manage previous ulcers
 - history of previous ulceration
 - recent investigations e.g. wound swab, biopsy, x-ray, duplex ultrasound scan
 - the patient's nutritional status should be determined
 - perform standard clinical observations
 - blood pressure, height, weight, temperature
 - blood glucose if diabetes suspected or known
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - palpate lower limb pulses (popliteal, posterior tibial and dorsalis pedis)
 - feel for normal skin temperature in foot and lower leg (with back of hand)
 - check for skin quality, presence of hair
 - inspect lower limb oedema

4. Management

- Consult MO/NP regarding need for:
 - optimising management of underlying co-morbidities

- thorough physical examination
- exploration of wound for foreign body or to assess undermining of wound edge, probing of underlying structures or sinus
- need for wound debridement or surgical review
- compression therapy for venous disease. Must have appropriate training in application of compression bandages.
- need for further investigations including imaging or wound biopsy
- antibiotics if clinically infected
- admission to hospital if significant infection is present or patient is systemically unwell
- Determine, in consultation with MO/NP, wound specialist or podiatrist an appropriate dressing regimen. Also use [Guidelines for management of chronic wounds, page 402](#)
- Diabetic foot ulcers must be offloaded to decrease pressure on the wound. Consult with a podiatrist on the most appropriate method of offloading.
- Document dressing type and frequency as well as any other intervention(s)

5. Follow up

- As determined in consultation with MO/NP, wound specialist or podiatrist

6. Referral/consultation

- Consult MO/NP
- For non-healing leg ulcers, the MO/NP may refer the patient to a specialist wound service for advice or to a vascular surgeon for assessment of arterial and/or venous disease
- For diabetic foot ulcers, referral to a podiatrist or specialist high risk foot service/diabetic foot service is required. Diabetes control must also be optimised
- Referral to a Dermatologist may be required

Indicators for the assessment of venous, arterial and neuropathic lower limb ulcers^{1,2}

	Venous ulcer	Arterial ulcer	Neuropathic ulcer
History	Past history of varicose veins +/- DVT, trauma, surgery to leg, or multiple pregnancies. Aching and swelling worse at end of day relieved with leg elevation. History of smoking, diabetes, hypertension, arteriosclerosis, intermittent claudication especially after exertion and leg elevation	History of smoking, diabetes, hypertension, arteriosclerosis, intermittent claudication especially after exertion and leg elevation Patients with neuro ischaemic ulcers may not feel pain	History of numbness, parasthesia, burning, loss of sensation in foot. Common in patients with diabetes mellitis
Location	Between the malleolus and the lower calf. Majority of venous ulcers are located over the medial malleolus	Frequently occurs distally and over bony prominences	Sites of pressure e.g. metatarsal heads, heels and toes
Ulcer bed	Fibrinous material at the ulcer bed with moderate to heavy exudate	The base tissue within the wound is often non viable, pale or discoloured or black or necrotic	Variable depth partial thickness to severe ulcer involving tendon, fascia, joint capsule or bone itself
Appearance	Shallow, irregular margins. Can vary from small to nearly encircling the leg. Margins are either flat or have slight steep elevation	Round or punched out with a sharply demarcated border	Surrounding callus. May be undermined or have a sinus track formation
Infection	Prolonged bacterial infection may be associated with underlying osteomyelitis	Prolonged bacterial infection may be associated with underlying osteomyelitis	Prolonged bacterial infection may be associated with underlying osteomyelitis
Capillary refill time	Normal (< 3 seconds)	A prolonged capillary refilling time (> 4 - 5 seconds)	Normal if no associated arterial disease
Surrounding skin	Pigmented (haemosiderin deposition), oedema, atrophy blanche (white scar formation), indurated (lipodermatosclerosis)	Pale, loss of hair, shiny and atrophic skin, cool feet	Frequently callused
Vascular status	Pulses generally present and palpable	Weak/absent dorsalis pedis or posterior tibialis pulse	Possible bounding pulses

All exuding wounds should have the skin area around the wound protected from maceration by applying Cavilon® wipe or zinc cream. Hydrocolloid sheet window will prevent periwound skin from regular dressing changes. **Not in feet of a patient with diabetes**

Foot wounds in people with diabetes should not be left for more than 3 days without checking/redressing

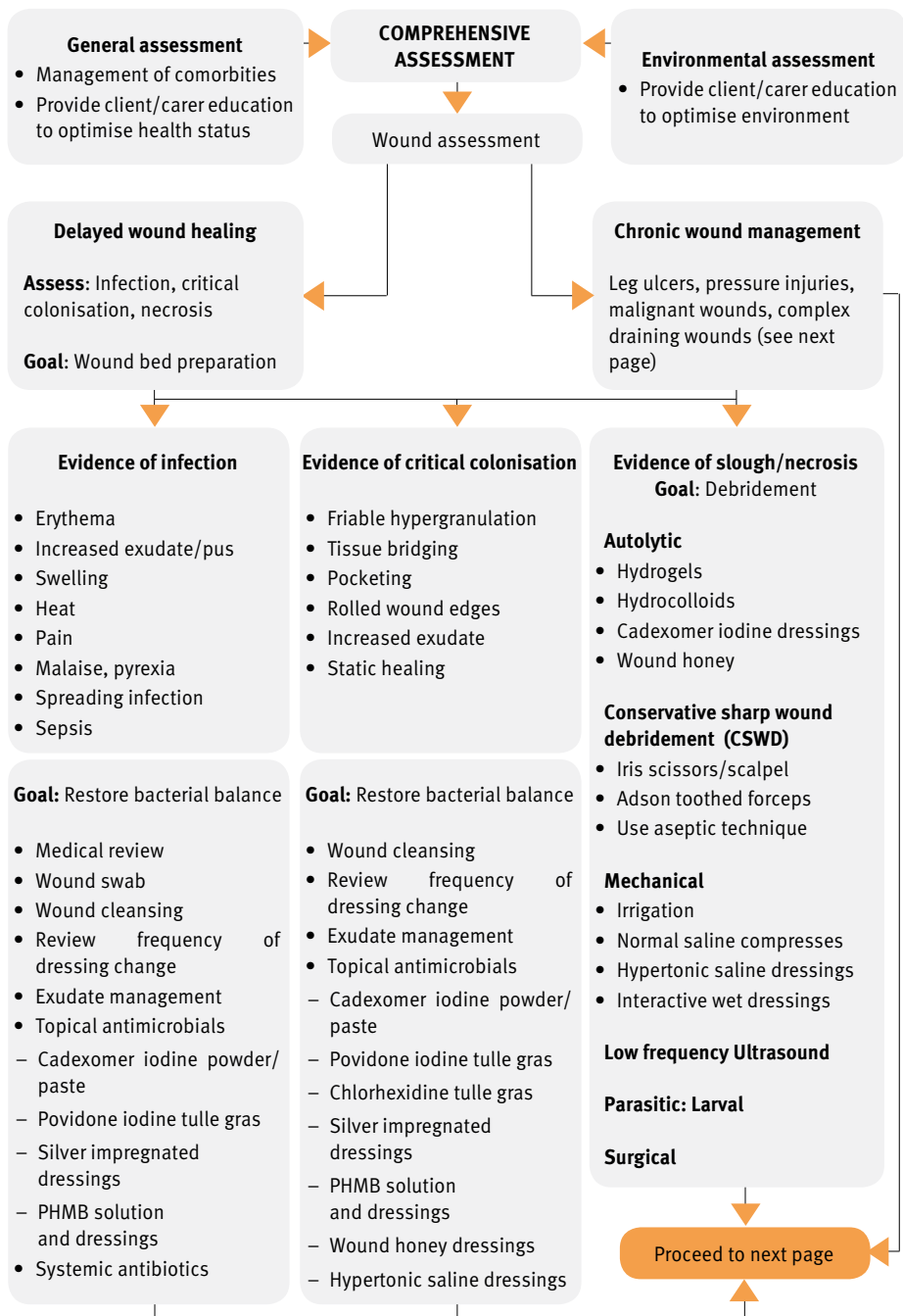
How to collect a wound swab/culture¹

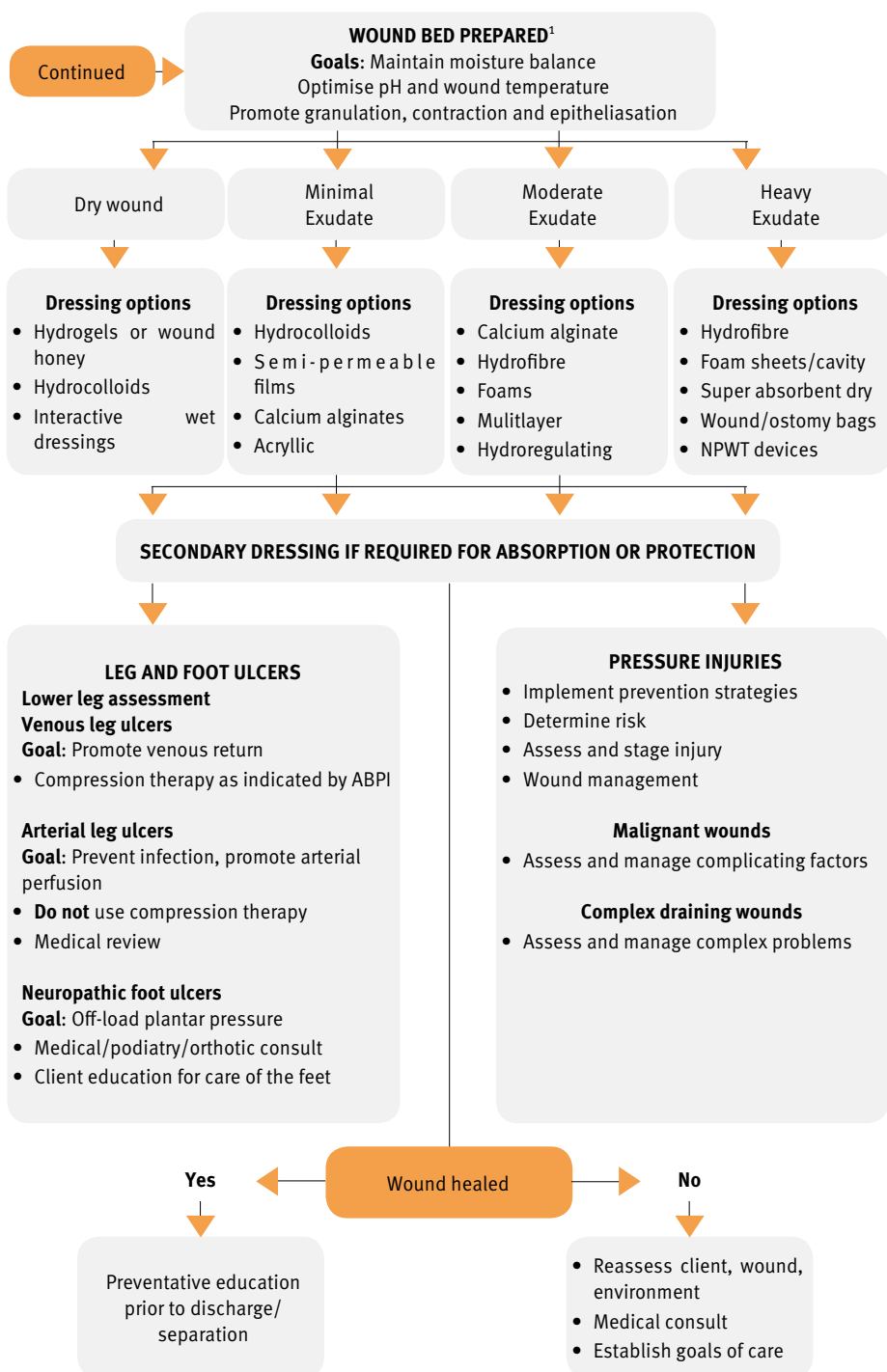
- Clean wound thoroughly with sterile water/sodium chloride 0.9%
- Debride any superficial necrotic tissue
- Rinse the wound thoroughly with sterile water/sodium chloride 0.9%
- Avoid touching the wound, the swab surface or the swab container opening
- Rotate swab over 1 cm area of the wound with sufficient pressure to express fluid from within wound tissue
- Avoid swabbing any necrotic tissue, wound edges or periwound skin
- Ensure swab is saturated with wound exudate
- Place swab in appropriate container - a gel type swab and tube. A dry swab is not appropriate and a glass slide is not essential

Dressings for optimal moisture balance¹

Dry Wounds	Minimal Exudate	Moderate Exudate	Heavy Exudate
• Hydrogels or wound honey • Hydrocolloids • Interactive wet dressings	• Hydrocolloids • Semi-permeable films • Calcium alginates • Acrylic	• Calcium alginate • Hydrofibre • Foams • Multilayer • Hydroregulating	• Hydrofibre • Foam sheets/cavity • Super absorbent dry • Wound/ostomy bags • NPWT devices

Guidelines for management of chronic wounds





Communicable diseases

Acute hepatitis A - adult/child

Recommend

- Vaccinate according to National Immunisation Program schedule and advise avoidance of risk factors
- Perform contact tracing

Background

- Transmission is by the faecal-oral route, from contaminated food, rarely through sexual contact in people who participate in sexual practises that involve oral - anal contact
- Incubation period is between 2 weeks and 6 weeks (average 28 - 30 days). Hepatitis A is self limiting with a duration around 6 months and never becomes chronic
- The virus is excreted in the stools for two weeks before illness is apparent and continues for up to one week after onset of jaundice
- Two cases constitute an outbreak

Related topics

 [Immunisation program, page 750](#)

1. May present with

- No symptoms
- Clinical presentation:
 - fever, malaise, anorexia, nausea and abdominal discomfort
 - skin and whites of the eyes look yellow (jaundice)
 - dark urine (bilirubinuria)
 - faeces (stools) can be pale-coloured
- Laboratory findings
 - detection of anti-hepatitis A IgM, in the absence of recent vaccination
 - detection of hepatitis A virus by nucleic acid testing

2. Immediate management Not applicable

3. Clinical assessment

- Obtain comprehensive patient history - specifically ask about contact with others with the disease, environmental circumstances, history of travel and medicines
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination

4. Management

- Consult MO/NP. Will require evacuation/hospitalisation if severe illness
- Treatment of hepatitis A is supportive and symptomatic

- Diagnosis is confirmed with serology for hepatitis A
- Take bloods for hepatitis A serology and liver function tests (LFTs)
- Bed rest is advised if the patient has jaundice
- Avoid alcohol and paracetamol¹ during acute illness
- Educate the patient and household contacts on transmission of the virus and the appropriate preventive measures. See hepatitis A fact sheet in the Health conditions directory: <http://conditions.health.qld.gov.au/HealthCondition/condition/14/217/72/hepatitis-a>
- Food handlers and child care workers with proven or presumed hepatitis A should not work for at least 1 week from the onset of jaundice
- Active immunisation should occur if appropriate in consultation with MO/NP or Public Health Unit

5. Follow up

- Review in 24 hours and repeat education
- Contact tracing should occur as early as possible in consultation with MO/NP or Public Health Unit

6. Referral/consultation

- Consult MO/NP on all occasions jaundice detected or hepatitis A is suspected
- ①Hepatitis A requires notification to the local Public Health Unit by telephone, based on pathological diagnosis - <http://conditions.health.qld.gov.au/HealthCondition/condition/14/217/72/hepatitis-a>
- See NSW fact sheet at: <http://www.health.nsw.gov.au/Infectious/factsheets/Factsheets/hepatitis-a.pdf>

Acute hepatitis B - adult/child

Recommend

- Screen all patients who have tested positive for a STI for hepatitis B and C
- Provide vaccination to prevent hepatitis B
- Do not share razors, toothbrushes, nail clippers or similar items

Background

- Transmission occurs by three major routes:
 - percutaneous (primarily IV drug use) and permucosal exposure
 - vertical (mother to child)
 - sexual transmission
- Chronic hepatitis B is common in Aboriginal and/or Torres Strait Islander communities and some migrant populations in Australia, but acute hepatitis B is rare
- If patient has a positive hepatitis B surface antigen (HBsAg) it should be repeated in 6 months to check for chronic status. For management of patients with chronic hepatitis B see *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>

Related topics

 Immunisation program, page 750

Acute hepatitis C, page 407

1. May present with

- No symptoms
- Clinical presentation:
 - pain in the abdomen, nausea, vomiting, weakness and tiredness
 - loss of appetite, general aches and pains, fever
 - arthralgia and/or myalgia
 - rash
 - skin and whites of the eyes look yellow (jaundice)
 - dark urine (bilirubinuria)
 - faeces (stools) can be pale-coloured
- Laboratory findings:
 - positive HBsAg in a patient with a negative test in last 2 years
 - positive HBcIgM in patient with no documented hepatitis B virus infection
 - detection of hepatitis B virus PCR/NAT (nucleic acid testing) with no documented hepatitis B virus infection

2. Immediate management Not applicable

3. Clinical assessment

- Obtain comprehensive patient history - specifically ask:
 - about possible mode of transmission (45 - 180 days) and possible contacts
 - hepatitis B vaccination history
- Medication history including: regular and occasional, prescription and non-prescription, complementary or bush medicine
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination

4. Management

- Consult MO/NP. Will require evacuation/hospitalisation if severe illness
- Take blood for pathology testing - test for anti-HBc, HBsAg and anti-HBs:
 - if anti-HBs negative then consider need for hepatitis immunisation
 - if anti-HBc positive and HBsAg positive, then ensure testing for HBeAg
- Send blood for liver function tests (LFTs)
- Diagnosis is confirmed with serology for hepatitis B
- Advise rest
- Drink plenty of water
- Avoid fatty/oily foods²
- Avoid alcohol and paracetamol² during acute illness
- Educate the patient and household contacts on transmission of the virus and the appropriate preventive measures
- See hepatitis B fact sheet at: <http://conditions.health.qld.gov.au/HealthCondition/condition/14/217/74/hepatitis-b>

5. Follow up

- Review in 24 hours and repeat education
- Perform contact tracing (contacts up to 180 days) in consultation with MO/NP or Public Health Unit
- Give immunoglobulin and hepatitis B vaccine to contacts as per the current edition of *The Australian Immunisation Handbook*

6. Referral/consultation

- Consult MO/NP on all occasions if jaundice detected and hepatitis B is suspected
- ① Hepatitis B requires notification to the local Public Health Unit based on pathological diagnosis - <http://disease-control.health.qld.gov.au/Condition/773/hepatitis-b>
- Specialist/Liver clinic where applicable
- See fact sheet at: <http://conditions.health.qld.gov.au/HealthCondition/condition/14/217/74/hepatitis-b>
- See NSW fact sheet at: http://www.health.nsw.gov.au/Infectious/factsheets/Pages/hepatitis_c.aspx

Acute hepatitis C - adult/child

Recommend

- Screen all patients who have tested positive for a STI for hepatitis B and C
- In any patient with antibodies to hepatitis C must have a hepatitis C PCR test and LFTs performed to determine whether or not the infection is still present
- Do not share razors, toothbrushes, nail clippers or similar items

Background

- Acute hepatitis C is uncommon, most patients have chronic disease
- Patients with positive hepatitis C RNA should have a repeat test in 3 months to check for chronic infection
- 2 or more cases is considered an outbreak³

Related topics

[Acute hepatitis A, page 404](#)

[Acute hepatitis B, page 405](#)

1. May present with

- No symptoms
- Clinical presentation:
 - jaundice
 - anorexia
 - nausea
 - lethargy
 - upper abdominal pain - uncommon in acute hepatitis C
- Laboratory findings:
 - detection of anti-hepatitis C antibody
 - detection of hepatitis C virus by nucleic acid testing

2. Immediate management Not applicable

3. Clinical assessment

- Obtain comprehensive patient history. Specifically ask about:
 - the possibility of contact with others with the disease
 - medication history including: regular and occasional, prescription and non-prescription, complementary or bush medicine
 - alcohol use
 - IV drug use
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - urinalysis for bilirubin or urobilinogen
- Perform physical examination:
 - inspect for jaundice
 - palpate the abdomen for a tender/enlarged liver

4. Management

- Consult MO/NP. Will require evacuation/hospitalisation if severe illness
- Diagnosis is confirmed with serology
- Send blood for hepatitis C PCR, LFTs, HIV and hepatitis A serology, HBsAg, HBcAb, HBsAb
- Bed rest is advised if the patient has jaundice
- Avoid alcohol and paracetamol⁴ during acute illness
- Vaccinate against hepatitis A and B
- Educate the patient and household contacts on transmission of the virus and the appropriate preventive measures

5. Follow up

- Review in 24 hours and repeat education
- Review at next MO/NP clinic
- Perform contact tracing (contacts up to 180 days) in consultation with MO/NP or Public Health Unit

6. Referral/consultation

- Consult MO/NP on all occasions jaundice detected or hepatitis C is suspected
- Referral to Specialist/Liver clinic where applicable
- See fact sheet at: <http://conditions.health.qld.gov.au/HealthCondition/condition/14/217/75/hepatitis-c>
- See NSW fact sheet at: http://www.health.nsw.gov.au/Infectious/factsheets/Pages/hepatitis_c.aspx

Ross River Fever and Barmah Forest Virus - adult/child

Background

- Ross River Fever and Barmah Forest Virus are two similar viral illnesses transmitted by mosquitoes and characterised by fever, rash and joint pains
- They can occur in epidemics associated with proliferation of mosquitoes
- The incubation period is between 3 - 11 days for Ross River Fever, 7 - 10 days for Barmah Forest Virus
- Ross River Fever does cause significant arthralgia for several months in a number of patients, most usually recover in 4 - 7 months

Related topics

 [Upper respiratory tract infection, page 294](#)

1. May present with

- Common viral symptoms - fever, chills, headache, loss of appetite, nausea and malaise
- There may also be preceding URTI symptoms - nasal discharge, sore throat, cough
- Joint symptoms of pain and stiffness - any joint may be affected though most commonly the ankles, knees, fingers, wrists and elbows, tenderness of the palms and soles
- Joint swelling in more severe cases
- Rash - may or may not be present, transient, usually maculopapular and not itchy

2. Immediate management Not applicable

3. Clinical assessment

- Obtain complete patient history
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Inspect and palpate joints for swelling, heat and redness

4. Management

- Consult MO/NP who may advise:
 - taking blood for viral serology (state which virus testing for on request form)
 - non-steroidal anti-inflammatory drug (NSAID) to relieve symptoms

5. Follow up

- Serology may need to be repeated in 14 days to confirm diagnosis
- See next MO/NP clinic
- Prevention: take precautions against being bitten by mosquitoes

6. Referral/consultation

- Consult MO/NP on all occasions of suspected Ross River Fever or Barmah Forest Virus
- See fact sheet for Ross River Virus at: <http://disease-control.health.qld.gov.au/Condition/746/ross-river-virus>
- See fact sheet for Barmah Forest Virus at: <http://disease-control.health.qld.gov.au/Condition/717/>

barmah-forest-virus-arbovirus-infection

- See NSW fact sheets at: <http://www.health.nsw.gov.au/Infectious/factsheets/Pages/ross-river-fever.aspx> and <http://www.health.nsw.gov.au/Infectious/factsheets/Pages/barmah-forest-virus.aspx>

Dengue fever - adult/child

Recommend

- Reduce the risk of dengue by:
 - getting rid of mosquito breeding sites around the home where water may collect such as pot plant saucers, palm fronds⁵
 - avoid getting bitten - if a person has dengue fever, mosquitoes that bite them may pass dengue onto other people
- A blood test is needed to confirm suspected dengue. See Management

Background

- Clinical features may vary from an undifferentiated febrile illness to the classical presentation as set out below
- There are four serotypes - all serotypes may cause severe dengue, but repeat infection with a different serotype increases the risk. The risk of severe disease is greater in children
- The mosquito that transmits dengue is *Aedes aegypti*, a day-biting mosquito that lives around people's houses
- One or more confirmed cases of locally acquired dengue is considered an outbreak

1. May present with

- Mild febrile illness
- Classical presentation includes:
 - sudden onset of fever lasting 2 - 7 days
 - intense headache, especially behind the eyes
 - muscle and joint pain
 - unpleasant metallic taste in mouth
 - loss of appetite
 - vomiting and/or diarrhoea and abdominal pain
 - flushed skin on face and neck and skin rash as fever subsides
 - rash on arms and legs, severe itching, peeling of skin and hair loss
 - minor bleeding of nose and gums and heavy menstrual periods
 - extreme fatigue

Severe dengue

- Dengue with any of the following:
 - low blood pressure (shock)
 - fluid accumulation in lungs with respiratory distress (pulmonary oedema)
 - severe bleeding
 - severe organ involvement - liver (AST/ALT > 1000 on blood tests), brain (altered level of consciousness), heart and other organs

2. Immediate management

- If signs and symptoms of severe dengue consult MO/NP
- These patients will require IV access, fluids and evacuation/hospitalisation

3. Clinical assessment

- Complete patient history - ask about travel especially overseas and past history of dengue
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Inspect skin for rashes, palpate joints for pain/swelling, lymph nodes (lymphadenopathy), abdomen for tenderness/enlarged liver (hepatomegaly)

4. Management

- Consult MO/NP
- Take blood for:
 - FBC (low white cells and platelets are common)
 - Dengue serology - after at least 5 days following onset of symptoms
 - NS1 antigen (a rapid test) - all patients up to 9 days following onset of symptoms
 - Dengue PCR (direct detection of virus) - during first 5 days of illness
- Encourage oral fluids
- Wear insect repellent during the day
- Spray under furniture/beds with surface spray to help kill mosquitoes
- Give paracetamol for fever, aches and pains. **Do not use aspirin, methyl salicylate (found in some topical pain relief preparations) and other NSAID e.g. Ibuprofen as they can lead to bleeding⁶**
- See [Simple analgesia pull out](#)

5. Follow up

- Review the next day, consult MO/NP if deteriorating
- See at next MO/NP clinic
- Instruct to re-present if there is any deterioration particularly if there are any signs of bleeding or other signs of severe dengue
- Prevention: by avoiding being bitten and eradicating breeding sites⁷
- See Management

6. Referral/consultation

- Consult MO/NP on all suspected cases of dengue
- ① Dengue requires notification to the local Public Health Unit based on a provisional and/or pathological diagnosis - <http://disease-control.health.qld.gov.au/Condition/692/dengue>
- See Queensland Health Fact Sheet at: <http://conditions.health.qld.gov.au/HealthCondition/condition/14/217/284/dengue>
- See NSW fact sheet at: www.health.nsw.gov.au/Infectious/factsheets/Factsheets/dengue.pdf

Chronic conditions

Secondary prophylaxis for acute rheumatic fever (ARF)

Recommend

- Guidelines state for benzathine penicillin to be given every 21 – 28 days. An injection every 21 days is recommended for high risk patients¹ i.e. those:
 - with moderate or severe carditis, or a history of valve surgery, who have demonstrated good adherence to less frequent injections
 - who have had a confirmed breakthrough ARF despite full adherence to a 28 day injection regime
- The *Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease* (2nd edition) 2012¹ refer to benzathine penicillin as benzathine penicillin G (BPG) these are the same

1. May present with

- History of acute rheumatic fever (ARF)
- Diagnosis of rheumatic heart disease (RHD)

2. Immediate management

- Acute presentation. See [Acute rheumatic fever, page 672](#)

3. Clinical assessment

- Check and complete care items on the patient's rheumatic fever and rheumatic heart disease care plan

4. Management

- Prior to benzathine penicillin injection delivery discuss with patient:
 - any medication allergies
 - any problems following previous benzathine penicillin injections
 - preferred site to receive injection (thigh or buttocks)
- Administer benzathine penicillin injection as per current medication order. Guidelines state for benzathine penicillin to be given every 21 – 28 days. An injection every 21 days is recommended for high risk patients i.e. those:
 - with moderate or severe carditis, or a history of valve surgery, who have demonstrated good adherence to less frequent injections
 - who have had a confirmed breakthrough ARF despite full adherence to a 28 day injection regime
- As an option for analgesia for regular administration of benzathine penicillin nitrous oxide can be administered
- The duration of secondary prophylaxis is a specialist clinical decision based on a number of individual and environmental factors. Prophylaxis should only be ceased by a Specialist MO

Schedule	4	50% Nitrous oxide and 50% oxygen (Entonox [®])		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic on the oral or written instruction of MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Premix Gas (clear)	50% nitrous oxide mixed with 50% oxygen	Inhalation self administered	Adults and children Titrated according to requirements	As required
Provide Consumer Medicine Information: self-administered by patient under supervision - only the patient to hold the mouthpiece or mask. Breathe deeply at normal rate. Advise the patient that it may make them feel nauseous and light-headed				
Note: monitor patient for level of sedation, airway, breathing. Caution in the presence of Vitamin B12 deficiency				
Management of associated emergency: remove Entonox [®] . Consult MO/NP. See Unconscious/altered level of consciousness, page 52				

10,11,12

Schedule	4	Benzathine penicillin (Bicillin LA®)		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may administer on the oral or written instruction of a MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Pre-filled syringe	900 mg	IM	Child < 20 kg 450 mg Adult and child ≥ 20 kg 900 mg	As ordered by MO/NP
Provide Consumer Medicine Information: patients should report development of diarrhoea immediately to their health professional. Tell your health professional if you get severe pain in the muscle where the injection was given. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillin. If the patient develops severe diarrhoea contact the MO/NP immediately. Prolonged use of penicillins may lead to the development of oral candidiasis				
Contraindication: in patients with a history of hypersensitivity to penicillin. Be aware of cross-reactivity in patients with allergy to carbapenems and/or cephalosporins				
Use in pregnancy: Category A				
Administration tips: see Administration tips for benzathine penicillin (Bicillin LA) and procaine penicillin, page 768				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

3,4,5,9

- If intramuscular route not possible, has resulted in significant bleeding or is refused give phenoxymethylpenicillin

Schedule	4	Phenoxymethylpenicillin		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may administer on the oral or written instruction of a MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet Capsule	250 mg 500 mg	Oral	Adult and child 250 mg bd	As ordered by MO/NP
Suspension	250 mg/5 mL			
Provide Consumer Medicine Information: should be taken on an empty stomach, ½ to 1 hour before meals. Patients should report development of diarrhoea immediately to their health professional. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillin. If the patient develops severe diarrhoea contact the MO/NP immediately. Prolonged use of penicillins may lead to the development of oral candidiasis. Emphasise the consequences of missed doses of oral secondary prophylaxis antibiotics. Monitor the adherence to the regime carefully				
Contraindication: in patients with a history of hypersensitivity to penicillin. Be aware of cross-reactivity in patients with allergy to carbapenems and/or cephalosporins				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

1,6,9

1,6,9

- If allergic to penicillin, give erythromycin

Schedule	4	Erythromycin		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may administer on the oral or written instruction of a MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg	Oral	Adult and child 250 mg bd	As ordered by MO/NP
Suspension	200 mg/5 mL			
Provide Consumer Medicine Information: best taken on an empty stomach – either 1 hour before or 2 hours after a meal, unless the erythromycin is causing stomach upset in which case take with food. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: emphasise the consequences of missed doses of oral secondary prophylaxis antibiotics. Monitor the adherence to the regime carefully				
Contraindication: macrolide hypersensitivity, severe hepatic impairment. Use with caution in patients with Myasthenia gravis. Contraindication/precaution with concurrent treatment with medicines that interact with erythromycin				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

1

5. Follow up

- Fill out injection card
- Complete register
- Discuss strategies to ensure patient returns for next injection

6. Referral/consultation

- For ongoing assistance with secondary prophylaxis contact the RHD Register and Control Program at ArfRhdRegister@health.qld.gov.au or ☎ 1300 135 854
- *Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease* (2nd edition) 2012. Available at www.rhdaustralia.org.au/
- See the current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>



Chronic asthma - adult/child

Recommend

- Promote the avoidance of trigger factors along with medication management for prevention and treatment with a goal of no regular wheeze or cough

Background

- Asthma in children differs from asthma in adults in clinically important aspects, which include the patterns of asthma, natural history and anatomical factors. The pattern and severity of asthma in childhood vary widely⁷

Related topics

[Acute asthma, page 81](#)

1. May present with

- Diagnosis of asthma

2. Immediate management See [Acute asthma, page 81](#)

3. Clinical assessment

- Check and complete care items on asthma care plan

4. Management

- Prior to supply of medicines discuss with patient, any medication allergies, inhaler technique, smoking and passive smoking (if applicable), possible problems taking medicines
- Supply medicines according to MO/NP order

Schedule	3 and 4	Respiratory medicines		DTP IHW
Authorised Indigenous Health Worker supply on MO/NP instruction if less than 6 months since last medical consultation				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet/Inhaler/ Nebules	As ordered by MO/NP	Oral/inhalation	As ordered by MO/NP	As ordered by MO/NP
Inhalers - relievers		Inhalers - preventers	Inhalers - combinations	Tablets for asthma
• Eformoterol* • Ipratropium bromide • Salbutamol • Salmeterol* • Terbutaline		• Beclomethasone • Budesonide • Ciclesonide • Cromoglycate • Fluticasone • Nedocromil	• Budesonide/eformoterol • Fluticasone/salmeterol • Fluticasone furoate/ vilanterol	• Montelukast • Prednisolone • Theophylline
Note: *Long-acting beta-agonist (LABA) monotherapy not recommended as a reliever- recommended to use in combination with an inhaled corticosteroid (ICS) as a preventer ⁸				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

5. Follow up

- Complete Asthma Action Plan
- Further follow up see the current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual> or local protocols if outside Queensland

6. Referral/consultation

- All children and adolescents with asthma should be reviewed by an MO/NP
- Children and adolescents with severe asthma require specialist referral



Chronic obstructive pulmonary disease (COPD) - adult

Related topics

- [Acute asthma, page 81](#)
- [Pneumonia, page 300](#)

[Breathlessness, page 91](#)

1. May present with

- Diagnosis of COPD

2. Immediate management

- See [Breathlessness, page 91](#)

3. Clinical assessment

- Check and complete care items on COPD patient care plan

4. Management

- Prior to supply of medicines discuss with patient:
 - any medication allergies
 - inhalation techniques
 - cessation of smoking (if applicable). See Smoking cessation clinical pathway available at www.health.qld.gov.au/caru/pathways/docs/smoking-pathway.pdf
 - possible problems taking medicine
- Supply medicines according to MO/NP order

Schedule	3 and 4	Respiratory medicines		DTP IHW
Authorised Indigenous Health Worker supply on MO/NP instruction if less than 6 months since last medical consultation				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet/inhaler	As ordered by MO/NP	Oral/inhalation	As ordered by MO/NP	As ordered by MO/NP
Inhalers - relievers		Inhalers - preventers	Inhalers - combinations	Tablets for COPD
• Ipratropium bromide • Salbutamol • Terbutaline		• Acclidinium • Beclomethasone • Budesonide • Eformoterol • Fluticasone • Glycopyrronium • Indacaterol • Indacaterol/ glycopyrronium • Salmeterol • Tiotropium bromide • Umeclidinium bromide	• Budesonide/eformoterol • Fluticasone/salmeterol • Fluticasone furoate/ vilanterol	• Prednisolone • Theophylline
Provide Consumer Medicine Information: long acting Beta agonists must be used with inhaled steroids because if used alone in patients with co-existing asthma may increase morbidity and mortality ²				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

5. Follow up

- Further follow up see the current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual> or local protocols if outside Queensland

6. Referral/ consultation

- Pulmonary rehabilitation program

Hypertension - adult

Related topics

 [Acute hypertensive crisis, page 108](#)

 [Pre-eclampsia, page 500](#)

1. May present with

- Diagnosis of hypertension

2. Immediate management

- If systolic BP ≥ 200 mmHg and/or diastolic BP ≥ 130 mmHg. See [Acute hypertensive crisis, page 108](#)

3. Clinical assessment

- Check and complete care items on hypertension care plan

4. Management

- Prior to supply of medicines discuss with patient any medication allergies or possible problems with taking medicines
- If pregnant See [Pre-eclampsia, page 500](#) and contact MO/NP
- Supply medicine according to MO/NP order

Schedule	3 and 4	Antihypertensives		DTP IHW
Authorised Indigenous Health Worker supply on MO/NP instruction if less than 6 months since last medical consultation				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet/ capsule/ patch/spray	As ordered by MO/NP	Oral Topical Sublingual	As ordered by MO/NP	As ordered by MO/NP
Beta-Blockers		Angiotensin converting enzyme inhibitor (ACEI)	Calcium Channel Blockers	Diuretics
• Atenolol • Carvedilol • Labetalol • Metoprolol • Nebivolol • Oxprenolol • Pindolol • Propranolol		• Captopril • Enalapril • Fosinopril • Lisinopril • Perindopril • Quinapril • Ramipril • Trandolapril	• Amlodipine • Diltiazem • Felodipine • Lercanidipine • Nifedipine • Verapamil	• Amiloride • Chlorthalidone • Frusemide • Hydrochlorothiazide • Hydrochlorothiazide + triamterene • Indapamide
Angiotensin receptor blockers (ARB)		Others		
• Candesartan • Eprosartan • Irbesartan • Losartan • Olmesartan • Telmisartan • Valsartan		• Clonidine • Glyceryl trinitrate • Hydralazine • Isosorbide mononitrate • Methyldopa • Minoxidil • Moxonidine • Prazosin • Terazosin		
Provide Consumer Medicine Information				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

5. Follow up

- See the current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual> or local protocols if outside Queensland

6. Referral/consultation

- See the current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual> or local protocols if outside Queensland

Chronic kidney disease (CKD) - adult

Recommend

- Consider essential screening of 'at risk' population groups as kidney disease and kidney failure are often asymptomatic
- Treat all patients with Type 1 or Type 2 diabetes mellitus complicated by microalbuminuria or overt nephropathy with an ACE inhibitor (ACEI), independent of BP and GFR

Related topics

 [Diabetes, page 424](#)

 [Urinary tract infection, page 355](#)

 [Urinary tract infection in pregnancy, page 510](#)

 [Hypertension, page 418](#)

 [Acute post streptococcal glomerulonephritis, page 667](#)

1. May present with

- Diagnosis of chronic kidney disease (CKD)

2. Immediate management Not applicable

3. Clinical assessment

- Check and complete care items on CKD patient care plan according to stage of kidney disease

4. Management

- Prior to supply of medicines discuss with patient any medication allergies or possible problems taking medicines
- Supply medicine according to MO/NP order

Schedule	2,3 and 4	Renal medicines		DTP IHW
Authorised Indigenous Health Worker supply on MO/NP instruction if less than 6 months since last medical consultation				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet/Capsule/ Pre-filled syringe	As ordered by MO/NP	Oral/Subcut	As ordered by MO/NP	As ordered by MO/NP
Beta-Blockers		Calcium channel blockers	Phosphate binders (bones)	Angiotensin converting enzyme inhibitor (ACEI)
• Atenolol • Bisoprolol • Carvedilol • Labetolol • Metoprolol • Nebivolol • Oxprenolol • Pindolol • Propranolol		• Amlodipine • Diltiazem • Felodipine • Lercanidipine • Nifedipine • Verapamil	• Aluminium hydroxide • Calcium carbonate • Lanthanum • Magnesium aspartate • Sevelamer • Sucroferric oxyhydroxide	• Captopril • Enalapril • Fosinopril • Lisinopril • Perindopril • Quinapril • Ramipril • Trandolapril
Angiotensin receptor blockers (ARB)		Diuretics	Statins	Fibrates
• Candesartan • Eprosartan • Irbesartan • Losartan • Olmesartan • Telmisartan • Valsartan		• Frusemide • Hydrochlorothiazide • Hydrochlorothiazide + triamterene • Indapamide	• Atorvastatin • Pravastatin • Rosuvastatin • Simvastatin	• Fenofibrate • Gemfibrozil
Platelet Inhibitors		Erythropoietin agonists	Others	
• Aspirin • Clopidogrel		• Epoetin alfa • Epoetin beta • Darbepoetin alfa • Methoxy polyethylene glycol epoetin Beta	• Calcitriol • Cinacalcet • Cholecalciferol • Ezetimibe • Glyceryl trinitrate • Isosorbide mononitrate	
Provide Consumer Medicine Information				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

5. Follow up

- Complete CKD care plan according to current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual> or local protocols if outside Queensland

6. Referral/consultation

- According to care plan items on chronic kidney disease care plan

Chronic heart disease (CHD) - adult

Recommend

- See *Guidelines for Warfarin Management in the Community* available at: <https://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/medicines/warfarin-guidelines.pdf> together with the patient's non-inpatient rural and remote warfarin chart

1. May present with

- Diagnosis of chronic heart disease (CHD). **Note:** patient may be on warfarin

2. Immediate management Not applicable

3. Clinical assessment

- Check and complete care items on chronic heart disease care plan

4. Management

- Prior to supply of medicines discuss with patient any medicine allergies and any problems patient has taking medicines
- Supply medicine according to MO/NP order

Schedule	2, 3 and 4	Cardiac medicines		DTP IHW
Authorised Indigenous Health Worker supply on MO/NP instruction if less than 6 months since last medical consultation				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet/Spray Capsule/Patch	As ordered by MO/NP	Oral/Sublingual/ Transdermal	As ordered by MO/NP	As ordered by MO/NP
Beta-Blockers		Calcium channel blockers	Antiarrhythmics	Angiotensin converting enzyme inhibitor (ACEI)
• Atenolol • Bisoprolol • Carvedilol • Labetolol • Metoprolol • Nebivolol • Oxprenolol • Pindolol • Propranolol		• Amlodipine • Diltiazem • Felodipine • Lercanidipine • Nifedipine • Verapamil	• Amiodarone • Digoxin • Flecainide • Sotalol	• Captopril • Enalapril • Fosinopril • Lisinopril • Perindopril • Quinapril • Ramipril • Trandolapril
Angiotensin receptor blockers (ARB)		Diuretics	Statins	Fibrates
• Candesartan • Eprosartan • Irbesartan • Losartan • Olmesartan • Telmisartan • Valsartan		• Bumetanide • Chlorthalidone • Ethacrynic acid • Eplerenone • Frusemide • Hydrochlorothiazide + triamterene • Spironolactone	• Atorvastatin • Pravastatin • Rosuvastatin • Simvastatin	• Fenofibrate • Gemfibrozil
Platelet inhibitors		Anticoagulants		Others
• Aspirin • Clopidogrel • Ticagrelor		• Rivaroxaban		• Ezetimibe • Glyceril trinitrate • Isosorbide mononitrate • Isosorbide dinitrate • Ivabradine • Nicorandil • Perhexiline
Provide Consumer Medicine Information				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

5. Follow up

- Further follow up according to current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual> or local protocols if outside Queensland

6. Referral/consultation

- According to care plan items on CHD care plan

Diabetes - adult/child

Related topics

 [Hypoglycaemia, page 78](#)

[Diabetes in pregnancy, page 491](#)

[Infection in foot of patient with diabetes, page 393](#)

[Osteomyelitis/patient with diabetes, page 395](#)

[Diabetic ketoacidosis, page 76](#)

1. May present with

- Diagnosis of impaired glucose tolerance (IGT), Type 1 or Type 2 diabetes mellitus

2. Immediate management

- See [Hypoglycaemia, page 78](#) or [Diabetic ketoacidosis, page 76](#)

3. Clinical assessment

- Check and complete care items on diabetes/diabetes in pregnancy/high risk foot care plan(s)

4. Management

- Prior to supply of medicines discuss with patient any medicine allergies and any problems patient has taking medicines
- Supply medicine according to MO/NP order

Schedule	4	Diabetes medicines		DTP IHW	
Authorised Indigenous Health Worker supply on MO/NP instruction if less than 6 months since last medical consultation					
Form	Strength	Route of administration	Recommended dosage	Duration	
Tablet/ Pre-filled syringe	As ordered by MO/NP	Oral/Subcut	As ordered by MO/NP	As ordered by MO/NP	
• Acarbose • Alogliptin • Canagliflozin • Dapagliflozin • Empagliflozin	• Exenatide • Glibenclamide • Gliclazide • Glimepiride	• Glipizide • Linagliptin • Liraglutide • Metformin	• Pioglitazone • Rosiglitazone • Saxagliptin • Sitagliptin • Vildagliptin		
Provide Consumer Medicine Information					
Management of associated emergency: consult MO/NP. See Hypoglycaemia, page 78 and Anaphylaxis and severe allergic reaction, page 67					

Schedule	4	Insulin		DTP IHW
Authorised Indigenous Health Worker supply on MO/NP instruction if less than 6 months since last medical consultation				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial/Cartridge/ Pre-filled pen	As ordered by MO/NP	Subcutaneous	As ordered by MO/NP	As ordered by MO/NP
Ultra-short acting (analogues)		Intermediate-acting (isophane)	Combination (biphasic premixed)	
• Insulin Glulisine (Apidra[®]) • Insulin Aspart (NovoRapid[®]) • Insulin Lispro (Humalog[®])		• Humulin NPH • Protophane[®]	• Insulin neutral 30% – isophane 70% (Mixtard 30/70, Humulin 30/70) • Insulin neutral 50% – isophane 50% (Mixtard 50/50) • Insulin Aspart 30% - As part protamine 70% (NovoMix 30) • Insulin Lispro 25% - Lispro protamine 75% (Humalog Mix 25) • Insulin Lispro 50% - Lispro protamine 50% (Humalog Mix 50)	
Short acting (neutral)		Long acting (analogue)		
• Actrapid[®] • Humulin R[®]		• Insulin Glargine (Lantus[®]) • Insulin Detemir (Levemir[®])		
Provide Consumer Medicine Information.				
Management of associated emergency: consult MO/NP. See Hypoglycaemia, page 78				

5. Follow up

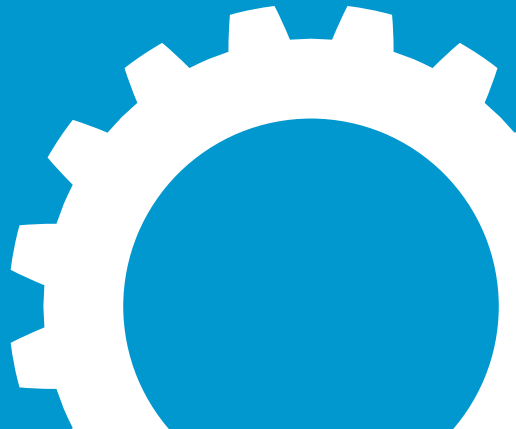
- Further follow up according to current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual> or local protocols if outside Queensland

6. Referral/consultation

- According to care items on diabetes/diabetes in pregnancy/high risk foot care plan(s)

Section 4

Mental health and substance misuse



Contents

- Mental health presentation, history and assessment, page 428
- Suicidal behaviour or risk, page 434
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- Tobacco smoking, page 476
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Mental health presentation, history and assessment - adult/child

Recommend

- Always ensure the safety of patient, self and others, particularly children under 18 years. If at all concerned never leave the patient alone
- It is often not possible to organise immediate assessment with a Mental Health Specialist. For this reason primary care workers should be able to carry out assessments to determine the severity and nature of an individual's problems and the risk of danger to self or others
- Optimise shared decision making with the patient and their carer
- Involve Health Workers/Mental Health Workers in Aboriginal and/or Torres Strait Islander communities

Background

- Substance abuse disorder and exposure to trauma commonly co-exist with mental health disorders
- Terminology¹
 - dual diagnosis - dual diagnosis or co-morbidity is the co-occurrence of two or more disorders in an individual one of which relates to the use of alcohol and/or other drugs
 - static factors - those areas of ones life that occurred in the past and that don't change, such as age, abuse, mental health and medical diagnosis
 - dynamic factors - areas of life which are happening now, e.g. active psychotic symptoms, social issues, intoxication and/or illicit drug use, homelessness, unemployment
 - protective factors - interventions which lessen the effect of static or dynamic factors such as support from family and friends, use of medicine(s) and the *Mental Health Act 2000*

Related topics

[History and physical examination - adult, page 13](#)

[History and physical examination - child, page 630](#)

Important principles for mental health presentations

- Follow the same procedure as for a patient presenting with a physical problem and include a mental health history, performing a Mental State Examination (MSE) and the individual level of risk
- Consider the culture of the patient you are assessing
- Always ensure the safety of yourself, the patient and others
- All mental health assessments must conclude with a mental health management plan, clearly identifying the immediate interventions that reflect the assessment findings
- Consult MO/NP/Mental Health Practitioner/Psychiatrist at any time

Immediate management - safety considerations

- At all times promote the safety of the patient, yourself and others by providing a safe environment and considering the safety of others for whom the patient has care responsibilities e.g. children, elderly and other vulnerable people
- Select a safe environment for assessment/interview/discussion
- Remain calm, quiet and non-threatening¹
- Remember the patient may be experiencing extreme fear from internal threats, provide reassurance

- Explain who you are and what you are doing
- Identify any children (0 - 18 years) for whom the patient has care responsibilities
- Consider the impact of the patient's mental illness on ability to safely care for children, if applicable
- Involve the family and significant others, including Aboriginal and/or Torres Strait Islander Health Workers in assessment and management
- Be supportive and listen to the patient
- Use of ongoing therapeutic relationship with the patient is optimal¹
- Work in pairs if possible

Immediate management - managing anger

- An agreed service procedure should be in place when working with potentially aggressive people which would include:
 - identification of a safe place
 - directions for de-escalation
 - consideration of police support. This should be an early intervention if the patient is armed
 - ability to leave the situation and call for help e.g. position yourself between the patient and the door
 - if trapped, look for furniture or objects to use as a shield
 - strategies to deal with the patient's concerns
- In the event a patient presents angry and aggressive it is best to:
 - observe the patient over a period of time from a safe distance
 - do not turn your back, touch or point at the patient
 - try to appear calm, (even if you are not) and respectful
 - stay neutral. Patients may be angry with the system however, if the patient is delusional they may personalise their anger and aggression towards the individual staff member
 - don't confuse the patient with the problem
 - remember the patient may be frightened
 - consider body language and adopt non-threatening posture
 - no prolonged, direct eye contact
 - hands by your side with empty palms facing out
 - speak softly and calmly
- Use a de-escalation strategy²
 - D** don't threaten to withdraw privileges, seclude or medicate
 - E** ensure safety of those in the environment
 - E** escapes, don't corner patient or get cornered
 - S** stance, adopt protective stance
 - C** calm, non threatening manner
 - A** allow for ventilation of anger and distress
 - L** leave the area and patient if secure and safe to do so
 - A** assistance, ensure enough suitably skilled staff are available if possible
 - T** time out - offer time out in quiet room/lounge
 - I** invite to sit and verbalise concerns
 - O** options - doing (sharing tea/coffee, food); deliberation (attempt to restate the patient's concerns); distraction (ask if patient would want to write down their concerns); delay (do they need time/space)
 - N** never turn your back

Cultural considerations

- Cultural factors may have a significant bearing on the patient's state of mind e.g. sorcery, having been 'sung' or 'boned', puri puri, or transgressions of cultural law and subsequent fear of punishment may present as anxiety, depression or psychosis
- Eccentric behaviour is often tolerated in Aboriginal and/or Torres Strait Islander communities so people with mental illness will often present later when more obvious signs become apparent or the family reports a change in usual behaviour
- Co-morbidity with substance use disorders is common
- History from family members and advice from Aboriginal and/or Torres Strait Islander Health Workers is extremely important
- Consider involvement of interpreters (including telephone) and/or Mental Health or Transcultural Mental Health Workers for culturally and linguistically diverse populations
- Use Aboriginal and/or Torres Strait Islander Cultural Information Gathering Tool available at <http://qheps.health.qld.gov.au/mentalhealth/docs/atsi-cultural-info.pdf>

Mental health history and assessment

Take a patient history including mental health history

- Review patient's manual and electronic records for current management plan for known patients particularly in respect to recurrent presentations
- It is important to establish the patient's behaviour and personality prior to the current presentation. Focus on:
 - obtaining as much detail as possible. A clear account of what has transpired in the patient's recent history will assist in diagnosis
 - obtaining supporting history from family and carers
 - obtaining a history of how the patient related to health care professionals in the past including a history of:
 - past episodes, admissions
 - suicide and/or self harm attempts
 - family history (psychiatric and medical)
 - history of violence
 - forensic history (may not have been charged therefore not in forensic system)
 - personal and developmental history
 - drug and alcohol history. See [Acute alcohol intoxication, page 469](#)
 - trauma/abuse
 - mood - their pre-morbid personality, rather than behaviour
 - absconding
 - medicines adherence
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
- Perform general health assessment and physical examination as tolerated by patient. See [History and physical examination - child, page 630](#) and [History and physical examination - adult, page 13](#)
- Record Mental State Examination (MSE) and complete Risk screening tool/assessment
- See MSE, Risk screening tool, Suicide risk assessment guide on following pages

Mental State Examination (MSE)¹

- It is important for all health staff to be able to use the same terminology when discussing diagnosis and management

- A MSE should be used for patients who present during any mental health presentation
- Severity of symptoms may not be apparent unless identified in a structured way
- Included with the MSE and the mental health history is the risk screen that identifies level of risk for suicide, self harm, vulnerability, absence without approval and violence
- The MSE involves making observations and asking questions under headings, including appearance, behaviour, speech, mood and affect, perception, thought, judgement, insight and cognition. See MSE observations and questions

Risk screening tool³

- Document description of current situation on complete risk screening tool available at http://qheps.health.qld.gov.au/mentalhealth/docs/a_risk_scr_tool.pdf
- Use the information obtained to identify the level of risk and formulate a care or management plan

MSE observations and questions

Appearance	Describe the patient's physical presentation including clothing, grooming, hygiene and cultural appropriateness
Behaviour	Describe the patient's behavioural style, including agitation, aggression, eye contact, co-operativeness, motor activity, retardation and any inappropriate or unusual behaviour
Speech	Describe the rate, rhythm and volume of speech and whether it is spontaneous
Mood	Ask the patient to describe their mood e.g. elevated, depressed, labile, angry
Affect	Affect is the outward appearance of their emotional state. Comment on the quality, variability, range, intensity and appropriateness of affect e.g. blunted, flattened, euphoric, anxious
Perception	Hallucinations can occur in any of the five senses Although any type of hallucination can occur in psychosis, the presence of non-auditory hallucinations increases the chance that the patient has a medical problem, such as alcohol withdrawal or seizures Explore whether the patient believes the hallucinations are real For auditory hallucinations ask what the voices are saying and determine if the patient is receiving commands to harm themselves or others. Make note if the patient has responded to the voices
Thought form	Thought form refers to how thoughts are connected. If a patient exhibits thought disorder, ideas may be connected in a strange or illogical fashion. It is useful to record some quotes of the patient's speech Individuals may be incoherent, use certain words because they rhyme, use certain words because they have secret meanings different to what the words actually mean
Thought content	Anxieties, obsessions, preoccupations and delusions are described in this section It is useful to explore what the patient thinks of their ideas. They may understand that their concerns are excessive Thoughts are described as delusional if a patient is certain that their ideas are reasonable despite convincing evidence to the contrary Beliefs may be out of keeping with cultural and religious background Delusions are commonly grandiose, persecutory or bizarre Examples of common bizarre delusions include believing that the television is talking to them, that others can hear their thoughts, or that their mind and body are being controlled
Judgement	Assess the patient's capacity for reasoned and responsible decision making, in particular regarding safety issues including the safety of children for whom the patient has care responsibilities
Insight	Comment on the patient's insight into his or her own symptoms, diagnosis and need for treatment
Cognition	Describe: • Orientation to time, person and place • Memory, attention and ability to concentrate - determine if the patient can repeat three words and then recall them after a few minutes • Ability to follow instructions If there are concerns the patient is delirious, it is helpful to observe them write a sentence, or draw a clock face including the numbers and hands. Be mindful that 'general knowledge' can vary greatly depending on cultural background

Suicide risk assessment guide⁴

This tool will assist in deciding the overall level of risk of suicide

MSE observations and questions

Issue	High risk	Medium risk	Low risk
'At risk' mental state Depression, psychotic hopelessness, despair guilt, shame, anger, agitation, impulsivity	- Severe depression - Command hallucinations or delusions about dying - Pre-occupied with hopelessness, despair, feelings of worthlessness - Severe anger, hostility	- Moderate depression - Some sadness - Some symptoms of psychosis - Some feelings of hopelessness - Moderate anger, hostility	- Nil or mild depression, sadness - No psychotic symptoms - Feels hopeful about the future - No/mild anger, hostility
Suicide attempt or suicidal thoughts Intentionality, lethality, access to means, previous suicide attempt(s)	- Continual/specific thoughts - Evidence of clear intention - An attempt with high lethality (ever)	- Frequent thoughts - Multiple attempts of low lethality - Repeated threats	- Nil or vague thoughts - No recent attempt or one recent attempt of low lethality and low intentionality
Substance use Current misuse of alcohol and other drugs	Current substance intoxication, abuse or dependence	Risk of substance intoxication, abuse or dependence	Nil or infrequent use of substances
Corroborative history Family carers, medical records, other service providers/sources	Unable to access information, unable to verify information or there is a conflicting account of events to that of the patient at risk	- Access to some information - Some doubts to plausability of patient's account of events	Able to access information/verify information and account of events of patient at risk (logic plausability)
Strengths and supports (coping and connectedness) Expressed communication, availability of supports, willingness/capacity to support safety of patient and others	- Patient is refusing help - Lack of supportive relationships/hostile relationships - Not available or unwilling/unable to help	- Patient is ambivalent - Moderate connectedness few relationships - Available but unwilling/unable to help consistently	- Patient is accepting of help - Therapeutic alliance forming - Highly connected good relationships and supports - Consistently willing and able to help
Reflective practice Level and quality of engagement; changeability of risk level assessment; confidence in risk level	Low assessment confidence or high changeability or no rapport, poor engagement		- High assessment confidence/low changeability - Good rapport, engagement

No (foreseeable) risk: following comprehensive suicide risk assessment, there is no evidence of current risk to the patient. No thought of suicide or history of attempts and has a good social support network

- On completion of mental health history and assessment, take action based on the level of risk identified

Action:

- **Low risk** - document and ensure mental health practitioner informed. If patient is intent on leaving ensure a follow up plan is in place
- **Medium risk** - encourage patient to stay. Contact Mental Health Practitioner or MO/NP immediately. If unavailable call Psychiatrist
- **High risk** - encourage patient to stay. Urgent contact with Mental Health Practitioner/MO/NP/ Psychiatrist and if necessary, with their support, utilise *Mental Health Act 2000*. If unable to contact Mental Health Practitioner/MO/NP/Psychiatrist and patient leaves, inform police with suggestion that an Emergency Examination Order may be necessary.
- Continue to attempt contact with Mental Health Practitioner/MO/NP/Psychiatrist

Resources

- Resources to support clinicians in the delivery of social and emotional wellbeing and mental health services in Indigenous communities: guidelines for health workers, clinicians, consumers and carers. Available at: <http://www.healthinfor.net.ecu.edu.au/other-health-conditions/mental-health>
- National standards for mental health services. Available at www.health.gov.au/internet/publications/publishing.nsf/Content/mental-pubs-n-servstio-toc
- Queensland Mental Health Alcohol and Other Drugs Directorate - Statewide Mental Health forms. Available at <http://qheps.health.qld.gov.au/mentalhealth/resources/clinicaldocs.htm>
- MSE training is available online from Queensland Centre for Mental Health Learning: www.health.qld.gov.au/qcmhl/mhworkforce.asp
- Request for assessment *Mental Health Act 2000 Queensland Section 16(a)*: https://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/clinical-staff/mental-health/act/o16_request_assessment.pdf
- Recommendation for assessment *Mental Health Act 2000 Queensland Sections 16(b) & 49(a)*: https://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/clinical-staff/mental-health/act/o16_recommend_assessment.pdf
- Request for police assistance *Mental Health Act 2000 Queensland Sections 25, 30, 117, 119, 163, 168 & 507*: <https://www.tmmi.com.au/assets/files/mental-health-reources/request-police-assist.pdf>

Suicidal behaviour or risk - adult/child**Recommend**

- Consult MO/NP/Psychiatrist urgently if suicide risk is considered to be high
- In the case of actual self harm that has/will cause serious physical harm, contact emergency services immediately
- Ensure safety of patient and those involved with patient, including family, carers and staff, including the immediate safety needs of children
- Clinicians should involve the family or support people - Life Promotion Officer/Aboriginal and/or Torres Strait Islander Health Workers/Mental Health Workers/Transcultural Mental Health Workers in the care of the suicidal patient wherever possible

Background

- Intoxication is often associated with suicide
- Deliberate self harm is not always associated with suicide and can be used to deal with severe distress, or may be cultural 'sorry cuts'
- Guidelines for Suicide Risk Assessment and Management are available at http://qheps.health.qld.gov.au/mentalhealth/docs/guide_suicide_risk.pdf

Related topics

-  [Mental health behavioural emergencies, page 437](#)
-  [Toxicology/poisoning/overdose, page 224](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Unconscious/altered level of consciousness, page 52](#)
[Acute upper airway obstruction and choking, page 64](#)
[Spinal injuries, page 137](#)

1. May present with

- Attempted suicide
- Unexplained injury or physical signs and self harm is suspected
- Verbalises suicidal ideas/suicidal intent
- Depressive symptoms
- Anxiety symptoms
- Psychotic symptoms/illness - especially patients who are agitated/distressed or experiencing command auditory hallucinations
- Organic brain syndrome or acute confusional state
- Chronic medical illness, especially when this is associated with severe pain
- Distress associated with a recent psychosocial stressor or loss e.g. bereavement, marital separation, relationship breakdown, loss of job
- Give particular consideration to patients in high risk groups, including:
 - young males < 25 years
 - older males > 65 years
 - people with depression or schizophrenia
 - substance abuse
 - people who are widowed/recently separated/have experienced a relationship break-up
 - Aboriginal and/or Torres Strait Islander peoples

Considerations for assessing self harm in Aboriginal and/or Torres Strait Islander peoples when alcohol is involved

- When considering risk factors when working with Aboriginal and/or Torres Strait Islander peoples, the following factors need to be considered:
 - social precipitants such as recent events even if they appear trivial
 - recent self harm episodes or behaviour that has occurred by others in the community
- When alcohol is a current factor with threatened or attempted self harm consider the following:
 - set a high criterion for accepting that the situation is safe
 - situations involving intoxication and/or impulsivity are usually not safe
 - liaise early with a Psychiatrist
 - prevent further drinking and keep the patient engaged or supervised until the situation is clarified
 - reassure and observe in a safe environment
 - communicate clearly with relatives and local staff
 - use medicines with clear indications
 - ensure active follow up⁵

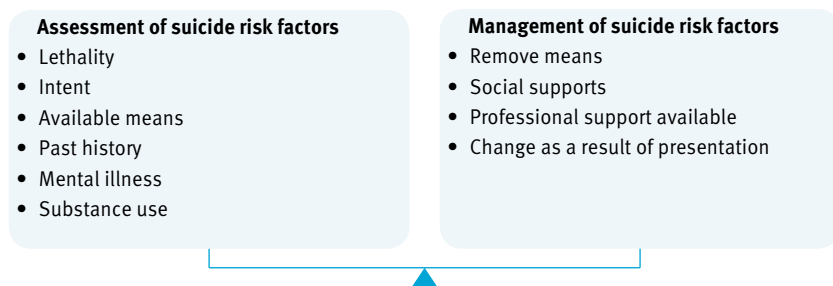
2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient](#), page 36

3. Clinical assessment

- See [Mental health behavioural emergencies](#), page 437, in particular
- See [Suicide risk assessment guide](#), page 433
- Patients who have attempted suicide by hanging may have obstructed airway and fractured cervical spine. See [Acute upper airway obstruction and choking](#), page 64 and [Spinal injuries](#), page 137
- The following general framework may assist in developing an informed opinion of the overall risk and the capability to manage the risk

General framework⁴



4. Management

- Based on the findings from the mental health history and assessment is the patient low, medium or high risk for suicide?
- Consult MO/NP/Life Promotion Officer/Mental Health Worker (including Transcultural Mental Health Worker if relevant and available). MO/NP will discuss with Psychiatrist
- Stabilise any medical condition. Manage airway and cervical spine in patients who have attempted suicide by hanging. See [Acute upper airway obstruction and choking](#), page 64 and [Spinal injuries](#), page 137
- In consultation with MO/NP, patient and support people, determine the most appropriate and available management setting
- The management process must be planned, coordinated and documented
- Utilisation of the provisions of the *Mental Health Act 2000* (or relevant Act if outside Queensland) may be required
- Carers and/or families of the patient should be contacted and provided with clear and concise information regarding the involuntary provisions of the *Mental Health Act 2000*
- Refer to local protocols which should specify lines of responsibility and provide access to senior clinicians
- Ongoing management is to support the safety of the patient while the underlying mental health problem is treated
- Reassess

5. Follow up

- Discuss follow up plan with MO/NP/Psychiatrist
- Criteria for considering whether a patient with suicidal behaviour/ideation should go home:

- acute problems identified, addressed and resolved
- patient no longer feels suicidal
- patient agrees to seek help if suicidal ideas recur
- patient is not demented, intoxicated, sedated, delirious or psychotic
- patient does not have access to lethal means such as firearms or medicines
- follow up arrangements have been documented with a copy given to the patient and support(s) have been mobilised
- treatment has been arranged for any current mental health problems
- family/supports understand and agree with management plan
- If a suicide attempt has been made, a mental health history and assessment, general medical assessment, MSE, suicide risk assessment and risk management plan must be made before discharge by a trained Mental Health Practitioner/MO/NP/Psychiatrist

6. Referral/consultation

- Those identified as high risk following assessment should have an emergency referral to mental health or medical services and should not be left alone until help arrives
- Involuntary admission under the provisions of the *Mental Health Act 2000* (or relevant Act if outside Queensland) may be required if the patient demonstrates risk to self or others. See [Mental health behavioural emergencies, page 437](#). The rationale and decision to transfer/hospitalise a patient should be made on clinical grounds with involvement of the patient and family
- Patients identified as medium to high risk following assessment should have follow up contact within 24 hours with a relevant mental health care provider. Follow up should be linked to the risk assessment
- Where appointments are not kept, assertive follow up must be undertaken. Information covering 24 hour access and support options must be given to all patients being managed in the community
- Contingency planning requires the clinician and the patient at risk and/or family/carer to anticipate likely escalations of risk such as:
 - deterioration of family relationships
 - increase in symptoms
 - temporary unavailability of the clinician
- Management in the community is not appropriate when suicide risk escalates beyond the available level of care, support from the health service and family and social supports



Mental health behavioural emergencies - adult/child

A mental health behavioural emergency is any situation in which the health practitioner becomes aware, either from statements or behaviour of the patient or as a result of information from collateral sources, that there is imminent risk of significant harm being sustained by the patient or others resulting from a known or presumed mental health condition or the behavioural/mental health consequence of a possible underlying physical illness

Recommend

- MO/NP is encouraged to speak to Psychiatrist at referring facility as soon as possible in all psychiatric emergencies. This has been found to lead to smoother management of the patient's needs
- Do not leave the patient alone if at all concerned
- Involve Health Workers/Mental Health Workers in Aboriginal and/or Torres Strait Islander communities
- Consider use of (telephone) interpreter and/or transcultural Mental Health Workers for cultural and linguistically diverse (CALD) populations
- Consider safety of any children for whom the patient has care responsibilities *Working with parents with mental illness - Guidelines for mental health clinicians* available at: <https://www.health.qld.gov.au/qhpolicy/docs/gdl/qh-gdl-310.pdf>
- Child and youth acute sedation guideline is available at: http://qheps.health.qld.gov.au/childrenshealth/resources/proc/docs/proc_50038.pdf
- Statewide Mental Health forms available at: qheps.health.qld.gov.au/mentalhealth/resources/clinical_docs.htm

Background

- Acute confusion can be caused by many physical conditions and may mimic mental illness. Causes include drugs (intoxication, withdrawal, side effects), hypoxia, metabolic conditions (hypoglycaemia), cerebral conditions (head injury, following a fit, stroke, meningitis), infections (pneumonia, urinary tract), even constipation and urinary retention in the elderly
- Alcohol and substance misuse and physical illness or injury should be suspected and excluded in all patients with mental health presentations before making a diagnosis of mental illness

Related topics

 Hypoglycaemia, page 78	History and physical examination - child, page 630
 Transient ischaemic attack (TIA) and stroke, page 114	History and physical examination - adult, page 13
 Fits/convulsions/seizures, page 72	Mental health presentation, history and assessment - managing anger, page 428
 Toxicology/poisoning/overdose, page 224	Delirium, page 446
	Head injuries, page 131
	Shock, page 55

1. May present with

- Confusion, delirium
- Withdrawn behaviour e.g. refusing to talk or eat
- Strange behaviour e.g. talking to people who are not there, unable to stand still, awake all night, inappropriate anger or sadness, becoming suspicious of people or things in surroundings
- Suicidal ideation or attempt (past or current)
- Deliberate self harm
- Aggressive behaviour or threats to others
- Family member seeking help because of strange, disruptive or frightening behaviour by one of their family
- Recurrence/exacerbation of known mental health problem
- First presentation with a mental health problem

2. Immediate management

- Ensure safety of patient presenting, self and others, particularly children (from conception to 18 years)
 - see patient in safe environment, have an exit
 - if the patient is a risk to safety, enlist the help of police or others, have them visibly close by, but not to frighten or intimidate the patient
 - terminate an interview if you are feeling frightened, do not be brave
 - do not approach if patient has a weapon
 - do not be in a position where you could be trapped by the patient
- Explain what is happening at all times. Reassure the patient and avoid confrontation
- Consult MO/NP/Psychiatrist as early as possible

3. Clinical assessment

- See [Mental health presentation, history and assessment - managing anger, page 428](#)
- Consider whether features of presentation are substance related
- MO/NP may request a FBC

4. Management

- Consult MO/NP and provide findings of assessment
- If at all concerned do not leave the patient alone
- Reassure the patient but do not make promises that cannot be kept
- Provide support for family members and relatives of patient, including children. This may be a very frightening experience for them
- If previous mental illness diagnosed, manage in consultation with MO/NP for this presentation
- Evacuation/hospitalisation in appropriately equipped and staffed facility may be required for:
 - comprehensive mental health assessment
 - if the patient is very agitated
 - the patient requires parenteral medicine
 - there are special considerations for people who require evacuation by air. Keep nil by mouth. See [Evacuation by air, page 444](#)
- If patient does not consent to evacuation/hospitalisation/medicine or does not have the capacity to give consent use of the *Mental Health Act 2000* may be appropriate. See [Mental Health Act 2000, page 440](#)
- Sedation may be required to:
 - control severe behaviour disturbance for patient's safety and safety of others
 - allow diagnostic assessment and management
 - relieve distress
- Medication considerations:
 - oral medicine - attempt to persuade the patient to take oral medicine. A patient may agree to medicines if they are told the benefits of taking the medicine e.g. clear some of their disturbing thoughts/remove some of their distress
 - intramuscular medicines - if the patient is highly agitated/aroused and disturbed and physical intervention is required, intramuscular medicine is first choice - discuss with MO/NP
 - intravenous sedation is occasionally necessary, but has greater risk of serious side effects e.g. cardiorespiratory depression and cardiac arrhythmias, and **must** only be done when full

resuscitation equipment is available

- oral antipsychotic and benzodiazepine combination may be needed to provide sufficient sedation - combining an antipsychotic and benzodiazepine is safer than giving a high dose of just one of these medicines
- care must be taken with patients who present intoxicated. There is a risk of respiratory depression if benzodiazepines are administered. A small dose of antipsychotic medicine is often preferable
- reduced medicine doses to be used in the elderly or in those who are dehydrated, intoxicated, medically compromised or who have not had an antipsychotic medicine previously
- dystonia - acute tonic muscle spasms, often of the tongue, jaw, eyes and neck, but sometimes of the whole body. Sometimes occurs during the first few days of antipsychotic medicine administration
- Acutely disturbed or heavily sedated patients **must not** be left alone and should be **regularly observed**²
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
 - include sedation score
 - if awake - observe patient and repeat assessment every 15 minutes for 1 hour, then every 30 minutes for 2 hours or until evacuated
 - if asleep - observe patient and repeat assessment every 5 minutes for 30 minutes, then every 15 minutes for 30 minutes, then every 30 minutes for 1 hour, then hourly for the next 4 hours or until evacuated
- **Management of agitation/arousal**²:
 - consult MO/NP
 - **benzodiazepines are the recommended first line treatment** for this group of patients
 - **never use benzodiazepines e.g. lorazepam or diazepam (intramuscular) with olanzapine (intramuscular) simultaneously and never within 1 hour of each other i.e. olanzapine IMI should never be given with any other benzodiazepine IMI**⁷
 - flumazenil (antidote for benzodiazepines) must be on hand if using benzodiazepines for sedation. Its use is indicated if respiration rate falls below 10 breaths/minute²⁰
 - no sedation protocol is 100% safe. Sedation is used when de-escalation fails. Confirm no other medical cause of patient's altered mental state
 - frequent adequate monitoring of the sedated patient is essential. Patients should be placed in recovery position, apply O₂ observe and record vital signs regularly
 - aim for rousable drowsiness - sleepy when undisturbed but rousable and cooperative to voice or pain

Mental Health Act 2000 or relevant Act if outside Queensland

If a patient does not consent to treatment, medicines may only be given if:

- The patient is being treated under an Involuntary Treatment Order, or
- Request and Recommendation forms have been completed for involuntary assessment under the *Mental Health Act 2000* (see below) and
- The patient is to be transported to an Authorised Mental Health Service

The *Mental Health Act 2000* states that medicine:

- May be administered to the patient only if an MO is satisfied it is necessary to ensure the safety of the patient or others while being taken to the health service
- Must be administered by an MO or a Registered Nurse under the specific instructions of the MO. These instructions must include the medicine name, the dose and route and frequency of

administration. The nurse/MO/NP, who administers the medicine must keep a written record of these instructions

- The medicines may be administered with the help, and using the force, that is reasonable in the circumstances

If an MO or an authorised health practitioner is not available to complete paperwork for Involuntary Assessment:

- Section 63 of the *Guardianship and Administration 2000* permits urgent health care to be carried out without consent of the patient if the health care provider believes:
 - that the patient has impaired capacity regarding their illness, and
 - the health care should be carried out urgently to meet imminent risk to the patient's life or health
- Not accepting oral medicine²
In cases where patient is:
 - not accepting oral medicine or is severely agitated/aroused or a rapid and predictable outcome is required, contact MO/NP for intramuscular or intravenous medicine order
 - information for patients about medicines used in mental health available at: http://www.choiceandmedication.org/queenslandhealth/pages/queensland_leaflets/
- First line medicine. Patient is accepting oral medicine

Schedule	4	Lorazepam		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse must consult MO/NP unless circumstances do not allow, in which case notify the MO/NP as soon as circumstances allow				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	1 mg	Oral	Adult only 1 mg Do not exceed 10 mg total in 24 hours (by any route)	Stat
Provide Consumer Medicine Information: causes sedation and respiratory depression				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
2,8,23				

- Second line medicine, if lorazepam fails give oral olanzapine

Schedule	4	Olanzapine	DTP IHW/SM R&IP/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse must consult MO/NP unless circumstances do not allow, in which case notify the MO/NP as soon as circumstances allow				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	2.5 mg 5 mg 10 mg	Oral	Adult only 5 - 10 mg to max. of 20 mg/24 hours	Stat Further doses on MO/NP order. With order may repeat in 2 - 4 hours according to clinical response
Wafer	5 mg 10 mg			
Provide Consumer Medicine Information: can cause postural hypotension and sedation. Information for patients about medicines used in mental health available at: http://www.choiceandmedication.org/queenslandhealth/pages/queensland_leaflets/				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
				2,8,24

- Post administration of medicine care and observations²:
 - administer O₂ to maintain O₂ saturations > 93% to all patients following parenteral sedation
 - acutely disturbed or heavily sedated patients should not be left alone and should be regularly observed. Staff must be vigilant for dystonic reactions, excessive sedation and respiratory depression²
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - sedation score
 - if awake - observe patient every 15 minutes for 1 hour, then every 30 minutes for 2 hours or until evacuated
 - if asleep - observe patient every 5 minutes for 30 minutes, then every 15 minutes for 30 minutes, then every 30 minutes for 1 hour, then hourly for the next 4 hours or until evacuated

Sedation score

0 - awake

1 - mildly drowsy, responsive to voice stimuli

2 - moderately drowsy, responds to touch only

3 - severely drowsy, not responding

- Consult MO/NP as per alerts on ADDS/CEWT score or other local early warning tool
- If dystonic side effects occur give benztropine

Schedule	4	Benztropine		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker must consult MO/NP. Isolated Practice Area Paramedic to use the QAS clinical guideline for IM use and must consult MO/NP for oral use				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	2 mg	Oral	Adult only 2 mg	Stat Further doses on MO/NP order
Ampoule	2 mg/2 mL	IM preferable if symptoms are distressing		
Provide Consumer Medicine Information: can be sedating. Information for patients about medicines used in mental health available at: http://www.choiceandmedication.org/queenslandhealth/pages/queensland_leaflets/				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

6,8,25

- If respiration rate < 10 breaths/minute following sedation with benzodiazepine reverse with flumazenil

Schedule	4	Flumazenil	DTP IHW/SM R&IP/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse must consult MO/NP unless circumstances do not allow, in which case notify the MO/NP as soon as circumstances allow				
Form	Strength	Route of administration	Recommended dose	Duration
Ampoule	0.5 mg/5 mL	IV over 15 seconds	Initial dose 200 microgram	Stat
			Second dose 100 microgram	Second dose may be given after 60 seconds
			Maximum dose is 1 mg in 24 hours	
Note: patients may become agitated, anxious or fearful on awakening				
Contraindication: in patients with epilepsy receiving long-term benzodiazepam treatment. Titrate dose in patients with impaired liver function				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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5. Follow up

- If a patient has required sedation and is not evacuated consider the following:
 - underlying mental disorders (dementia, delirium, psychosis, depression) and the impact of these on patient capacity/safety at home
 - intoxicated patient should not be considered safe until they are sober

- If not evacuated/hospitalised, follow local protocols or MO/NP instructions for observation and management
- Consider the immediate safety needs of any children for whom the patient has care responsibilities. *Working with parents with mental illness - Guidelines for mental health clinicians* available at: <https://www.health.qld.gov.au/qhpolicy/docs/gdl/qh-gdl-310.pdf>
- Provide patient and family/carer with copy of management plan

6. Referral/consultation

- Follow MO/NP instructions for this presentation
- Arrange comprehensive mental health assessment

Required forms are available online

- Queensland *Mental Health Act 2000* forms available at: <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/clinical-staff/mental-health/act/act-2000/default.asp> or local Authorised Mental Health Service contact list available at: <http://qheps.health.qld.gov.au/mentalhealth/mha/mha-contacts.htm>
- All jurisdictions outside Queensland and Queensland Health follow local protocols

Evacuation by air

- A patient may need to be evacuated to the nearest Authorised Mental Health Service (AMHS) either with their consent or under the provision of the *Mental Health Act 2000*
- If the patient is to be evacuated by the RFDS, there needs to be reliable IV access and they will need to be sedated and physically restrained using RFDS wrist and ankle restraints. Keep patient nil by mouth
- It is suggested that explanation and gentle persuasion be used to ensure a patient understands the need for sedation and physical restraint, i.e. the patient may agree to physical restraints if they are assured they will be removed as soon as the aircraft is safely landed
- Night flights are to be avoided if possible because of the known disorientating effect on people and the limited landing options if a problem develops in flight
- Consider safety and care arrangements for dependent children (if relevant)

Queensland Mental Health Act 2000

If the patient requires evacuation/hospitalisation to an appropriate facility and does not consent, the relevant Mental Health Act forms need to be completed to permit involuntary assessment, as follows:

Request for Assessment

This form can be completed by any adult (not employee or relative of person making 'Recommendation for Assessment')

Available at: https://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/clinical-staff/mental-health/act/o16_request_assessment.pdf

Recommendation for Assessment

This form can be completed by any doctor or Authorised Mental Health Practitioner. These are specifically designated Mental Health Workers. When there is no local MO the evacuating MO can complete this form

Once these two forms are completed the patient can be taken to the Authorised Mental Health Service (AMHS) and the assessment process begins

Available at: https://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/clinical-staff/mental-health/act/o16_recommend_assessment.pdf

Justices Examination Order

In non-urgent cases a person may apply to a Magistrate or Justice of the Peace for a 'Justice Examination Order'. This allows an Authorised MO to go to where the patient is located in order to conduct an examination to determine if a Recommendation for Assessment form is required

Available at: <https://publications.qld.gov.au/dataset/justices-examination-order>

Emergency Examination Order

In urgent cases this form can be completed by a Police Officer, Ambulance Officer or Psychiatrist. This authorises a patient to be taken to an AMHS for an assessment which must take place within six hours of arriving at the AMHS. In the absence of an available AMHS, the local Department of Emergency Medicine becomes an AMHS for the purpose of assessment.

Available at: qheps.health.qld.gov.au/mentalhealth/mhadocs/forms/o33_eeo_police_ambo.pdf

Request for Police Assistance

If required, this third form is used when requesting police assistance in any circumstances. Generally a health staff member will accompany the patient during transfer. Available at: <https://www.ttml.com.au/assets/files/mental-health-reources/request-police-assist.pdf>

If the patient is already being treated under a Community Involuntary Treatment Order (ITO), the treating Psychiatric Registrar or Psychiatrist should be contacted. After hours, contact the on-call Psychiatric Registrar or Psychiatrist at the appropriate Authorised Mental Health Service. Immediate return of the patient to the AMHS with the assistance of the police can be arranged. If an inpatient admission is required, a change of ITO category to inpatient must be completed

Delirium - adult/child

Recommend

- Consult MO/NP as delirium is a medical emergency and needs investigation for medical cause
- Distinguish delirium from psychosis and dementia where the patient is alert and does not have a disturbance of consciousness
- Recommended resource: Confused older person in ED – Clinical Guide available at: <https://www.health.qld.gov.au/caru/networks/docs/coped-guide.pdf>

Background

- Delirium is characterised by:
 - a disturbance of consciousness with a reduced ability to focus, sustain, or shift attention
 - a change in cognition e.g. memory deficit or disorientation or the development of a perceptual disturbance
 - the disturbance develops over a short period of time and tends to fluctuate during the course of the day⁹

Related topics

 [Mental health behavioural emergencies, page 437](#) [Glasgow coma scale \(GCS\)/AVPU, page 766](#)

1. May present with

- Acute onset of symptoms over hours or days
- Symptoms fluctuate during the day, clouding of consciousness
- Impaired ability to concentrate, disorientation, poor short term memory
- Hallucinations and illusions, reduced or increased levels of arousal
- Disturbance of sleep wake cycle
- Variations in vital signs
- Emotional disturbance e.g. fear, anxiety, irritability, anger, apathy

2. Immediate management

- Ensure safety of patient, self and others

3. Clinical assessment

- The aim of clinical assessment is to determine the medical cause for the delirium. See Precipitating factors for delirium. **Note:** there may be more than one cause
- See [Mental health behavioural emergencies, page 437](#), in particular:
 - medication history e.g. recent changes in medicine, new medicines, changes to dosage, including eye drops
 - ATOD history
- Collect blood for pathology screen including FBC, electrolytes, LFTs and urine for MC/S and/or urine drug screen

Precipitating factors for delirium⁹

Medication	Sedative hypnotics, opioids, anticholinergic medicines, treatment with multiple medicines (polypharmacy), alcohol or drug withdrawal and benzodiazepine withdrawal
Primary neurologic diseases	Stroke, non-dominant hemispheric stroke or lesion, intracranial bleeding, meningitis or encephalitis
Intercurrent illnesses	Infections, iatrogenic complications, severe acute illness, hypoxia, shock, anaemia, fever or hypothermia, dehydration, poor nutritional status, low serum albumin levels, metabolic derangements
Surgery	Orthopaedic surgery, cardiac surgery, prolonged cardiopulmonary bypass, non-cardiac surgery
Environmental	Pain, emotional stress, prolonged sleep deprivation, use of physical restraints, use of bladder catheter, use of multiple procedures

- With older people, consider a combination of factors

4. Management

- The primary medical cause of delirium should be identified and treated
- Consult MO/NP and provide findings of assessment as above
- If at all concerned do not leave the patient alone
- Attend to hydration, nutrition, ventilation, temperature control, skin care
- Ensure patient is treated in a safe environment
- Provide pain relief - do not affect level of consciousness
- Avoid treating patient in high or very low stimulus environments
- If possible provide orientating environmental cues such as clocks, windows and familiar personal effects including photos of family; low level lighting and staff consistency
- Consider pharmacological treatment for symptoms of agitated and disturbed behaviour, perceptual disturbance or sleep/wake cycle abnormalities. Commence regular observations (physical and level of consciousness). See [Mental health behavioural emergencies, page 437](#)

5. Follow up

- As per MO/NP instructions and medical cause of delirium

6. Referral/consultation

- Consult MO/NP on all occasions of suspected delirium as delirium is a medical emergency requiring urgent medical investigation and management

Dementia - adult**Recommend**

- Consult with and involve the patient, family/carers, GP and health support services
- Utilise non-pharmacological strategies as a first-line measure to manage the symptoms of dementia, including environmental, behavioural and social strategies
- Refer to current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>

Related topics[Delirium, page 446](#)[History and physical examination - adult, page 13](#)**1. May present with**

- Progressive cognitive decline, most commonly in memory, even in younger people:
 - inability to remember recent events
 - deterioration in ability to manage complex tasks e.g. management of medicines and money
 - repetition in conversations and forgetfulness
 - difficulty with everyday activities of living
 - experiencing mood or behavioural changes e.g. depression, anxiety, paranoid ideation/delusions and changes of personality
 - loss of insight and poor judgement/decision making

2. Immediate management

- Ensure safety of patient, self and others
- Ensure communication aids are present if required
- Allow familiar people to be present if felt appropriate e.g. carer/family member
- If it is an acute change, consider the possibility of delirium complicating dementia and manage as per delirium protocols. See [Delirium, page 446](#)
- Communicate calmly and clearly
- Provide a quiet environment and limit external stimuli where possible
- Consult MO/NP

3. Clinical assessment

- See [Mental health presentation, history and assessment - managing anger, page 428](#) in particular:
 - history (time, course and nature of problems) from patient and carer/family including:
 - general biological, psychosocial, functional and medical history
 - full medication review including non-prescribed drugs and alcohol
 - alcohol and illicit drug history and current use
 - family medical and psychiatric history
 - current and past medical history and co-morbidities
 - psychosocial and psychiatric history
 - neurological examination
 - consider urinalysis if new onset of symptoms
- Consider investigations relevant to history e.g. dementia screen
- Perform brief cognitive screen available at: <http://www.dementia-assessment.com.au/cognitive/index.html#rudas> or for Aboriginal and/or Torres Strait Islander people the KICA-Cog available at: <https://www.perkins.org.au/wacha/our-research/indigenous/kica/>

4. Management

- Consult MO/NP/Geriatrician/Psychiatrist and describe findings of assessments
- Non-pharmacological interventions with patient centred care to improve behavioural symptoms. If required, call the National Dementia Helpline ☎ 1800 100 500
- If unsuccessful, consider pharmacological strategy
- Regular assessment and review of any co-morbidities and care plan

- Consider whether the patient has the capacity to make personal and financial decisions
- Assess the patient, carer and family stress and support networks. If agreeable consider referral to the Alzheimer's Australia for access to support groups, counselling and education. Contact National Dementia Helpline ☎ 1800 100 500
- Communicate with patient, carer and family in a sensitive manner, as well as to all relevant care providers
- Geriatrician or Psychiatrist may prescribe medicines e.g. a cholinesterase inhibitor and/or an NMDA antagonist for the treatment of Alzheimer's disease
- For further advice including information regarding services available, contact National Dementia Helpline ☎ 1800 100 500

5. Follow up

- According to MO/NP instructions
- Prepare a management plan with patient, carer and family
- Offer ongoing support and encouragement to patient and carer(s)
- Monitor compliance with medical treatment
- Continue to promote an enabling environmental and clinical practice strategies which support maximum independence and quality of life to slow progression of dementia
- Monitor safety, vulnerability and future care needs e.g. driving and elder abuse

6. Referral/consultation

- Consider referral to Geriatrician/Psychiatrist/Older Persons Mental Health Team where the diagnosis is uncertain or the problems cannot be managed at the primary health care level
- Refer to ATODS if alcohol or drug misuse is identified as an issue
- Consider a driving assessment if concerns about driving exist and where driving assessment is available
- Consider and discuss referral to Alzheimer's Australia in your state/territory for ongoing information and support of the person living with dementia and their family/carer(s)
- Consider and discuss referral to community agencies for carer respite and assistance with ADLs/IADLs
- Consider and discuss referral of an older person to the local Aged Care Assessment Team (ACAT) via My Aged Care for assessment if there are concerns that they may require higher levels of assistance with longer term care needs

Resources

- All tools available through Statewide Dementia Clinical Network website: <https://www.health.qld.gov.au/caru/networks/dementia.asp>
- Alzheimer's Australia: www.fightdementia.com.au/
- National Dementia Helpline ☎ 1800 100 500

Psychotic disorders - adult/child

Psychosis, schizophrenia, drug-induced psychosis, puerperal psychosis

Recommend

- Consult MO/NP and provide details of symptoms and signs of psychosis elicited from the history and examination of the patient
- Involve Health Workers/Mental Health Workers in Aboriginal and Torres Strait Islander communities
- Consider use of (telephone) interpreter and/or Transcultural Mental Health Workers for cultural and linguistically diverse (CALD) populations
- Use of Statewide Mental Health forms available at: <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/clinical-staff/mental-health/default.asp>

Background

- Psychosis is a general term used to describe mental health problems in which a patient has lost some contact with reality and may be characterised by distortion of thinking, perception and mood
- The patient's ability to make sense of their thinking, perception and mood is seriously affected

Related topics



Mental health behavioural emergencies, page 437

Mental health presentation, history and assessment - managing anger, page 428
Toxicology/poisoning/overdose, page 224

1. May present with

- Positive signs and symptoms (signs and symptoms in addition to what the patient normally has):
 - delusions
 - hallucinations
 - disorganised thought and speech
 - disorganised behaviour
- Negative signs and symptoms (signs and symptoms that have been taken away from what the patient normally has):
 - social withdrawal and isolating self
 - flattened affect
 - restricted speech fluency
 - lack of drive. This needs to be differentiated from major depression by a mental health professional
- Family member may seek help because of strange, disruptive or frightening behaviour by one of their family
- First presentation - often late adolescence to mid thirties but can be at any time
- Irritability and a lower threshold for anger
- Suicidal thoughts or behaviours
- Elevated or depressed mood

2. Immediate management

- Ensure safety of patient, self and others
- Consult MO/NP/Psychiatrist

3. Clinical assessment

- See [Mental health presentation, history and assessment - managing anger, page 428](#)

4. Management

- Consult MO/NP or Psychiatrist and describe findings of assessment
- MO/NP or Psychiatrist may order:
 - antipsychotic and sedative medicine
 - blood/urine tests including drug screen
 - evacuation/hospitalisation for mental health assessment and treatment
- If the patient is unwilling or may be a threat to themselves or others or there is a risk of deterioration without treatment, emergency measures should be undertaken. See [Mental health behavioural emergencies, page 437](#)
- Hallucinations of any kind in the absence of a physical/medical cause or bizarre delusions requires immediate MO/NP assessment or referral for mental health assessment, depending on risk screen
- If under the influence of alcohol or drugs, illicit or otherwise, the dose of prescribed antipsychotic or sedative medicine may need to be adjusted. Discuss with MO/NP. Patients should be closely monitored until intoxication has resolved and then reassessed
- In the case of psychosis in the perinatal period, potential for harm to the fetus or the breastfed infant must be carefully balanced with the harm to mother and infant if the mother remains untreated. Medicines should only be prescribed with the input of the woman and her significant others

5. Follow up

- As per MO/NP instructions
- Psycho-education
- Family support and education
- Monitoring of adverse effects of antipsychotic medication including regular physical health checks and metabolic monitoring, addressing any adverse effects

6. Referral/consultation

- Consult MO/NP as above
- Refer to Mental health services:
 - if psychosis is suspected
 - if there is a significant risk of suicide or danger to others, psychotic symptoms or severe agitation
- If alcohol or drug use is also a problem, referral to ATODS with patient consent
- Consider referral to community agencies in all other cases where symptoms persist and/or where the patient has a poor or non-existent support network

Mood disorders

Mood disorders - adult/child

Depression, perinatal depression, mania

Recommend

- Consult MO/NP and provide details of symptoms and signs of mood disorder elicited from the history and examination of the patient
- Involve Health Workers/Mental Health Workers in Aboriginal and/or Torres Strait Islander communities
- Consider use of (telephone) interpreter and/or Transcultural Mental Health Workers for cultural and linguistically diverse (CALD) populations
- Use of Statewide Mental Health forms available at: <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/clinical-staff/mental-health/default.asp>

Background

- Mood refers to a prolonged emotional state that influences an individual's whole personality and life functioning. It pertains to a person's prevailing and pervading emotion and is synonymous with the terms affect, feeling state and emotion

Related topics



Mental health behavioural emergencies, page 437

Mental health presentation, history and assessment, page 428
Suicidal behaviour or risk, page 434

Depression - adult/child

Background

- This is the most common mental health disorder and is often encountered in the primary care setting
- Can be difficult to detect and ranges from mild to severe
- Some groups are at higher risk of depression e.g. those who are psychotic, have recently experienced loss or stress, women in the perinatal period¹⁰, the chronically ill, people with physical disorders¹¹

1. May present with

- There is substantial individual variation in the presentation of the disorder. A wide range of presenting complaints may accompany or conceal depression. These include:
 - insomnia or other sleep pattern changes
 - appetite changes
 - irritability, low mood
 - suicidal ideation/attempts
 - difficulties concentrating
 - worries about social problems such as financial or marital difficulties
 - expressed feelings of helplessness or hopelessness

- loss of enjoyment
- increased drug or alcohol use
- (in a new mother) constant worries about her baby or fear of harming the baby
- One or more physical symptoms, such as:
 - headaches
 - no energy - 'tired all the time'
 - feeling generally unwell or 'run down'
 - low mood or loss of interest, 'slack'
 - unexplained physical symptoms
 - anxiety or nervousness are also frequently present

2. Immediate management

- Ensure safety of patient, self and others
- Consult MO/NP

3. Clinical assessment

- See [Mental health presentation, history and assessment - managing anger, page 428](#) in particular:
 - perinatal depression in women
 - current context of the depressive symptoms e.g. the presence of a specific situational context: bereavement, chronic stress, diagnosed physical illness, significant loss - relationship, job

4. Management

- Consult MO/NP or Psychiatrist and describe findings of assessment
- MO/NP or Psychiatrist may order:
 - medicines, blood tests
 - evacuation/hospitalisation for mental health assessment and treatment
 - for women in the postnatal period, consider admission of infant with the mother if safe¹⁰
- Identify current stressors
- Focus on small, specific steps towards reducing or improving management of these problems
- Avoid major decisions or life changes
- Plan short-term activities which give the patient enjoyment or build confidence
- Encourage reduction in caffeine intake, alcohol and drug use¹²
- Encourage sleep hygiene including: establishing regular sleep and wake times; avoiding excess eating, smoking or drinking alcohol before sleep; creating a proper environment for sleep
- Encourage healthy nutrition, physical activity e.g. structured group physical activity program - three sessions per week of moderate duration (45 - 60 mins)
- Encourage the patient to:
 - resist pessimism and self-criticism
 - not to act on pessimistic ideas e.g. ending a marriage or leaving a job
 - not to concentrate on negative or guilty thoughts
 - discuss the link between physical symptoms and mood if appropriate
- People with few or very mild depressive symptoms will generally do well without pharmacological treatments. There are many structured therapies which have been effective for some people with depression e.g. cognitive behavioural therapy (CBT) or CBT combined with medicine/behaviour therapy/interpersonal therapy/structured problem solving/counselling

- Medication management:
 - the MO/NP may consider antidepressant medicine
 - for safety reasons tricyclic and MAOI antidepressants should not be used as medicines of first choice. If SSRI antidepressants are used in patients under 25 years, monitor for the onset or increase in suicidal thinking following commencement
 - if a medicine is prescribed the patient should be advised:
 - improvement will build up over two to three weeks after starting the medicine
 - mild side effects may occur and should be reported, but usually fade in seven to ten days
 - continue full-dose antidepressant medicine for four to twelve months after the condition improves to prevent relapse¹²
 - consult the MO/NP before stopping the medicine. All antidepressants should be withdrawn slowly under medical supervision
 - utilise serial rating scales, e.g. Hamilton depression rating scale, available at: <http://healthnet.umassmed.edu/mhealth/HAMD.pdf> to provide objective information regarding progress¹²
 - in the case of perinatal depression, potential for harm to the fetus or the breastfed infant must be carefully balanced with the harm to mother and infant if the mother remains untreated. Medicines should only be prescribed with the input of the woman and her significant others¹⁰
- *Hypericum perforatum* (St John's Wort, available from health food stores) is often taken for milder symptoms of depression, both acute and chronic. It should not be combined with other antidepressants and caution may be needed with diet. Interactions with other prescribed medicine may also occur
- Patients taking such preparations should be warned of the possibility of serious interactions with antidepressants and other medicines and advised to discuss its continuing use with an MO/NP

5. Follow up

- According to MO/NP instructions
- Monitor medication compliance and risk
- After improvement, make contingency plans with the patient if signs of relapse occur
- Offer ongoing support and encouragement
- Ensure observance with medicine(s)
- Encourage use of psychological therapies

6. Referral/consultation

- Consider referral to mental health services if:
 - there is a significant risk of self-harm, suicide or danger to others, psychotic symptoms or severe agitation (must refer to MO/NP/Psychiatrist)
 - significant depression persists despite treatment
 - the patient is a severely depressed adolescent
 - the patient is difficult to assess and manage
- Refer to ATODS with patient's consent if alcohol or drug misuse is a problem
- Refer to community agencies when:
 - symptoms persist
 - the patient has a poor or non-existent support network
 - social or relationship problems are contributing to the depression
- For women in the perinatal period, consider the impact of maternal mental illness on their capacity to safely care for their child and consider the quality of the mother-infant relationship¹⁰. Refer to child health services or infant/child and youth mental health services if concerned

Mania - adult/child

Recommend

- Consider admission to appropriately equipped and staffed facility
- May require admission under the *Mental Health Act 2000*

Background

- A manic episode is classified as mild (3 - 4 manic symptoms), moderate (extreme increase in activity or impairment in judgement), severe (without psychotic features requiring continual supervision to protect the patient from harm to self or others), or severe (with psychotic features)⁹

Related topics

 [Psychotic disorders, page 450](#)

1. May present with

- Elevated, expansive or irritable mood
- Inflated self esteem
- Decreased need for sleep, often being active in the middle of the night
- Pressured speech and racing thoughts
- Increased goals, plans and activities
- Poor judgement, out of character impulsive and risk-taking behaviour e.g. excessive spending, promiscuous behaviour
- Symptoms of psychosis e.g. grandiose delusion

2. Immediate management

- Ensure patient, self and others are safe

3. Clinical assessment

- See [Mental health presentation, history and assessment, page 428](#)

4. Management

- Consult MO/NP or Psychiatrist and describe findings of assessment
- MO/NP or Psychiatrist may order:
 - antipsychotic medication
 - blood tests
 - evacuation/hospitalisation for mental health assessment and treatment
- If the patient is unwilling or may be a threat to themselves or others or there is a risk of deterioration without treatment, emergency measures should be undertaken. See [Mental health behavioural emergencies, page 437](#)
- If under the influence of alcohol or drugs (illicit or otherwise) the dose of prescribed antipsychotic or sedative medication may need to be adjusted. Discuss with MO/NP. Patients should be closely monitored until intoxication has resolved and then reassessed

5. Follow up

- As per MO/NP instructions

6. Referral/consultation

- Consult MO/NP as above
- Refer to mental health services if:
 - mania is suspected
 - there is a significant risk of self-harm, suicide or danger to others, psychotic symptoms or severe agitation

Anxiety disorders - adult/child

There are many types of anxiety disorder with a range of symptoms including panic disorder, generalised anxiety disorder, perinatal anxiety disorder, post traumatic stress disorder, obsessive compulsive disorder, social phobia, specific phobia. Further information about the full range of anxiety disorders can be found at: www.beyondblue.org.au

Recommend

- Explain to the patient how the body's arousal reaction produces tremor, hyperventilation, tachycardia, muscle tension etc., and how worrying about such symptoms can create a vicious cycle
- Psychological therapies may help to prevent recurrence of anxiety - cognitive behaviour therapy (CBT) is one of the most evidence based treatments for depression and anxiety disorders. CBT teaches people to think realistically about common difficulties, helping them to change their thought patterns and the way they react to certain situations
- Avoid drugs and alcohol and beverages containing caffeine, as substances can exacerbate anxiety disorders
- Liaise with Health Workers/Mental Health Workers in Aboriginal and/or Torres Strait Islander communities
- Consider use of (telephone) interpreter and/or Transcultural Mental Health Workers for cultural and linguistically diverse (CALD) populations

Background

- Anxiety is a normal reaction to threat. Anxiety disorders are characterised by irrational anxiety when a threat does not exist or has passed. Behaviour designed to avoid the onset of anxiety is often an important aspect of the clinical presentation
- Anxiety disorders may be as common as depression in the perinatal period

1. May present with

Panic disorder¹³

- Is often exacerbated by the physiological sequelae of hyperventilation
- Recurrent attacks of severe anxiety that appear to come out of the blue, without obvious precipitant
- Panic attacks have a sudden onset with symptoms including palpitations, chest pain, choking sensations and dizziness
- Patients often fear that their symptoms are the result of a heart attack or stroke and that they may lose consciousness
- May be accompanied by agoraphobia. Patients often fear that they will have a panic attack in a place from which escape might be difficult or embarrassing, or in which help might not be available

Generalised anxiety disorder

- Anxiety is generalised and prolonged for at least 6 months duration
- Physical symptoms such as: increased HR, dry mouth, muscle tension, dizziness or light-headedness,

nausea or stomach upsets, increased sweating, restlessness ('the fight/flight reaction')

- Apprehension - worry about the future, feeling 'on edge', difficulty concentrating, inability to relax

Post traumatic stress disorder (PTSD)¹³

- History of experiencing a traumatic event in which a patient witnessed or experienced serious injury or threat of death and during the event had intense feelings of fear, helplessness or horror
- Patients re-experience the traumatic event with flashbacks, nightmares or intrusive recollections
- Persistent symptoms of increased arousal, such as insomnia, anger, poor concentration and exaggerated startle response
- Avoidance of stimuli associated with trauma

Obsessive compulsive disorder¹³

- Recurrent obsessional thoughts which cause marked anxiety or distress
- Obsessions are usually recognised as the patient's own thoughts or impulses i.e. not coming from outside the patient as may occur in psychosis
- Compulsive acts e.g. hand washing, checking the stove is turned off and doors are locked, which usually serve to reduce anxiety about a danger e.g. contamination

Social phobia¹³

- A fear of scrutiny by other people leading to avoidance of social situations
- Often associated with low self esteem and hypersensitivity to criticism

Specific phobia

- An excessive or unreasonable fear of an object or a situation e.g. seeing blood, flying, animals
- Avoidance of situations that trigger the anxiety

2. Immediate management

- Ensure safety of patient, self and others
- Consult MO/NP

3. Clinical assessment

- See [Mental health presentation, history and assessment - managing anger, page 428](#) in particular:
 - past episodes, including depression/anxiety during perinatal period in women
- Also consider diagnoses of thyrotoxicosis, depression, alcohol or other drug abuse (or withdrawal) or medicines such as benzodiazepines

4. Management

- Consult MO/NP or Psychiatrist and describe findings of assessment
- MO/NP or Psychiatrist may order:
 - medicine
 - blood tests
 - evacuation/hospitalisation for mental health assessment and treatment
- Provide information about anxiety and panic attacks. Explain how the body's arousal reaction produces tremor, hyperventilation, tachycardia, muscle tension etc. and how worrying about such symptoms can create a vicious cycle. Encourage the patient to:
 - use relaxation methods daily to reduce physical symptoms of tension
 - reduce use of stimulants e.g. coffee and cigarettes
 - increase physical activity - often successful strategy
 - encourage the patient to be engaged in pleasurable activities and to resume activities that have

been helpful in the past

- avoid self-medicating with alcohol or benzodiazepines, unless prescribed specifically for anxiety
- Specific management strategies
 - cognitive behavioural therapy is the primary treatment for anxiety disorders. Treatment may include components of patient education, graded exposure to the source of anxiety, training in anxiety management techniques, cognitive therapy techniques and specific skills training e.g. assertiveness

Panic disorder

- During a panic attack a patient should:
 - remain where they are until the panic attack passes
 - breathe slowly and gently through their nose, counting three seconds for each breath in and three seconds for each breath out
 - remind themselves that it is just a panic attack, they have survived numerous before, they are not having a stroke or heart attack and that the symptoms will pass
- When patients become confident that they can cope with panic attacks, the frequency of panic attacks usually diminishes

Medication management

- MO/NP may consider medicine if significant anxiety symptoms persist despite the measures suggested above
- Benzodiazepines e.g. diazepam, are an effective short-term treatment for severe anxiety, but should be used for no longer than two weeks
- Longer-term use of benzodiazepines may lead to dependence and is likely to result in the return of worse symptoms when discontinued
- Antidepressant medicines are the preferred medication but may transiently worsen anxiety initially
- Beta-blockers may help control physical symptoms such as tremor
- In the case of anxiety disorders in the perinatal period, potential for harm to the fetus or the breastfed infant must be carefully balanced with the harm to mother and infant if the mother remains untreated. Medicines should only be prescribed with the input of the woman and her significant others, and after consultation with a Pharmacist regarding the implications of medicines during pregnancy and breastfeeding

5. Follow up

- According to MO/NP instructions
- Offer ongoing support and encouragement
- Encourage use of psychological therapies

6. Referral/consultation

- Consult MO/NP as above
- Non-urgent referral to mental health services is advised if the patient's symptoms are sufficiently severe as to interfere with daily functioning
- For women in the perinatal period, consider the impact of maternal mental illness on their capacity to safely care for their child and consider the quality of the mother-infant relationship. Refer to child health services or infant/child and youth mental health services if concerned

Eating disorders

Eating disorders - adult/adolescent

- Consult MO/NP as soon as possible if Body Mass Index (BMI) < 14 or if patient is medically compromised
- Refer to MO/NP for ongoing monitoring of weight and BMI, nutritional intake, BP, pulse and electrolytes
- Refer to Psychiatrist or local mental health service for treatment of mental health problems and monitoring of suicide risk
- Involve Health Workers/Mental Health Workers in Aboriginal and Torres Strait Islander communities
- Consider use of (telephone) interpreter and/or Transcultural Mental Health Workers for cultural and linguistically diverse (CALD) populations
- Seek non-urgent specialist consultation if required through the Queensland Statewide Eating Disorders Outreach Service ☎ 07 3114 0809 email: EDOS@health.qld.gov.au

Background

- Eating disorders include anorexia nervosa, bulimia nervosa and eating disorders not otherwise specified
- Anorexia has the highest long-term mortality rate of any mental disorder
- Eating disorders are most commonly diagnosed in adolescent females, but found in both males and females across age spectrum from children to older persons
- Eating disorders commonly co-occur with other mental health problems such as depression and anxiety
- Sufferers commonly deny eating disorder behaviours

Related topics

 [Mental health behavioural emergencies, page 437](#)
 [Chest pain, page 93](#)
 [Acute gastroenteritis/dehydration - child, page 702](#)

[Mental health presentation, history and assessment, page 428](#)
[Acute gastroenteritis/dehydration, page 205](#)

Note: Due to the mortality and morbidity associated with anorexia nervosa, the information in this section relates mainly to patients with or at risk of anorexia

1. May present with

- Low body weight
- Gastrointestinal complaints, including oesophagitis
- Fainting
- Poor concentration
- Poor sleep
- Family member may present with concerns about patient losing weight, restricting food intake and/or using laxatives, diuretics or excessive exercise to control weight

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Perform rapid assessment, hydration status and BGL
- Attach monitor and perform ECG
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Consult MO/NP as per alerts on ADDS/CEWT score plus:
 - if patient complains of chest pain/shortness of breath
 - acute dehydration or patient has ceased fluid intake
 - postural drop in BP
 - prolonged QT interval on ECG
 - BMI:
 - adolescent $<$ third centile for age and gender
 - adult BMI < 14
 - severe, rapid or consistent weight loss irrespective of BMI e.g. ≥ 1 kg per week over several weeks
 - suicide risk identified
 - patient has diabetes or is pregnant

3. Clinical assessment

- See [Mental health presentation, history and assessment - managing anger, page 428](#) in particular:
 - presence of dizziness, chest pain, fainting, shortness of breath
 - ask about rate of weight loss
 - medication history including use of laxatives, stimulants and diuretics
 - vomiting
 - record nutritional intake
 - enquire about exercise
 - ATODS history
 - family history of mental illness including suicide
 - gain information from family members where possible, as patients commonly deny or minimise eating issues
 - does patient have diabetes or are they pregnant?
- Record urine output and ECG if not already Done. Check for prolonged QT interval
- Record and plot:
 - height
 - weight
 - BMI on age for height/weight/gender growth chart
- Assess for co-occurring mental health problems such as depression

4. Management

Acute presentation for adult/adolescent. See Immediate management

- Consult MO/NP who will arrange evacuation/transfer to regional psychiatric facility
- If possible insert IV cannula
- Take bloods for electrolytes (if possible)

- Prepare the patient for transfer

Ongoing management for adult/adolescent

- Regular monitoring of BP, HR, weight, electrolytes, nutritional intake, ECG and BMI
- Review by local mental health service/Psychiatrist for treatment of mental health problems and monitoring of suicide risk
- Monitor nutritional intake and exercise
- Monitor vomiting and use of laxatives, stimulants and diuretics
- Gain information from family members where possible
- Review by Dietitian if available

5. Follow up

- According to management plan with family and carer as appropriate, with visiting Psychiatrist/mental health team

6. Referral/consultation

- Refer to MO/NP/local hospital as required
- For non-urgent specialist advice contact the Queensland Statewide Eating Disorders Outreach Service on ☎ 07 3114 0809 (business hours) email: EDOS@health.qld.gov.au
- An information pack for General Practitioners on the treatment of eating disorders is available free of charge at www.eda.org.au or via post by calling 07 3394 3661 or by emailing admin@eda.org.au
- Support and information for family members and patients is extremely important, and is available through:
 - Eating Disorders Association Inc. (Qld) www.eda.org.au or ☎ 07 3394 3661
 - Isis - The Eating Issues Centre Inc. (Qld) www.isis.org.au or ☎ 07 3844 6055
 - The Butterfly Foundation (national) www.thebutterflyfoundation.org.au or National ED HOPE Line ☎ 1800 334 673 (1800 ED HOPE) or email support@thebutterflyfoundation.org.au
 - Brochures for health professionals and for family members/patients about anorexia nervosa are available from the Royal Australian and New Zealand College of Psychiatrists at www.ranzcp.org under Clinical Practice Guidelines
 - Consider a dental referral

Insomnia - adult/child

Recommend

- Involve Health Workers/Mental Health Workers in Aboriginal and/or Torres Strait Islander communities
- Consider use of (telephone) interpreter and/or Transcultural Mental Health Workers for cultural and linguistically diverse (CALD) populations

Background

- Sleep problems are one of the most common complaints in both the general health and mental health settings
- Patients with insomnia often have dysfunctional beliefs and attitudes about sleep. It is important to reassure them that most people with insomnia get more sleep than they perceive
- Temporary sleep problems are common at times of stressful life events, acute physical illnesses or changes in schedule
- Sleep requirements vary widely and usually decrease with age

1. May present with

- Distress about persistent insomnia
- Sometimes disabled by the daytime effects of poor sleep, including difficulty concentrating and staying awake
- Difficulty falling asleep
- Restless or un-refreshing sleep
- Frequent or prolonged periods of being awake
- Being kept awake by thoughts and worries

2. Immediate management Not applicable

3. Clinical assessment

- See [Mental health presentation, history and assessment - managing anger, page 428](#)
 - sleep history - pattern, use of stimulants

4. Management

- If insomnia/inability to sleep is due to noise or overcrowding the patient may require a secure, safe, quiet place to sleep. Consider men's, women's shelter/relatives or friends/other safe locations
- Consult Health Worker/Mental Health Worker for advice
- Consult MO/NP who may order a sleeping tablet
- Improvement of sleeping habits, not sedative medicine, is the best treatment. The following may not help the immediate problem but will assist the patient if sleep problems occur in the future. Strategies include:
 - relaxing in the evening
 - use simple measures such as hot milk, warm shower/bath
 - encourage regular time of going to bed and arising
 - avoid lying in bed for long periods of time worrying about sleeping
 - avoid oversleeping and napping. If necessary, limit to afternoon 'powernap' of 10 to 15 minutes
 - encourage regular exercise well before bedtime

- avoid bright light exposure in late evening or night and encourage exposure to bright light after rising
- avoid heavy meals or vigorous physical activity within three hours of bedtime
- encourage a quiet, dark room for sleeping, remove TV, stereo, laptop, internet access, mobile phone, other people if possible
- use a suitable mattress and pillow for comfort and support
- reserve bedroom for sleep and intimacy
- avoid alerting, stressful ruminations before bedtime. Allocate time earlier in the evening to go through worrying issues
- avoid caffeine after lunch
- reduce excessive alcohol intake
- avoid tobacco especially after dinner and avoid illicit drugs
- avoid having pets and highly illuminated digital clocks in the bedroom

Medication management

- The MO/NP may consider hypnotic medicine intermittently. Risk of dependence increases significantly after 14 days of use

5. Follow up

- Offer ongoing support and encouragement
- Encourage the use of relaxation techniques. May need to advocate to local government/other government bodies if overcrowding and high noise levels are cause of sleep problems in the community

6. Referral/consultation

- Consult MO/NP
- Consider referral to a sleep laboratory (if available) if more complex sleep disorders e.g. sleep apnoea, narcolepsy, night terrors or somnambulism are suspected
- Referral to learn relaxation techniques
- Mental health services where symptoms are severe and long lasting and the above measures are unsuccessful

Alcohol misuse - adult/child

Recommend¹⁴

- Ask all patients about quantity and frequency of alcohol intake and give brief advice to reduce their intake if applicable
- Advise:
 - healthy men and women should drink no more than 2 standard drinks on any day and no more than 4 standard drinks on a single occasion and should have 2 alcohol free days per week
 - for children and young people < 18 years of age, not drinking alcohol is the safest option. Children < 15 years of age are at great risk of harm from drinking alcohol and that for this age group, not drinking alcohol is especially important
 - for women who are pregnant or planning a pregnancy or breastfeeding, not drinking is the safest option
 - both short and long term risk of harm increases with the amount of alcohol consumed in a dose-dependent manner
- Use of Statewide Mental Health forms available at: <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/clinical-staff/mental-health/default.asp>

Background

- Family members may request help before the patient does e.g. because patient is drinking heavily, irritable at home or missing work

Related topics

 [Alcohol withdrawal, page 472](#)

 [Alcohol related epigastric pain, page 209](#)

 [Fits/convulsions/seizures, page 72](#)

 [Immunisation program, page 750](#)

[Acute alcohol intoxication, page 469](#)

[Depression, page 452](#)

[Anxiety disorders, page 456](#)

1. May present with

- Acute alcohol intoxication
- Alcohol withdrawal
- At risk pattern of alcohol use identified during consultation
- Depressed mood, nervousness and insomnia
- Poor memory or concentration
- Evidence of self-neglect e.g. poor hygiene
- Accidents or injuries due to alcohol use
- Physical complications of alcohol use e.g. gastritis, stomach ulcer, liver disease, hypertension
- Social and legal problems due to alcohol use e.g. marital problems, domestic violence, child abuse or neglect, missed work, drink driving

2. Immediate management

- If indicated see [Acute alcohol intoxication, page 469](#) and/or [Alcohol withdrawal, page 472](#)

Aboriginal and/or Torres Strait Islander peoples

Cultural considerations should be part of a thorough assessment or clinical vigilance, however language

and cultural barriers between Aboriginal and/or Torres Strait Islander peoples and non-Aboriginal and Torres Strait Islander health professionals may greatly impede communication and understanding

Alcohol consumption patterns are different in Aboriginal and Torres Strait Islander communities i.e. there are overall less people who drink, however there is drinking at levels likely to cause significant injury or ill health (harmful drinking)⁵. Alcohol consumption screening tools appropriate for Aboriginal and/or Torres Strait Islander peoples (IRIS) are available in *Alcohol Treatment Guidelines for Indigenous Australians* (2012) - www.alcohol.gov.au/internet/alcohol/publishing.nsf/Content/AGloz

In view of the above, history from family members, advice from Aboriginal and/or Torres Strait Islander Health Workers and assistance in examining the patient from both groups are extremely important in assessing the patient and deciding management

For further information refer to the *Alcohol Treatment Guidelines for Indigenous Australians* (2012) www.alcohol.gov.au/internet/alcohol/publishing.nsf/Content/AGloz

3. Clinical assessment

- Obtain a full patient history including medication history, alcohol and drug use
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - confusion, eye signs (paralysis of extra-ocular muscles), walking abnormality and poor nutrition (signs of Wernicke's encephalopathy)
- Physical examination for injury
- MO/NP may order pathology to check for alcohol related disease processes
- Assess harmful or hazardous levels of drinking (frequency, quantity)
- Assess alcohol dependence. Key features include:
 - strong desire or compulsion to use alcohol, loss of control over one's drinking behaviour
 - withdrawal including anxiety, tremors, sweating when drinking is ceased
 - tolerance e.g. drinks large amounts of alcohol without appearing intoxicated
 - continued alcohol use despite harmful consequences
 - relief of withdrawal symptoms by drinking
- Useful resource/tool such as Alcohol Use Disorders Identification Test - AUDIT form available at: <https://www.drugabuse.gov/sites/default/files/files/AUDIT.pdf> and the Drug Assessment Problem List: http://qheps.health.qld.gov.au/mentalhealth/docs/a_drug_ass_prob.pdf or *Queensland Alcohol and Drug Withdrawal Clinical Practice Guidelines* available at: <https://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/medicines/drugs-of-dependence/detox-guidelines.pdf>
- Assess patient's readiness to change their drinking behaviour:
 - pre-contemplation - not concerned about drinking
 - contemplation - actively thinking about change
 - planning to change - concerned about drinking/ready for change
 - action - carrying out lifestyle change/drinking behaviour
 - maintenance - maintaining the change over a long time
 - relapse - returned to previous drinking or dropped the new healthy behaviour. This is a normal part of the change process
- Also consider during clinical assessment:
 - symptoms of anxiety or depression may occur with heavy alcohol use
 - alcohol use can also mask other disorders e.g. depression, agoraphobia, social phobia,

generalised anxiety disorder, a grief reaction or traumatic stress

- assess symptoms of depression or anxiety. See [Depression, page 452](#) and [Anxiety disorders, page 456](#)
- drug misuse may also co-exist

4. Management

- Assess level of risk (low or high) of alcohol-related physical, psychological or social consequences. Match the management to the assessment of risk

Low risk drinking i.e. not dependent on alcohol, below safe limits for quantity and frequency

- Encourage to maintain sensible habits, simple education about the effects of alcohol and safe limits

Moderate risk drinking i.e. hazardous amounts or frequency but not dependent

- Advise to cut down
- Give information about safer levels
- Give brief intervention
- Quantify the patient's alcohol consumption:
 - explain where this fits in relation to safe, hazardous and harmful drinking levels
 - link existing alcohol-related problems to drinking
 - begin to explore whether the patient is contemplating change
 - if they are, provide information and suggestions for change appropriate to circumstances. If they are not, in a non-judgemental manner note concern, acknowledge the patient's decision and encourage follow up of the presenting issue

High risk drinking behaviour (harmful drinking)

- It is likely that the patient's drinking is harmful to their health and/or lifestyle, that they have a drinking problem, physical dependency on alcohol is likely, and detoxification is required
- Give information on strategies on how to cut down to safe drinking levels
- See [Tips for patients to cut down to safe drinking levels, page 468](#)
- Refer to specialist services such as ATODS for assessment (preferably conducted whilst the patient is in hospital) and counselling
- Advise abstinence to patients who operate vehicles or machinery, are, or are considering pregnancy, those with contraindicated medical conditions and those on medicines such as sedatives, analgesics and selected antihypertensives
- Patients who think they have a problem with drinking and who don't think reducing or stopping will be very difficult have the best outlook for improvement. Many others will respond to straight forward advice

Standard drinks guide¹⁵

These are only approximate number of standard drinks. Always read the container for the exact number of standard drinks

Alcoholic beverage	Standard drinks A standard drink is defined as 10 g of alcohol (equivalent to 12.5 mL of pure alcohol)
Low strength beer (2.7% alcohol)	
1 can or stubbie (375mL)	0.8
285 mL glass	0.6
425 mL glass	0.9
Slab or 24 x 375 mL cans or stubbies	19
Mid strength/light beer (3.5% alcohol)	
1 can or stubbie (375mL)	1.0
285 mL glass	0.8
425 mL glass	1.2
Slab or 24 x 375 mL cans or stubbies	24
Full strength beer (4.9% alcohol) includes diet beer	
1 can or stubbie (375mL)	1.4
285 mL glass	1.1
425 mL glass	1.6
Slab or 24 x 375 mL cans or stubbies	34
Wine (9.5% - 13% alcohol)	
100 mL glass	1.0
Average restaurant serving (150 mL)	1.4 - 1.6
750 mL bottle	7.0 - 8.0
4 litre cask	36 - 43
Spirits (37% - 40%)	
1 nip (30 mL)	1.0
700 mL bottle	22
Pre - mixed spirits (5% - 7% alcohol)	
1 can (375 mL)	1.5 - 2.1
1 bottle (275 mL)	1.1 - 1.5

Essential information for patient and family

- Alcohol dependence is an illness with serious consequences
- Ceasing or reducing alcohol use will bring health benefits
- Any drinking during pregnancy may harm the baby including an increased risk of fetal alcohol spectrum disorder
- For most people with alcohol dependence, physical complications of alcohol misuse or mental health disorder, abstinence from alcohol is the preferred goal. Sometimes abstinence is

also necessary to avoid social crisis, to regain control over drinking or because of failed attempts at reducing drinking. Abrupt abstinence can cause symptoms of varying severity. Consult MO/NP

- See [Alcohol withdrawal, page 472](#)
- In some cases of harmful alcohol use without dependence, or where the patient is unwilling to quit, controlled or reduced drinking is a reasonable goal
- Relapses are common. Controlling or ceasing drinking often requires several attempts. Outcome depends on the motivation and confidence of the patient

Tips for patients to cut down to safe drinking levels

- Have your first alcoholic drink after starting to eat
- Quench thirst with non-alcoholic drinks before having alcohol
- Have a non-alcoholic drink before every alcoholic drink
- Switch to low alcohol beer
- Take smaller sips
- Plan activities or tasks at those times that you usually drink
- When bored or stressed take physical exercise instead of drinking
- Explore new interests - fishing, cinema, social club and sport
- Avoid going to the pub after work
- Avoid or limit where possible, time spent with your 'heavy' drinking friends
- If feeling social pressure to drink, patients can say 'my doctor told me to ease off'

5. Follow up

- The assessment and management of alcohol misuse usually occurs over time. Information may be given to a patient on the harmful effects of alcohol and it may be months later that the patient returns to you and requests assistance to cut down or quit. Interventions will only be successful if the patient is receptive to them. Giving advice on how to cut down on drinking will not be heard by the patient if they are not considering changing their behaviour at the time
- Consult MO/NP if depression and/or anxiety present after period of abstinence
- See [Depression, page 452](#) and [Anxiety disorders, page 456](#)
- Encourage immunisation with influenza and pneumococcal vaccines
- See [Immunisation program, page 750](#)

6. Referral/consultation

- Consult MO/NP as above and consider referral to/for:
 - Alcohol Tobacco and Other Drug Service (ATODS), if available
 - hospital inpatient detoxification if cannot be detoxified safely in the community
 - targeted counselling, if available, to deal with the social consequences of drinking e.g. psychological counselling, relationship counselling, www.ontrack.org.au
 - assessment of effect of alcohol on cognitive function
 - mental health services, if there is a severe mental illness, or if symptoms of mental illness persist after detoxification and abstinence

Resources

- *Queensland Alcohol and Drug Withdrawal Clinical Practice Guidelines* available at <https://www.health.qld.gov.au/publications/clinical-practice/guidelines/procedures/medicines/drugs-of-dependence/detox-guidelines.pdf>

Acute alcohol intoxication - adult/child

Ethanol, methanol, ethylene glycol

Recommend

- Assessment of intoxicated individuals is difficult but should be pursued as far as is possible. Assessment findings should be reviewed after signs of intoxication have abated⁶
- Do not leave an intoxicated patient alone
- As alcohol dependent patients are usually deficient in thiamine, use thiamine 300 mg IM or IV, daily for 3 - 5 days then thiamine 300 mg orally, daily for several weeks
- Wernicke's encephalopathy is a vitamin emergency and higher doses and a longer period of parenteral administration may be appropriate in those with Wernicke encephalopathy or suspected malnutrition
- Always give thiamine before administering glucose (including dextrose 5% IV) for hypoglycaemia
- MO/NP will order IV/IM thiamine²¹

Background

- While alcohol use, particularly intoxication, can significantly complicate the provision of appropriate care, it should not compromise it. Intoxicated individuals are more likely to present late, to have underlying contributing factors (see below) and to have these contributing factors missed on assessment
- An individual who presents to a facility whilst intoxicated or withdrawing from alcohol should be extended the same level of care as any other patient
- Patients presenting intoxicated from alcohol may subsequently develop a withdrawal state, if there is a history of dependence. However those with no such history are likely to recover uneventfully

Related topics

 [Alcohol withdrawal, page 472](#)
 [Fits/convulsions/seizures, page 72](#)
 [Mental health behavioural emergencies, page 437](#)

[Alcohol misuse, page 464](#)
[Head injuries, page 131](#)
[Mental health presentation, history and assessment, page 428](#)

1. May present with

- Acute intoxication with no associated medical condition:
 - poor motor coordination
 - slurred/incoherent speech
 - poor concentration
 - mood instability/impulsivity
 - impaired judgement
 - sedation
 - insomnia
 - blackouts/stupor and coma may occur with very high doses
- As above due to intoxication plus any of the following contributing factors:
 - intoxication due to another substance
 - head injury

- hypoglycaemia
- hypothermia (low body temperature)
- epilepsy
- hypotension/shock due to blood loss or sepsis
- organic brain disease
- Children may ingest products that contain various proportions of alcohol (methylated spirits, mouthwash, aftershave, perfume) and this renders them susceptible to hypoglycaemia which may be delayed
- Intoxication and chronic abuse of alcohol increases the frequency and severity of injury
- Never assume that an alteration in a patient's level of consciousness is due to intoxication alone
- Always re-examine a patient when sober

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- If confused or withdrawn, strange, aggressive or acutely disturbed:
 - ensure your own safety - you may need to enlist the help of the police or others. Have assistance visibly close by and ready to help, but not to further frighten or intimidate the patient
 - do not approach the patient if they have a weapon and don't put yourself in a position where you could be trapped by the patient
 - explain what is happening at all times. Reassure the patient and avoid confrontation. See [Mental health presentation, history and assessment - managing anger, page 428](#) and consult MO/NP

3. Clinical assessment

- Obtain a full patient history including past episodes:
 - amount, type and duration of alcohol and any other drug or medicine intake
 - the possibility of alcohols other than ethanol may need to be considered, e.g. methanol and ethylene glycol initially present similar to ethanol but subsequently develop other more serious effects
 - information may come from other sources as the patient may not be able to answer questions
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
 - confusion, eye signs (paralysis of extra-ocular muscles), walking abnormality and poor nutrition (signs of Wernicke's encephalopathy)
- Expose and examine the patient systematically starting at the head and progressing downwards to the toes. Remove the clothing as you move down. Do not let the patient get cold and maintain privacy with a blanket. Look and feel for any abnormalities, signs of injury

4. Management

- Consult MO/NP
 - as per alerts in the ADDS/CEWT score
 - If GCS < 14, abnormal BGL or other significant findings
 - diazepam may be required to prevent acute withdrawal
 - patient is assessed as being at risk to themselves or others
- If signs and symptoms of Wernicke's encephalopathy present or patient has suspected or is at high risk of Wernicke's encephalopathy MO/NP will order IM or IV thiamine. This is a vitamin emergency

- Commence ongoing oral thiamine at least 300 mg daily¹⁶
- An intoxicated patient should not be left alone
- Regularly assess vital signs and GCS until either the patient sobers up or patient is evacuated/hospitalised. Always act on a GCS below 14 and one that is falling

5. Follow up

- If chronic alcohol misuse commence patient on oral thiamine 300 mg daily¹⁶
- Be aware of the potential over the following days to develop withdrawal symptoms in a heavy drinker who ceases drinking abruptly. See [Alcohol withdrawal, page 472](#)
- Before allowing any patient home it is especially important to assess suicidal intent. Enquire specifically about:
 - suicidal thoughts
 - previous deliberate self-harm
 - evidence of a premeditated act without the intention of being found
- Consider other high risk factors:
 - mental illness including depression and schizophrenia
 - violent self-harm attempt such as jumping, hanging or shooting, car crash
 - chronic alcohol misuse or drug dependency
 - single, male
 - after having a baby
- If allowed home, patient should be discharged into the care of a responsible person
- Review next day
- Offer advice and information regarding the harmful effects of excessive alcohol intake. See [Alcohol misuse, page 464](#). There is good evidence to show that an MO/NP or Health Care Worker's advice can be influential in modifying drinking patterns

6. Referral/consultation

- Consult MO/NP as per management
- Consider referral to ATODS:
 - to obtain advice from ATODS if no mental illness is present
 - for targeted counselling, if available, to help deal with the psychological consequences of drinking e.g. psychological counselling, relationship counselling
 - for hospital inpatient detoxification if patient motivated but cannot be detoxified in the community
 - mental health services if there is a severe mental illness or if symptoms of mental illness persist after detoxification and abstinence
 - if enforced abstinence at outstations and camps organised by the community or utilising other organisations, e.g. Alcoholics Anonymous, have met with some success
 - Alcohol and Drug Information Service ☎ 1800 177 833 or ☎ 07 3236 2414 in Brisbane area
 - NSW Drug and Alcohol Information Services ☎ 1800 422 599
 - See [Alcohol misuse, page 464](#)
 - See <https://www.ontrack.org.au/web/ontrack>

Alcohol withdrawal - adult

Recommend

- Treat any alcohol dependent patient presenting in a state of established withdrawal as a potential medical emergency. Delirium tremens (DTs) is a medical emergency with a significant mortality rate if not treated appropriately
- Wernicke's encephalopathy is a vitamin emergency
 - all patients with suspected Wernicke's encephalopathy require IM or IV thiamine 300 mg daily for 3 - 5 days then oral thiamine 300 mg daily for several weeks
 - Wernicke's encephalopathy is a vitamin emergency and higher doses and a longer period of parenteral administration may be appropriate
 - MO/NP will order IV/IM thiamine¹⁶
- Children and youth should be managed with a Specialist MO

Background

- The course of withdrawal depends on:
 - the severity of dependence
 - illnesses such as physical and mental health disorders
 - psychological factors e.g. the physical environment, fears and expectations⁶

Related topics

 [Fits/convulsions/seizures, page 72](#)

 [Mental health behavioural emergencies, page 437](#)

[Alcohol misuse, page 464](#)

[Glasgow coma scale \(GCS\)/AVPU, page 766](#)

1. May present with

- Variable symptoms depending on degree of dependence and time since last drink
- **Mild withdrawal**⁶
 - tremor, nausea
 - high pulse rate
 - high blood pressure
 - raised temperature
 - anxiety, agitation/restlessness
 - insomnia
- **Severe withdrawal**⁶
 - seizures may occur, usually within the first 48 hours of cessation of drinking
 - delirium tremens usually develops 2 - 5 days after stopping or significantly reducing alcohol consumption. The usual course is 3 days but it can be up to 14 days. Its clinical features are:
 - confusion and disorientation, extreme agitation or restlessness - the patient often requires restraining
 - autonomic instability (e.g. fluctuation in BP or pulse), disturbance of fluid balance and electrolytes, raised temperature
 - severe hyperactivity, severe tremor, severe agitation
 - paranoid ideation, typically of delusional intensity
 - distractibility and accentuated response to external stimuli
 - hallucinations affecting any of the senses, but typically visual (highly coloured, animal form)

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient](#), page 36
- See [Fits/convulsions/seizures](#), page 72
- Conduct a rapid assessment including past and recent history, particularly relating to past withdrawals, DT, seizures and other medical conditions
- The immediate aim is to modify the withdrawal and increase the safety of the patient over the next 3 to 4 days
- There is no simple way of predicting whether a withdrawal will be serious or straightforward
- If confused or withdrawn, strange, aggressive or acutely disturbed behaviour:
 - ensure the safety of the patient, yourself and others
 - do not approach the patient if they have a weapon and don't put yourself in a position where you could be trapped by patient
 - explain what is happening at all times, the patient may be frightened. Reassure the patient and avoid confrontation
 - the patient may be in a hyper stimulated state. Attend to the patient in a quiet room with low light, in the company of a familiar person, friend or relative
 - if restraint is required consult MO/NP
 - see additional information. Managing anger: [Mental health presentation, history and assessment - managing anger](#), page 428 and [Delirium](#), page 446

3. Clinical assessment

- Obtain a full patient history including past episodes, amount, type and duration of alcohol and any drug and/or medicine intake, nutrition intake
- Document when last drink consumed
- Check for withdrawal from other sedatives (similar presentation) e.g. benzodiazepines and intoxication with stimulants e.g. amphetamines
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
 - confusion, eye signs (paralysis of extra-ocular muscles), walking abnormality and poor nutrition (signs of Wernicke's encephalopathy)
- Alcohol withdrawal scale - Clinical Institute Withdrawal Assessment (CIWA-Ar) or Alcohol Withdrawal Scale (AWS) available from *Queensland Alcohol and Drug Withdrawal Clinical Practice Guidelines* at: <https://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/medicines/drugs-of-dependence/detox-guidelines.pdf>
- Observe outstretched hands for tremor
- Expose and examine the patient systematically starting at the head and progressing downwards to the toes. Do not let the patient get cold, maintain privacy and cover with a blanket. Look and feel for any abnormalities/signs of injury

4. Management

Mild withdrawal⁶

- Explain the situation to family and assess their support
- Patient should be cared for in a calm, friendly environment and not left alone
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) 4 hourly +
 - GCS

- signs of progression or recovery
- If the patient is agitated or tremulous give oral diazepam
- Consult MO/NP who may order a withdrawal regimen of regular doses of diazepam
- Thiamine is required. See Severe withdrawal
- Underlying disease or infection should be attended to

Severe withdrawal

- As for mild withdrawal +
- Constant reassurance and orientation are necessary
- Consult MO/NP
- If signs and symptoms of Wernicke's encephalopathy present this is a vitamin emergency. If patient has suspected or is at high risk of Wernicke's encephalopathy MO/NP will order IM or IV thiamine 300 mg daily for 3 - 5 days then oral thiamine 300 mg daily for several weeks
- Commence ongoing oral thiamine at least 300 mg daily¹⁶
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) and GCS ½ hourly until the patient recovers or patient is evacuated/hospitalised
- Always act on GCS < 14 or falling GCS
- Diazepam is the sedative of choice for alcohol withdrawal⁶
- Consult MO/NP if medically compromised. Underlying disease or infection should be attended to
- If patient is fitting, has delusions or is having hallucinations give diazepam IV. Administer with ready access to emergency equipment. See [Mental health behavioural emergencies, page 437](#) for Flumazenil

Schedule	4	Diazepam		DTP
				IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	2 mg 5 mg	Oral	Adult only 10 mg	Stat Further doses on MO/NP order
Ampoule	10 mg/2 mL	Slow IV injection Do not give IM, absorption is unreliable	Adult 5 mg undiluted with second 5 mg dose if required to a max. of 10 mg. Give slowly at a max. rate of 5 mg/min	
Provide Consumer Medicine Information: causes sedation and respiratory depression				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

16,17,18

5. Follow up

- If chronic alcohol misuse give 300 mg oral thiamine daily¹⁶
- Before allowing any patient home it is especially important to assess suicidal intent. Enquire

specifically about:

- suicidal thoughts
- previous deliberate self-harm
- evidence of a premeditated act without the intention of being found
- consult MO/NP if suicidal risk present
- Consider other high risk factors:
 - mental illness including depression and schizophrenia
 - violent self-harm attempt such as jumping, hanging or shooting
 - chronic alcohol misuse or drug dependency
 - single, male
 - after having a baby
- If allowed home, patient should be discharged into care of responsible adult
- Review next day and at next MO/NP clinic, consider commencing naltrexone or acamprosate
- Offer advice and information regarding the harmful effects of excessive alcohol intake. See [Alcohol misuse, page 464](#). There is good evidence to show that advice from a health professional can be influential in modifying drinking patterns

6. Referral/consultation

- Consult MO/NP as above:
 - as per alerts in ADDS/CEWT score
 - GCS < 14 or falling GCS or other significant findings
 - if thiamine or diazepam is required
 - if patient is assessed as being at risk to themselves or others
- Consider referral:
 - to obtain advice from ATODS, if no mental illness is present
 - for targeted counselling, if available, to help deal with psychological consequences of drinking e.g. psychological or relationship counselling
 - for hospital inpatient detoxification if motivated but cannot be detoxified in the community
 - to mental health services if there is a severe mental illness or if symptoms of mental illness persist after detoxification and abstinence
 - if enforced abstinence at outstations or camps organised by the community or utilising other organisations e.g. Alcoholics Anonymous, have had some success
 - Alcohol and Drug Information Service ☎ 1800 177 833 or ☎ 07 3236 2414 in Brisbane area
 - NSW Drug and Alcohol Information Services ☎ 1800 422 599

Tobacco smoking - adult/child

Recommend

- Assess smoking status in every patient over 10 years of age¹⁴
- Consult MO/NP and discuss any patient who is intending to cease smoking and is on clozapine, for monitoring of plasma clozapine levels¹⁹
- All patients who smoke, regardless of the amount they smoke, should be:
 - asked about their interest in quitting
 - assessed whether they are nicotine dependent and if so provide appropriate pharmacotherapy
 - advised to stop smoking
 - offered referral to a proactive telephone call-back cessation service such as Quitline ☎13 78 48 or ATODS Health Worker/service if available¹⁴

Related topics

- 📖 [Chronic obstructive pulmonary disease, page 416](#)
- 📖 [Acute asthma, page 81](#)
- 📖 [Chronic asthma, page 415](#)
- 📖 [Immunisation program, page 750](#)
- 📖 [Antenatal care, page 484](#)

1. May present with

- Asking for help to quit smoking
- As part of a routine consultation or annual health check
- As part of management of conditions caused, or compounded by, smoking: heart disease, peripheral vascular disease, diabetes, hypertension, hyperlipidaemia, obesity, COPD, asthma and chest infections
- Management of conditions of family/household members with e.g. asthma
- Pregnant woman

2. Immediate management Not applicable

3. Clinical assessment

- Take comprehensive patient history, including previous attempts to stop smoking, identify what worked and why they started smoking again
- Current medicines - in particular clozapine (risk to plasma levels if sudden cessation of smoking)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Assess patient's readiness to quit smoking:
 - pre-contemplation - not concerned about smoking
 - contemplation - actively thinking about change
 - planning to change - concerned about smoking/ready for change
 - action - carrying out lifestyle change/smoking behaviour
 - maintenance - maintaining the change over a long time
 - relapse - returned to smoking or dropped the new healthy behaviour. This is a normal part of the change process

4. Management

- In a clear and respectful way, encourage every smoker to quit. Non-judgemental enquiry about smoking is associated with greater patient satisfaction²²
- If the patient does not want to stop smoking, ask them to come back if they change their mind or want more information to help them
- Conduct 'brief intervention' and 'motivational interviewing' according to their stage of change. Discuss the harmful effects of smoking and provide information on how to stop smoking
- Consult MO/NP regarding a need for thorough physical examination and appropriate tests e.g. chest x-ray, spirometry or the opportunity for medicine to assist the patient in stopping smoking e.g. nicotine replacement therapy (NRT)

Essential information for patient

- If a patient with a condition caused by or compounded by smoking stops smoking, no matter how old they are, the condition will get better or at least not get worse as quickly
- Explain that there may be withdrawal symptoms such as mood swings, irritability, anxiety, changed sleep patterns, headache, aches and pains, feelings of restlessness and difficulty in concentrating, increased appetite and cravings. People do not get all of these symptoms and they will get better over time
- People worry about putting on weight but weight gain may be less of a risk than continuing to smoke. Weight gain may be controlled by a more active lifestyle and healthy eating
- 'Cutting down' the number of cigarettes or changing to a lower nicotine brand may help people change their mindset about smoking, but cessation should always be the goal

Tips to stop smoking

- Set a date to stop smoking
- Tell family, friends and people at work of the plan to quit and ask for support, like not smoking around the patient at home and work
- Get rid of all cigarettes and other things used for smoking such as ashtrays etc.
- If have tried to quit before, anticipate and avoid what caused problems quitting previously - identify why and where you smoke and what 'triggers' you to smoke
- Do not replace cigarettes with high sugar, high fat foods
- Drink lots of water and eat more fruit. Do more physical activity
- Consider nicotine patches, gum or medicine to assist - see MO/NP for advice
- Give pamphlets on the effects of smoking and/or how to stop smoking
- Recommend the Quitline on ☎ 13 78 48 for further support, advice and information

Resources for assistance with cessation of smoking

- Medicines to help Aboriginal and/or Torres Strait Islander people stop smoking: a guide for health workers email indigenoustobacco@health.gov.au
- Smoking Cessation Clinical Pathway available at: www.health.qld.gov.au/caru/pathways/docs/smoking-pathway.pdf
- Tackling Indigenous Smoking available at: <http://www.health.gov.au/internet/main/publishing.nsf/Content/indigenous-tis-lp>
- See the current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>

5. Follow up

- Review in one week and offer further encouragement and support
- Information may be given to patient on the harmful effects of smoking and it may be months later that the patient returns to you and requests assistance to quit
- Interventions will only be successful if the patient is receptive to them
- Giving advice on how to stop smoking will not be heard by the patient if they are not considering changing their behaviour at the time
- Encourage immunisation with influenza and pneumococcal vaccines
- See [Immunisation program, page 750](#)

6. Referral/consultation

- Consult MO/NP, consider referral to ATODS Health Worker/Service if available

Other drugs/substances - adult/child

Recommend

- The *Queensland Health Dual Diagnosis Clinical Guidelines* available at: http://www.dovetail.org.au/media/16123/dd_guidelines_2011.pdf
- Queensland Health Dual Diagnosis Clinician tool kit available at: http://www.dovetail.org.au/media/16126/dd_tkit_2011.pdf
- *Queensland Alcohol and Drug Withdrawal Clinical Practice Guidelines* available at: <http://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/medicines/drugs-of-dependence/detox-guidelines.pdf>

Related topics

[Toxicology/poisoning/overdose, page 224](#)

[Psychotic disorders, page 450](#)

1. May present with

- Overdose
- Asking for help to quit
- Under the influence
- Altered level of consciousness
- Drug induced psychosis

2. Immediate management

- See [Toxicology/poisoning/overdose, page 224](#)

3. Clinical assessment

- Take comprehensive patient history
- Question patient about drug and substance abuse. For example:
 - inhalants - petrol, glue, paint, aerosols
 - cannabis - gunga, yandi, grass, weed
 - other substances - mouthwash, methylated spirits, amphetamines, heroin, pain killers, tranquilisers, steroids, synthetic substances (kronic, bath salts, party drugs), ecstasy

- any others
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)

4. Management

- If patient admits to using drugs/substances - ask which substance and provide brief education regarding health risks
- Consult MO/NP if required

5. Follow up

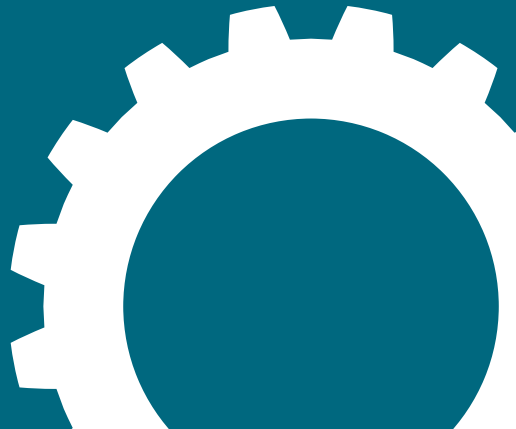
- As per MO/NP instructions

6. Referral/consultation

- Consult MO and consider referral to:
 - ATODS Health Worker/Service if available
 - *Queensland Alcohol and Drug Withdrawal Clinical Practice Guidelines* available at: <https://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/medicines/drugs-of-dependence/detox-guidelines.pdf>
 - Queensland Alcohol and Drug Information Service ☎ 1800 177 833
 - NSW Drug and Alcohol Information Service ☎ 1800 422 599
- For more information on alcohol reduction and smoking cessation refer to the current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>
- The *Queensland Health Dual Diagnosis Clinical Guidelines* available at: http://www.dovetail.org.au/media/16123/dd_guidelines_2011.pdf
- Queensland Health Dual Diagnosis Clinician tool kit available at: http://www.dovetail.org.au/media/16126/dd_tkit_2011.pdf
- Outside of Queensland - refer to local protocols

Section 5

Sexual and reproductive health



Contents

- Women and antenatal health, page 482
- Hypertension and premature events, page 497
- Labour, birth and postnatal care, page 526
- Postpartum haemorrhage (PPH), page 539
- Post birth care, page 545
- Contraception, page 556
- Sexually transmitted infections, page 578
- Rape and sexual assault, page 620

Women and antenatal health

Health check - women

Recommend

- Offer an annual health checkup for all Aboriginal and Torres Strait Islander women including a STI check for sexually active women, as many infections have no symptoms
- Encourage well women without symptoms aged over 40 years to have a free breastscan with Breastscreen Queensland every 2 years. The target group is women aged 50 - 74 years. See <https://www.health.qld.gov.au/qhpolicy/docs/gdl/qh-gdl-378-1.pdf>
- All women should be advised to be familiar with the normal look and feel of their breasts and to report any new or unusual changes to their General Practitioner or local health service provider without delay¹
- Human papillomavirus vaccination for eligible females as per latest edition of *The Australian Immunisation Handbook*²
- Pap smear screening is recommended every two years for women who have ever had sex and have an intact cervix, when they reach the age of 18 years or within 2 years after first having sex (whichever is later) and until 69 years³
- Pap smears can only be provided by an authorised Pap Smear Provider with a State Identifier Number on the Queensland Health Pap Smear Register
- The Australian Drug Evaluation Committee uses a categorisation intended to provide information which can be used by health professionals as the basis for decision making when planning medical management of pregnant patients or those intending to become pregnant. The categories are: A, B1, B2, B3, C, D, and X with explanation of these categories found at <http://www.tga.gov.au/australian-categorisation-system-prescribing-medicines-pregnancy>

Related topics

-  [Acute abdominal pain, page 200](#)
-  [Low abdominal pain in female, page 597](#)

[Sexually transmitted infections, page 578](#)

1. May present with

- Patient request for a women's health check
- As referral after health screening
- A women's health issue e.g. contraception, menstrual issues, pregnancy, menopause
- Symptoms of a gynaecological problem e.g. low abdominal pain, abnormal menstrual bleeding, vaginal discharge
- A general health problem and agrees to a women's health check

2. Immediate management Not applicable

3. Clinical assessment

- Take complete patient history including:
 - family, medical, social and cultural history
 - medication and vaccination history
 - reproductive history including menstrual, contraceptive, obstetric and STI risk. See [Sexually transmitted infections, page 578](#)

- Pap smear history including date of last Pap smear, previous history of abnormality and previous treatment and follow up
- breast history, mammogram screening, previous breast problems, investigations and management
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - urinalysis
 - BGL
- Perform physical examination:
 - inspect and palpate abdomen, note scars from previous abdominal surgery, caesarean section

4. Management

- Pap smear provider is responsible for follow up of results of pap smears
- Offer health promotion/education on other women's health issues such as: sexual assault, domestic violence, continence, breast care/screening, menopause, contraception, pregnancy including perinatal mental health and sexual health as required
- Explain breast self awareness - <https://www.health.qld.gov.au/breastscreen>

5. Follow up

- Give patient all pathology results and inform her when next Pap smear is due. Women with an abnormal Pap smear result who are currently being investigated, treated or followed up should have Pap smears according to the NHMRC guidelines⁴ or by the treating Gynaecologist's recommendations
- STI results including contact tracing. See [Sexually transmitted infections, page 578](#)

6. Referral/consultation

- Refer abnormalities to MO/NP
- Refer for concerns regarding menstruation, presence of abnormal bleeding - intermenstrual bleeding (IMB), post coital bleeding (PCB), or post menopausal bleeding (PMB) and investigation regardless of result

Antenatal care

Recommend

- Antenatal care should be provided by a Midwife/MO/NP in collaboration with the facility where birth is planned to occur
- Queensland Health mandates use of the Queensland Pregnancy Health Record in all its facilities. Other jurisdictions may use other protocols. The Pregnancy Health Record is available at: https://www.health.qld.gov.au/improvement/pathways/docs/pregnancy_rec.pdf. They can be ordered from: https://www.health.qld.gov.au/improvement/pathways/docs/preg_organising.pdf
- The first antenatal visit by MO/NP or Midwife should ideally occur after the first missed period, preferably before 12 weeks gestation
- If a woman presents late, perform all antenatal care activities recommended for first antenatal visit plus those which correspond to current gestation, especially if greater than 32 weeks gestation
- A minimum of five antenatal visits should be offered/provided to women with low risk pregnancies with an aim of seven to nine visits in total
- Where necessary refer to *Queensland Maternity and Neonatal Clinical Guideline: Obesity in Pregnancy*. Available at: <https://www.health.qld.gov.au/qcg/documents/g-obesity.pdf>
- Consider perinatal mental health

Related topics

-  [Health check - women, page 482](#)
-  [Group B *Streptococcus* prophylaxis, page 513](#)
-  [Rh\(D\) immunoglobulin, page 536](#)

[Sexually transmitted infections, page 578](#)

1. May present with

- Missed period
- Urinary symptoms
- Gestational diabetes mellitus

2. Immediate management Not applicable

3. Clinical assessment

- Obtain complete obstetric/medical/surgical history
- Complete a first midwife risk evaluation. See Australian College of Midwives *National Midwifery Guidelines for Consultation and Referral*. See: <https://issuu.com/austcollegemidwives/docs/guidelines2013/1>
- Administer the universal psychosocial screening tools including the Safe Start Psychosocial Assessment and the Edinburgh Postnatal Depression Scale available at: www.blackdoginstitute.org.au/docs/CliniciansdownloadableEdinburgh.pdf
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or if not available ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination. See Routine Antenatal Care on following pages
 - confirmation of pregnancy by urine/blood test (β -hCG test)
 - accurate establishment of gestation is important. Ultrasound examination may be performed by Ultrasonographer or an Obstetrician/Midwife/MO/NP where ultrasound is within the clinician's

scope of practice. If an accurate dating scan is unable to be performed in the community arrange an appointment at an appropriate facility

4. Management

- The antenatal care schedule will depend on the individual woman's needs. Routine reviews recommended in the Queensland Pregnancy Health Record are:
 - Midwife/MO/NP first visit preferably before 12 weeks
 - further visits at 12 - 18, 20, 24, 28, 30 - 32, 34, 36, 38, 40, 41 weeks (20, 36 and 40 week visits with Midwife/MO/NP and/or hospital staff where planned birth is to occur)
- In centres where there is no Midwife refer women for antenatal care to visiting Midwife/MO/NP following the same schedule
- Transfer care to referring obstetric service in consultation with obstetric staff at 36 weeks gestation or earlier according to woman's needs
- From first visit provide antenatal education on smoking, alcohol and other drug use in pregnancy, healthy nutrition, physical activity, mental health, danger signs of complications, preparation for birth, breastfeeding and early parenthood, and the importance of the early years of a child's life as per Queensland Pregnancy Health Record

High risk pregnancy management

- Frequency of visits for women with high risk pregnancy is determined in consultation with the Obstetrician, based on need and context
- Existing medication therapy reviewed for safety in pregnancy. See Australian categorisation system for prescribing medicines in pregnancy: <http://www.tga.gov.au/australian-categorisation-system-prescribing-medicines-pregnancy>

Women who present late or who are reluctant to present for antenatal care

- Consider health promotion and health education programs
- Perform all antenatal care activities recommended for first antenatal visit plus those that correspond to current gestation especially if greater than 32 weeks gestation
- Prompt referral to Midwife/MO/NP

High risk pregnancy and mental health

- If women have high risk pregnancies and/or births, they are at greater risk of mental health problems as a result of stressful and possible traumatic events. This is particularly so for women who are at a greater risk of mental health issues (past psychiatric history, social isolation, family history of psychiatric illness, history of substance abuse, past history of abuse/neglect/trauma)
- Universal psychosocial screening for all women antenatally and postnatally is recommended (use Edinburgh Postnatal Depression Scale and Domestic Violence initiative screening tool) Available at:
 - <http://www.blackdoginstitute.org.au/docs/CliniciansdownloadableEdinburgh.pdf>

Routine antenatal care⁵**First visit**

- ☐ Pregnancy confirmed, maternal counselling commenced
- ☐ Tobacco/drug/alcohol cessation screening completed (as per Pregnancy Health Record)
- ☐ Pre-pregnancy weight, height and BMI recorded (refer to Dietitian if high or low)
- ☐ Blood pressure (seated), booking in weight
- ☐ Booking in referral sent ☐ Birth centre care options discussed (if applicable)

History

- ☐ Gynaecological, medical, haematological (blood) conditions, surgical, family, psychosocial, obstetric, sexual
- ☐ Social factors domestic/social environment (SAFE Start)
 - domestic violence, substance misuse
 - social/family support (and availability of support services)
 - financial situation (and availability of support services)
- ☐ Dietary (including food security)
- ☐ Dental
- ☐ Immunisation
- ☐ Medication - all pre-existing medicines reviewed for safety in pregnancy

(continued)

First visit (continued)**Perform assessment**

- ☐ Complete physical examination⁶ including breast examination
- ☐ Complete First Midwife Interview Risk Evaluation. Discuss/consult/refer any variants identified as per the Australian College of Midwives *National Midwifery Guidelines for Consultation and Referral*. See: <https://issuu.com/austcollegemidwives/docs/guidelines2013/1>
- ☐ If amniocentesis or CVS requested, dates uncertain, last menstrual period unknown or diabetes present perform dating ultrasound 8 - 11 weeks
- ☐ Examination of abdomen if > 12 weeks
- ☐ Listen to and document fetal heart sound and rate (FHR) if > 12 weeks

Discuss⁶

- ☐ Plans for pregnancy, birth, family support
- ☐ Perinatal mental health (including antenatal anxiety and depression)
- ☐ Findings of physical examination
- ☐ Health behaviour risks such as alcohol, tobacco and other drug use and benefits of cessation
- ☐ Fetal alcohol syndrome
- ☐ Smoking and pregnancy
- ☐ Domestic violence
- ☐ Nutrition
- ☐ Oral health
- ☐ Physical activity
- ☐ Folate and iodine supplementation
- ☐ Normal breast changes/breastfeeding (benefits and appropriate preparation)
- ☐ Financial (availability of support services)
- ☐ Housing (availability of support services)
- ☐ Food security (availability, affordability and accessibility of food)
- ☐ Cultural considerations
- ☐ Where and when to attend in early pregnancy and routine visits
- ☐ Referral(s) as required

Influenza vaccination²

It is recommended that influenza vaccine be offered in advance to women planning a pregnancy. Recommended for all pregnant women at any stage of pregnancy, particularly those who will be in the second or third trimester during the influenza season. See [Immunisation program, page 750](#)

Oral supplements if indicated⁷

- ☐ All women should be on a folic acid supplement for the first 12 weeks and ideally preconception. Women with pre-pregnancy diabetes mellitus, previous child or family history of neural tube defects require a 5 mg daily dose, in place of the usual 500 microgram folic acid⁷
- ☐ Iron supplementation is recommended for women at particular risk of iron deficiency. Routine iron supplementation is not recommended in every pregnancy. It is much more important to give good dietary advice where the diet is likely to be deficient⁷
- ☐ The National Health and Medical Research Council recommends that all women who are pregnant, breastfeeding or considering pregnancy take an iodine supplement of 150 microgram each day⁸

First visit (continued)**Investigation****Antenatal blood tests**

- FBC
- Blood glucose level (random, venous)
- Blood group and antibody screen
- Rubella antibody status (IGG)
- Hepatitis B surface antigen (HBsAg)
- Hepatitis C antibody
- Syphilis serology (RPR and EIA/TPPA)
- HIV test with pre-test information and consent

**Other pathology/tests**

- Blood glucose level. Perform oral glucose tolerance test (OGTT) if: ¹⁴
 - random result ≥ 11.1 mmol/L
 - fasting ≥ 7.0 mmol/L
 - HbA_{1c} $\geq 6.5\%$
- OGTT for women at risk of developing diabetes in pregnancy. See [Diabetes in pregnancy, page 491](#)
- LFTs, urea and electrolytes, urinary protein creatinine ratio for obese women ¹⁵
- NIPT (non-invasive pre natal screening test) - can be done after 10 weeks gestation
- Urine dipstick + midstream urine for MC/S
- Pap smear offered if due
- Offer screening for gonorrhoea and chlamydia to all women at first visit¹⁰. See [Sexually transmitted infections, page 578](#)
- If woman complains of vaginal discharge do PCR for trichomonas and charcoal swab for MC/S. See [Sexually transmitted infections, page 578](#)



Discuss prenatal screening. Options include: non-invasive prenatal screening test (NIPT) after 10 weeks; chorionic villus sampling 11 - 13 weeks; amniocentesis 16 - 18 weeks as indicated

**Ultrasounds ordered**

- ☐ PaPPA and free β hCG/after 10 completed weeks preferably 3 - 5 days prior to Nuchal USS
- ☐ Nuchal Translucency 11 - 13 weeks + 6 days
- ☐ Diagnostic morphology scan 18 - 20 weeks (if indicated)

Investigation and treatment of anaemia

If haemoglobin is less than 110 g/L take bloods for: blood film, reticulocyte count, iron studies, red cell folate, serum B₁₂, Hb electrophoresis



Start iron and folic acid supplements. If supplementation is effective in increasing Hb, the reticulocyte count, when repeated in three weeks, should be greater than 2%



If it is not greater than 2% consult MO/NP. Iron therapy is not recommended in the presence of thalassaemia minor unless the woman is also iron deficient



If haemoglobin less than 105 g/L:

- Consult MO/NP
- Commence Vitamin C
- Consider parenteral iron if there is little time available to raise the Hb to safe levels, and/or a pregnant woman with Hb < 100 g/L and not responding to treatment (reticulocyte count greater than 2%) or is 34 or more weeks gestation

(continued)

Visit schedule/care items/pathology**Care items at every visit**

- ☐ Blood pressure (seated), urine dipstick/MSU repeated (if indicated), weight
- ☐ Weeks/gestation, fundal height (cm), presentation, descent/fifths above brim, FHR, FM, liquor
- ☐ Maternal counselling including tobacco/alcohol/other drug cessation (if applicable)
- ☐ Breastfeeding

Additional care items 12 - 18 weeks

- ☐ Booking in visit - demographic, social, medical and obstetric history documented $\pm$ allied health referrals arranged
- ☐ SAFE Start or similar tool ☐ commenced ☐ completed ☐ referred
- ☐ Consider need for influenza vaccination
- ☐ Models of care discussed and preference identified
- ☐ Recommended weight gain and healthy eating discussed and information given
- ☐ Physiotherapy discussed (if available)
- ☐ Reasons to breastfeed discussed/breastfeeding education provided
- ☐ Antenatal classes offered ☐ accepted ☐ declined ☐ booked

Additional care items 20 weeks

- ☐ General health check
- ☐ Post diagnostic morphology ultrasound assessment reviewed and discussed
- ☐ Initiation of breastfeeding/baby led feeding discussed
 - Positioning and attachment of baby
 - Skin to skin contact
- ☐ Expected date of birth confirmed
- ☐ Blood/scan results reviewed
- ☐ Consent from Rh negative women for prophylactic Anti D (2 doses)

Additional care items 25 weeks

- ☐ Discuss fetal movements
- ☐ Benefits of rooming-in discussed
- ☐ Discuss physical activity, exercise and rest
- ☐ Discuss home safety and hazard identification for injury prevention
- ☐ OGTT at 24 - 28 weeks for all women not diagnosed with GDM in first trimester¹⁴

Additional care items 28 weeks

- ☐ Administer dTpa vaccination
- ☐ **Rh negative women with no preformed antibodies to receive 1st prophylactic dose of Anti D¹¹**
 - Discuss preventative strategies for SIDS and SUDI
- Pathology**
- ☐ FBC
- ☐ Repeat RPR and EIA/TPPA
- ☐ Repeat HIV antibody if high risk (intravenous drug use, positive partner)
- ☐ For Rh negative women, Rhesus antibody blood screen (prior to administering Anti D)
- Screen for gonorrhoea and chlamydia if high risk (Aboriginal and/or Torres Strait Islander, inconsistent or no condom usage, previous STI, new or multiple partners, living in area of high prevalence, harmful alcohol use, partner having multiple partners). See [Sexually transmitted infections, page 578](#)
- ☐ If woman complains of vaginal discharge do PCR for trichomonas and charcoal swab for MC/S. See [Sexually transmitted infections, page 578](#)

(continued)

Visit schedule/care items/pathology (continued)**Additional care items 30 - 32 weeks**

- ☐ Discuss transfer to regional maternity service for birth at 36 weeks/birth preferences/length of hospital stay and time of discharge/return to community/postnatal support

Additional care items 34 weeks

- ☐ **Rh negative women to receive 2nd Anti D immunoglobulin¹¹**
- ☐ Re-administer Edinburgh Postnatal Depression Scale (EPDS)
- ☐ Expressing of breast milk and safe storage discussed
- Pathology**
- ☐ For all high risk women not already diagnosed with GCM at 28 weeks check BGL. Perform oral glucose tolerance test (OGTT) if:
- random result ≥ 11.1 mmol/L
 - fasting ≥ 7.0 mmol/L
 - HbA1c $\geq 6.5\%$
- ☐ Repeat RPR and EIA/TPPA
- ☐ FBC
- ☐ Screen for gonorrhoea and chlamydia if high risk (Aboriginal and Torres Strait Islander, inconsistent or no condom usage, previous STI, new or multiple partners, living in area of high prevalence, harmful alcohol use, partner having multiple partners) [Sexually transmitted infections, page 578](#)
- If woman complains of vaginal discharge do PCR for trichomonas and charcoal swab for MC/S
- See [Sexually transmitted infections, page 578](#)
- ☐ Review all 28 week pathology has been collected and actioned

Additional care items 35 - 37 weeks

- ☐ Review risk for Group B *Streptococcus*
- Queensland follows a risk factor approach to identify pregnant women for intrapartum antibiotic prophylaxis. Clinical risk factors for disease transmission are defined as:
- Preterm labour at < 37 weeks (spontaneous or induced labour)
 - Rupture membranes > 18 hours prior to birth
 - Maternal temperature $\geq 38^{\circ}\text{C}$ (intrapartum or within 24 hours of giving birth)
 - Group B *Streptococcus* colonisation in current pregnancy
 - Previous baby with early onset Group B *Streptococcus* disease
 - Group B *Streptococcus bacteriuria* in current pregnancy¹²
- ☐ Inform women that women with Group B *Streptococcus bacteriuria* (of any count) during current pregnancy should have intrapartum antibiotics¹². See [Group B *Streptococcus* prophylaxis, page 513](#)

Additional care items 36 weeks

- ☐ Transfer to obstetric facility at 36 weeks (or earlier based on individual woman's needs) and/or local policy. Send original Pregnancy Health Record with mother. Photocopy record to be kept in mother's medical record. Offer mother a copy
- ☐ Discuss signs of early labour and when to go to hospital

Ongoing antenatal care 36 weeks to birth should follow local birth facility protocols. Repeat RPR post birth in high risk women (i.e. diagnosed/treated for STI during this pregnancy, little or no antenatal care, or other clinical indication)

Resources

- beyondblue (2011). 'Clinical Practice Guidelines : Depression and related disorders - anxiety, bipolar disorder and puerperal psychosis - in the perinatal period. A guideline for primary care health professionals.' Retrieved July 2016, from <https://www.beyondblue.org.au/health-professionals/>

[clinical-practice-guidelines](#)

- Queensland Centre for Perinatal and Infant Mental Health available at: <http://www.childrens.health.qld.gov.au/qcpimh>
- Edinburgh Postnatal Depression Scale available at: www.blackdoginstitute.org.au/docs/CliniciansdownloadableEdinburgh.pdf
- Australian College of Midwives: *National Midwifery Guidelines for Consultation and Referral 3rd Edition Issue 2*: <https://issuu.com/austcollegemidwives/docs/guidelines2013/1>

Diabetes in pregnancy

Type 1, type 2 and gestational diabetes mellitus

Recommend

- Women taking regular medicines, including oral anti-hyperglycaemic agents, antihypertensive agents and statins/fibrates, should promptly consult MO/NP/Pharmacist regarding the need for and safety of use of these medicines in pregnancy
- Oral glucose tolerance test (OGTT) is the preferred diagnostic test for gestational diabetes¹

Background

- Diabetes is either pre-existing (type 1 or type 2) or gestational diabetes mellitus (GDM)

Related topics

[Management of women with type 1 and type 2 diabetes flowchart, page 495](#)

1. May present with¹

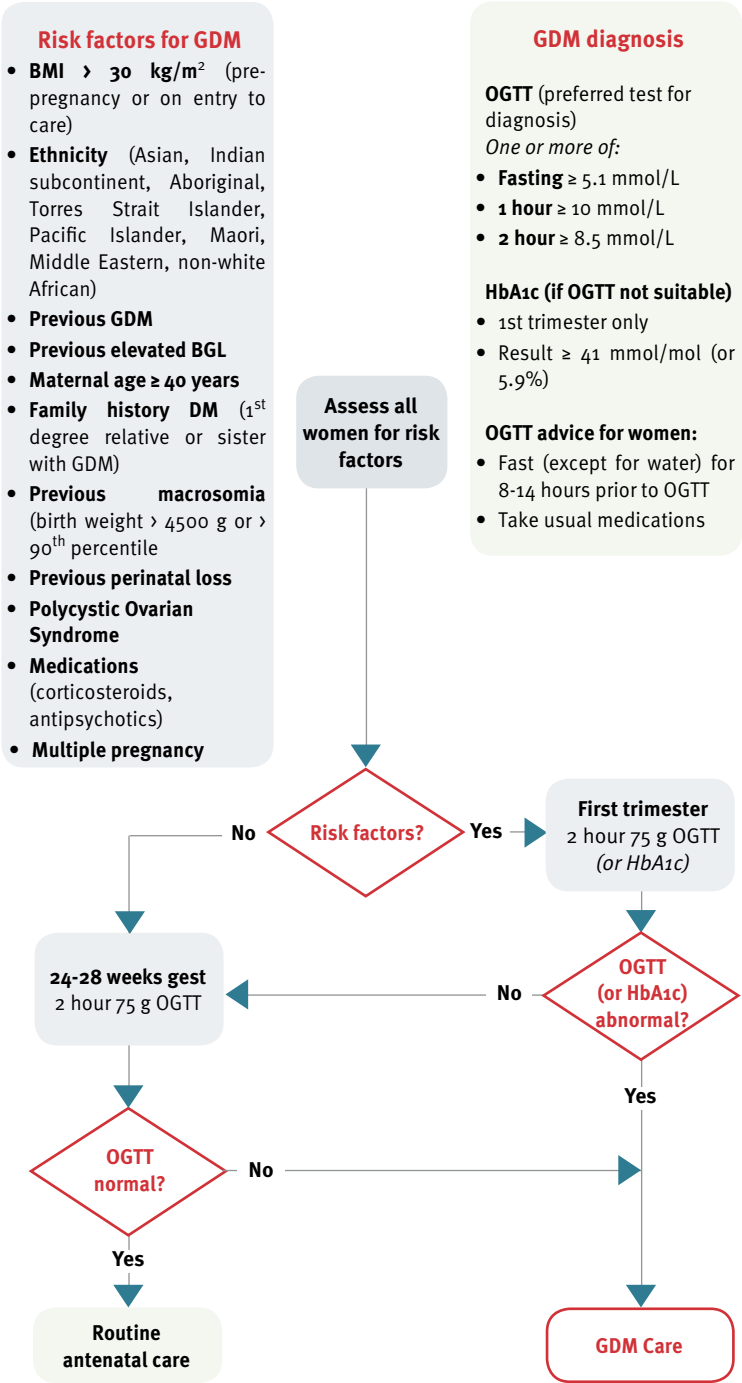
- History of Type 1 or Type 2, gestational diabetes, family history of diabetes mellitus
- Results of:
 - random venous blood glucose level ≥ 11.1 mmol/L
 - fasting blood glucose level ≥ 7.0 mmol/L (likely type 2 DM)

2. Immediate management Not applicable

3. Clinical assessment

- Take complete patient history including:
 - family history of diabetes,
 - complete the Queensland Pregnancy Health Record (if outside Queensland follow local protocols)
- Discuss requirements with Midwife, Diabetes Educator, Obstetrician and Endocrinologist
- Ensure eye, dental, kidney and feet checks are completed

Screening and diagnosis of gestational diabetes mellitus



4. Management

- See referral/consultation regarding specialist review
- Management may involve diet and exercise, oral hypoglycaemics and/or insulin
- Initially, recommend BGL self-monitoring four times per day, either:
 - before breakfast and 1 hour postprandial or
 - before breakfast and 2 hours postprandial
- Reduce or increase BGL self-monitoring frequency depending on glycaemic targets achieved and progress of pregnancy
- Insulin should be considered if BGLs are above targets on 3 consecutive occasions
- Expect insulin requirements to increase throughout pregnancy. Insulin resistance greatest around 28 - 32 weeks. Falling insulin requirements should prompt medical review

Management aims

- Target blood glucose levels¹:
 - fasting ≤ 5.0 mmol/L
 - 1 hour post-prandial (after meals) ≤ 7.4 mmol/L
 - 2 hour post-prandial (after meals) ≤ 6.7 mmol/L
- A blood glucose level under 3.5 mmol/L is classed as hypoglycaemia and should be treated
- Maternal blood glucose level should be monitored for 24 hours postpartum and if indicated continued for longer

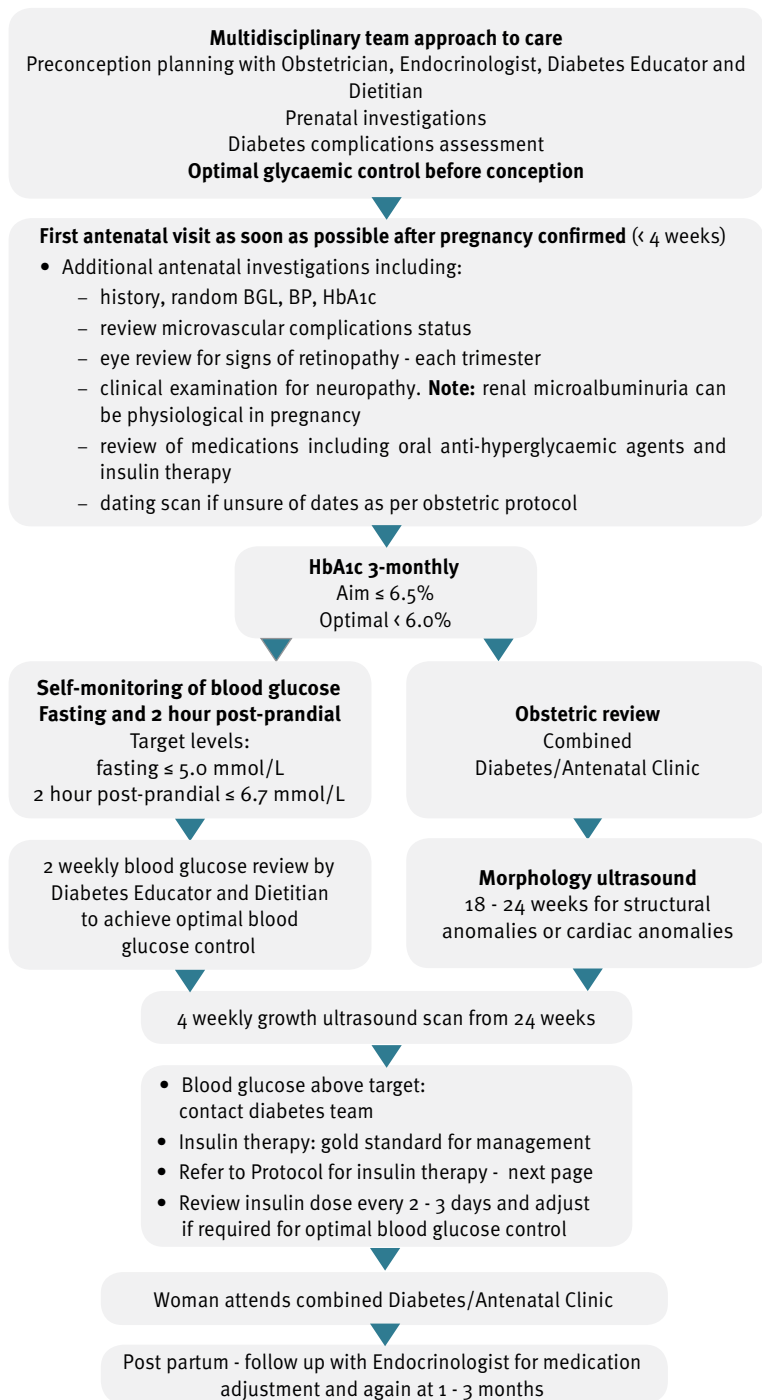
Antenatal schedule of care gestational diabetes mellitus¹**At Initial GDM Diagnosis**

Discuss/review/refer	Considerations
☐ Review history	Previous GDM, medications
☐ Diabetes Educator consult	For GDM education within 1 week of diagnosis
☐ Dietitian review	Within 1 week of diagnosis
☐ Psychosocial assessment/support	Refer as required
☐ BGL self-monitoring	Commence self-monitoring
☐ BMI (pre-pregnancy)	Discuss healthy weight gain targets
☐ Physical activity, lifestyle advice	Include smoking cessation
☐ Baseline ultrasound scan (USS)	At 28 - 30 weeks
☐ Initial laboratory investigations	☐ Serum creatinine
☐ If diabetes in pregnancy (pre existing/undiagnosed diabetes mellitus suspected)	☐ Optometrist/ophthalmologist review for diabetic retinopathy
	☐ Microalbuminuria for diabetic nephropathy

Each visit

Discuss/review/refer	Considerations
☐ Clinical surveillance	Review for complications (e.g. pre-eclampsia)
☐ Weigh	Review weight gain trends, diet, exercise
☐ Test urine	Investigate ketonuria, proteinuria
☐ Review BGL self-monitoring record	Review patterns, trends and mean BGL
☐ Psychosocial assessment/support	Refer as required
☐ Fetal growth and wellbeing (including abdominal circumference)	USS 2 - 4 weekly as indicated
☐ If pharmacological therapy commenced	☐ Follow-up contact within 3 days
	☐ Weekly diabetes educator review
	☐ Dietitian review
☐ Review suitability of model of care (Low risk not suitable if insulin or metformin required)	☐ Low risk GDM
	☐ Diabetic Clinic
	☐ Obstetric
	☐ Other
☐ Review next contact requirements (increase frequency if: suboptimal BGL, early diagnosis, diabetes in pregnancy, pharmacological therapy commenced)	☐ Fortnightly until 38 weeks
	☐ Fortnightly until 36 weeks
	☐ Weekly until birth
	☐ Other

Management of women with type 1 and type 2 diabetes flowchart



Protocol for commencing insulin during pregnancy

- Women with blood glucose levels above target on three consecutive days will most likely be commenced on insulin therapy and their care must be conducted in consultation with Obstetrician and Endocrinologist
- Basal bolus is the commonly used insulin regime to manage diabetes in pregnancy. Insulin adjustment is carried out in response to patterns in blood glucose levels
- Basal (long/intermediate acting) insulin is adjusted if fasting blood glucose levels are elevated above 5.0 mmol/L and bolus, short acting insulin is adjusted if 2 hour post meal levels are elevated above 6.7 mmol/L

5. Follow up

Gestational diabetes

- Women who develop gestational diabetes are at increased risk of developing GDM in future pregnancies and/or Type 2 Diabetes in later life therefore¹:
 - repeat 75 g 2 hour OGTT at 6 - 12 weeks post-partum
 - women contemplating another pregnancy should have an OGTT annually
 - women being tested for development of Type 2 Diabetes should have a HbA1c
 - for lower risk women, a fasting plasma glucose every 1 - 2 years
 - diabetes education should be provided by a Diabetes Educator
 - dietary education should be provided by a Dietitian

6. Referral/consultation

- Review by Obstetrician as early as possible after diagnosis to institute program of regular ultrasound assessment for fetal growth
- Review by Midwife/MO/NP every 2 weeks until 28 weeks and then weekly for antenatal checks and blood glucose control
- Review by specialist multidisciplinary diabetes team

Hypertension and premature events

Hypertensive disorders in pregnancy

Recommend

- Consult MO/NP on all occasions if systolic BP ≥ 140 mmHg and/or diastolic BP ≥ 90 mmHg in pregnancy
- Hypertension in pregnancy, whether chronic or newly arising is a significant risk to the health of both the mother and her baby and must always be managed in consultation with an MO/NP. New hypertension, if severe or persistent, requires prompt consideration of transfer to a specialist maternity service

Background

- Hypertension in pregnancy may be a new clinical feature divided into pre-eclampsia and gestational hypertension or a chronic disease (essential, secondary) or white coat hypertension. Chronic hypertension may become complicated by the development of superimposed pre-eclampsia
- Definition of hypertension in pregnancy
 - systolic blood pressure is ≥ 140 mmHg and/or diastolic blood pressure is ≥ 90 mmHg² taken at rest, on at least 2 occasions 30 minutes apart
 - a rise in systolic blood pressure ≥ 30 mmHg and/or rise in diastolic blood pressure ≥ 15 mmHg may be significant in some women, but it is not included in the definition
- Classification of hypertensive disorders of pregnancy²
 - pre-eclampsia - is a multi-system disorder characterised by hypertension and involvement of one or more other organ systems and/or the fetus
 - gestational hypertension arises after 20 weeks with no features of pre-eclampsia and resolves within 3 months postpartum
 - chronic hypertension - essential, secondary, white coat
 - pre-eclampsia superimposed on chronic hypertension

Related topics

-  [Chronic hypertension - pregnancy, page 504](#)
-  [Pre-eclampsia, page 500](#)

[Glasgow coma scale \(GCS\)/AVPU, page 766](#)
[DRS ABCD resuscitation/the collapsed patient, page 36](#)

Hypertension in pregnancy

1. May present with

- Systolic BP ≥ 140 and/or diastolic BP ≥ 90 mmHg on two or more occasions at least 30 minutes apart taken at rest
- A rise in systolic blood pressure ≥ 30 mmHg and/or rise in diastolic blood pressure ≥ 15 mmHg
- $\pm$ proteinuria
- No other symptoms and no signs of pre-eclampsia

2. Immediate management. See [Pre-eclampsia, page 500](#)

3. Clinical assessment

- Take complete patient history including:
 - family history of diabetes, kidney disease or other risk factors
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or if not available ADDS/CEWT score or other local Early Warning and Response Tools) +
 - confirm blood pressure readings by repeated readings over several hours
- Routine antenatal care assessments
- Assess these women for clinical and laboratory features of pre-eclampsia
- Urinalysis for protein
- Perform physical examination

4. Management

- If systolic BP ≥ 140 and/or diastolic BP ≥ 90 mmHg but $\leq 160/100$ mmHg, no symptoms, no proteinuria:
 - repeat BP after 10 minutes, if BP settles to $<140/90$ mmHg review next day
 - consult MO/NP/Obstetrician if systolic BP still ≥ 140 and/or diastolic BP ≥ 90 mmHg
- Consult MO/NP urgently for women with a systolic BP of ≥ 160 mmHg (taken at rest, on at least 2 occasions 30 minutes apart) and/or diastolic BP of ≥ 100 mmHg. These women should be urgently investigated and admission to hospital for investigation should be considered:
 - maternal and fetal investigations must be performed to exclude pre-eclampsia
 - ongoing close monitoring is required to detect the development of pre-eclampsia
 - collect pathology for protein creatinine ratio, FBC, LFTs, urea, creatinine, electrolytes, LDH and urate
 - assess fetal heart rate with Doppler, and take fundal height measurement. Consider cardiotocography (CTG) if available

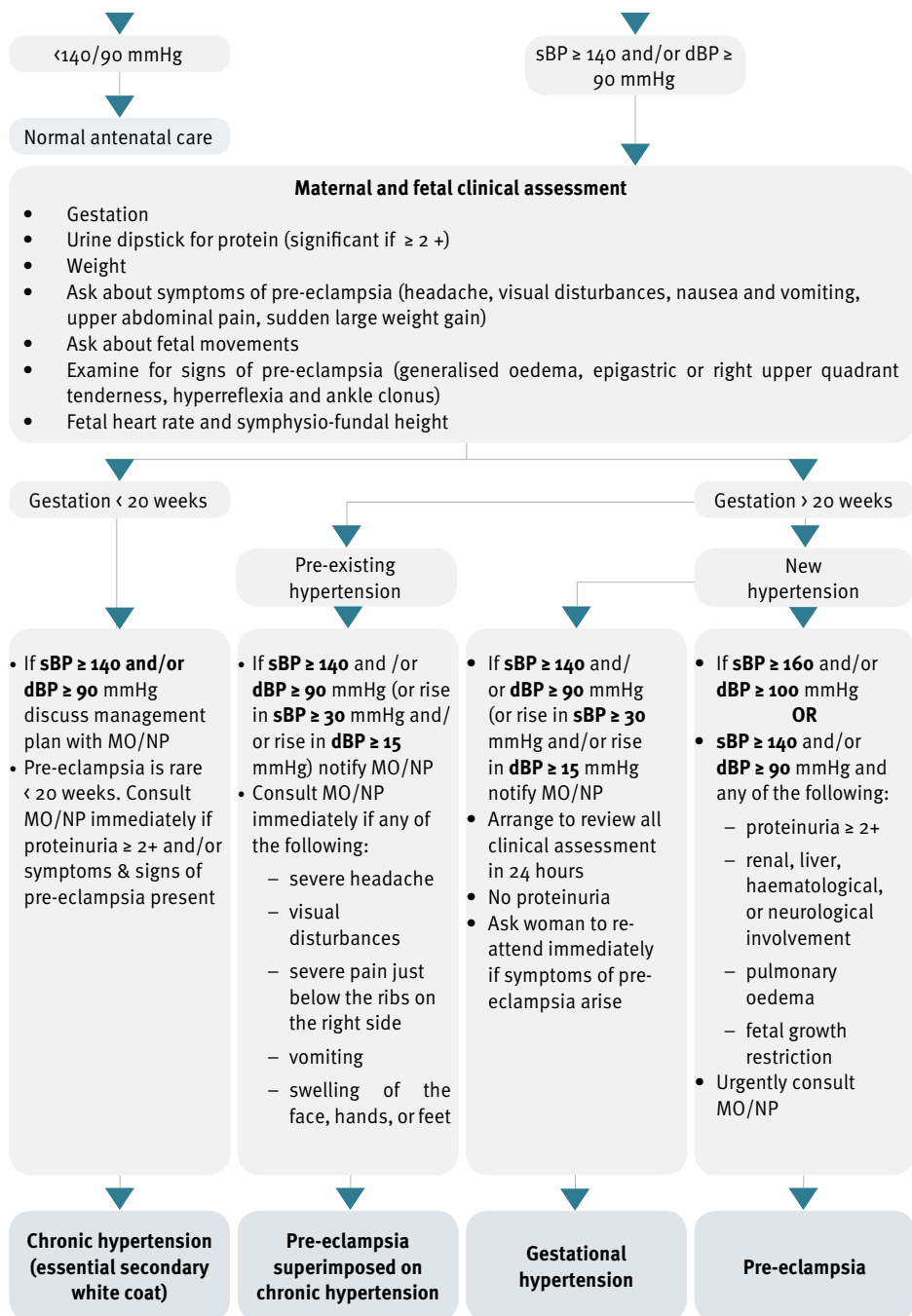
5. Follow up

- Frequency of blood pressure monitoring will be determined by woman's individual needs in consultation with MO/NP/Obstetrician
- Post natal women with hypertension in their pregnancy will require follow up. Their individual follow up care will be determined with the MO/NP/Obstetrician

6. Referral/consultation

- Always refer to MO/NP/Obstetrician

Management overview - blood pressure in pregnancy²



Pre-eclampsia includes eclampsia

Recommend

- If any features of pre-eclampsia consult MO/NP. Women who have pre-eclampsia must be evacuated/hospitalised under the care of an Obstetrician
- Facilities where planned births occur are advised to refer to the Queensland Maternity and Neonatal Guideline '*Hypertensive disorders of pregnancy*'². Available at: <https://www.health.qld.gov.au/qcg/documents/g-hdp.pdf>

Background

- A woman with severe pre-eclampsia may feel well and have no symptoms at all

1. May present with

- Hypertension arises after 20 weeks gestation confirmed on 2 or more occasions
- A rise in systolic BP of greater or equal to 30 mmHg and/or a rise in diastolic BP greater than or equal to 15 mmHg may be significant in some women and requires prompt MO/NP assessment
- Proteinuria not due to other causes e.g. UTI
- Sudden large weight gain
- Generalised oedema
- Headache, visual symptoms (flashing lights, blurred vision)
- Epigastric pain and/or right upper quadrant pain
- Nausea and vomiting
- Imminent eclampsia - headache, visual disturbance, drowsiness
- **Note:** hyperreflexia and ankle clonus > 2 beats are ominous signs
- Eclampsia (fitting)

2. Immediate management of eclampsia (fitting)

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- See [Fits/convulsions/seizures, page 72](#)
- Gently restrain the woman to avoid fit-induced trauma, clear her airway as soon as it is safe to do so and place her in the left lateral position ('recovery' position)
- Consult MO/NP
- Magnesium sulfate may be ordered to prevent/manage fitting. Caution is required if magnesium sulfate and nifedipine are used concurrently. However, magnesium sulfate remains the first line choice for management of eclamptic seizures
- If the woman is in labour, perform vaginal examination after fit stops as birth may be imminent
- In addition to clinical assessment observe conscious state. See [Glasgow coma scale \(GCS\)/AVPU, page 766](#)
- O₂ saturations

3. Clinical assessment

- Take complete patient history including:
 - past history of epilepsy or
 - increased BP in earlier pregnancies
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or if not available)

- ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note BP in particular
 - urinalysis for protein
 - weight (if possible)
 - fetal HR and sounds, movements
- Perform physical examination including:
 - assessment of gestation from last normal menstrual period (LNMP)/early pregnancy ultrasound if available
 - check for oedema, hyperreflexia, clonus (abnormal reflex movements)
- Collect urine for MC/S
- Take bloods for full blood count, LFTs, urea, creatinine, electrolytes, LDH and urate, coagulation studies, fibrinogen

4. Management

If systolic BP ≥ 160 and/or diastolic BP ≥ 100 mmHg

- Consult MO/NP who may advise to give oral nifedipine or IV hydralazine
- Insert 2 x large bore IV cannula
- Prepare the woman for evacuation to a referral maternity facility
- Monitor (every 15 - 30 minutes until evacuated):
 - fetal HR
 - maternal vital signs
 - uterine contractions
 - measure and test all urine output
- Women who have pre-eclampsia must be evacuated/hospitalised. Those who required nifedipine, hydralazine or magnesium sulfate or have proteinuria require urgent evacuation/hospitalisation in an obstetrics facility:
 - keep nil by mouth
 - MO/NP may request the woman be catheterised
 - manage in quiet area with subdued light
- If BP $> 135/85$ mmHg but $< 160/100$ mmHg, no symptoms, no proteinuria:
 - repeat BP after 10 minutes, if BP settles to $< 135/85$ mmHg review next day. If BP still $> 135/85$ mmHg consult MO/NP

Schedule	4	Nifedipine	DTP IHW/IPAP/Mid

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Midwife may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet (not controlled release)	10 mg 20 mg	Oral	10 mg - 20 mg	Stat Dose can be repeated after 30 - 45 minutes on MO/NP orders up to a max. dose of 80 mg

Provide Consumer Medicine Information: advise the woman that nifedipine may cause facial flushing, headaches, nausea and increased HR

Note: concomitant use of magnesium sulfate and nifedipine is not absolutely contraindicated but care must be taken since hypotension may result. A patient being treated with nifedipine should not be given a bolus of magnesium sulfate. Not recommended for use in combination with salbutamol tocolytic infusion.

If hypotension occurs nifedipine and magnesium sulfate should be ceased and reviewed by MO/NP

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

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Schedule	4	Hydralazine	NON DTP Must be ordered by MO/NP

Hydralazine must be ordered by an MO/NP

Form	Strength	Route of administration	Recommended dosage
Ampoule (powder for reconstitution)	20 mg	IV injection IV infusion via controlled infusion device	Initial dose 5 mg - 10 mg via slow IV injection Repeated doses 5 mg IV 20 minutes apart if required (up to max. 30 mg) Cease hydralazine if maternal pulse greater than 125 beats/minute Infusion Commence at 10 - 20 mg per hour (IV via controlled infusion device) Increase every 10 minutes by 2 mg/hour increments until BP stable If maternal pulse greater than 125 beats/minute consider ceasing infusion

Provide Consumer Medicine Information:

Detailed information available in Appendix C of *Queensland Maternity and Neonatal Clinical Guideline: Hypertensive disorders of pregnancy*, available at: <https://www.health.qld.gov.au/qcg/documents/g-hdp.pdf>

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

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- MO/NP may order magnesium sulfate

Schedule	Not scheduled	Magnesium sulfate		NON DTP
				Must be ordered by MO/NP
Magnesium sulfate infusion must be ordered by an MO/NP. Follow local work instructions for the dilution and preparation of magnesium sulfate				
Form	Strength	Route of administration	Recommended dosage	
Vial	2.5 g in 5 mL	IV infusion via controlled infusion device	Loading 4 g bolus diluted in a minimum of 20 mL of 0.9% sodium chloride (4 g/20 mL minimum dilution) delivered as an infusion over 20 minutes	
Ampoule	2.47 g in 5 mL		Maintenance 1 g/hour (in minimum dilution of 200 mg of magnesium sulphate/mL of 0.9% sodium chloride) for 24 hours after last seizure or birth whichever is latest then review for continuation/cessation. If impaired renal function reduce maintenance dose to 0.5 g/hour	
			Persistent seizures If a new onset seizure or persistent seizures give a further 2 g bolus in a minimum dilution of 2 g of magnesium sulphate/10 mL of 0.9% sodium chloride over 5 minutes. May be repeated in a further 2 minutes if seizures persist	
Provide Consumer Medicine Information: advise the woman that magnesium sulphate may cause nausea, vomiting and transient hot flushing				
Note: take baseline observations and monitor BP, pulse, and respiratory rate every 5 minutes, and SpO ₂ continuously until stable (for a minimum of 20 minutes). Check deep tendon reflexes (e.g. patellar) at completion of loading dose. Then monitor BP, pulse, and respiratory rate every 30 minutes and deep tendon reflexes hourly. Auscultate fetal heart rate every 15 - 30 minutes if less than 24 weeks gestation. Cease the infusion and consult MO/NP immediately if respiratory rate < 12 breaths per minute or > 4 breaths per minute below baseline, absent deep tendon reflexes, or diastolic BP decreases > 15 mmHg below baseline.				
Detailed information available in Appendix E of <i>Queensland Maternity and Neonatal Clinical Guideline: Hypertensive disorders of pregnancy</i> , available at: https://www.health.qld.gov.au/qcg/documents/g-hdp.pdf				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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5. Follow up

- If not evacuated/hospitalised review according to MO/NP instructions
- Consult MO/NP if BP raised again
- See next MO/NP clinic
- Check blood pressure 12 weeks post partum - if not normotensive consult MO/NP

6. Referral/consultation

- Consult MO/NP on all occasions if BP > 140/90 mmHg in pregnancy

Chronic hypertension

Essential, secondary, white coat

Recommend

- Any woman with pre-existing hypertension who becomes pregnant should be cared for in consultation with Physician and Obstetrician
- Avoid angiotensin converting enzyme inhibitors (ACEI), angiotensin II receptor blockers, and diuretics in pregnancy²

Background

- Blood pressure $\geq 140/90$ mmHg with no apparent cause, in women prior to pregnancy or before 20 weeks gestation, or in pregnancy and taking antihypertensives, is considered essential hypertension². Where there is high prevalence of hypertension in the population essential hypertension may be detected at antenatal visits
- Secondary hypertension may be due to chronic kidney disease, renal artery stenosis, diabetes, endocrine disorders or coarctation of the aorta

Vaginal bleeding in early pregnancy

Bleeding before 20 weeks gestation includes: ectopic pregnancy, miscarriage, incidental bleeding in pregnancy

Recommend

- Consider ectopic (tubal) pregnancy in all women who present with abdominal pain and/or vaginal bleeding whether or not the woman suspects she is pregnant
- See Immediate management
- Perform pregnancy test (blood or urine)
- Recommended resource is the *Maternity and Neonatal Clinical Guideline: Early Pregnancy Loss* available at: <https://www.health.qld.gov.au/qcg/documents/g-epl.pdf>

Background

- Positive pregnancy test (urine/blood) does not always mean a viable pregnancy
- A negative pregnancy test (urine) does not discount the possibility of pregnancy
- Risk factors associated with ectopic pregnancy include: history of STI, pelvic inflammatory disease, intrauterine contraceptive device (IUCD) rare, previous ectopic pregnancy, tubal sterilisation and in-vitro fertilisation (IVF), progestogen only pill, Implanon®, injectable progestogen
- Miscarriages most commonly occur between 6 and 12 weeks
- When a miscarriage threatens, but the pregnancy proceeds, there is no greater risk of fetal abnormality than in a pregnancy which was not complicated by bleeding
- STI may contribute to miscarriage

Related topics

-  Acute abdominal pain, page 200
-  Low abdominal pain in female, page 597
-  Rh(D) immunoglobulin, page 536

Sexually transmitted infections, page 578
 DRS ABCD resuscitation/the collapsed patient, page 36

Ectopic pregnancy

Recommend

- Recommended resource is the *Maternity and Neonatal Clinical Guideline: Early Pregnancy Loss* available at: <https://www.health.qld.gov.au/qcg/documents/g-epl.pdf>

1. May present with

- Pain - lower abdominal, right iliac fossa, left iliac fossa, suprapubic or shoulder tip. Pain usually precedes bleeding and pain is the predominant symptom
- Vaginal bleeding
- Pallor, increased HR
- Hypotension/shock
- Right or left sided mass or tenderness on bimanual examination
- Rigid abdomen with rebound tenderness
- No sign of intrauterine pregnancy on ultrasound

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Consult MO/NP urgently
- If blood loss is heavy or continuing or there is increased HR or hypotension/shock:
 - insert 2 x large bore IV cannula (14 G or 16 G if possible)
 - commence IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate
 - the aim is to keep HR < 120, systolic BP > 90 - 100 mmHg, urine output > 0.5 mL/kg/hour
 - see [Shock, page 55](#)
- Take blood for FBC, U/Es and group and x-match
- Give O₂. See [Oxygen delivery systems, page 44](#)

3. Clinical assessment

- Take complete patient history including:
 - contraceptive, reproductive and menstrual history
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Ante-natal or if not available ADDS/CEWT score or other local Early Warning and Response Tools)
- Urine pregnancy test, with consent, on any woman of child-bearing age (12 - 52 years) who presents with abnormal vaginal bleeding or low abdominal pain. These tests are very sensitive. Positive pregnancy test does not always mean a viable pregnancy
- STI check for chlamydia/gonorrhoea/trichomonas/bacterial vaginosis and syphilis serology if not already done. See [Sexually transmitted infections, page 578](#) and [Antenatal care, page 484](#)
- Monitor amount and rate of blood loss
- Physical examination including:
 - perform gentle abdominal examination
- Check documentation of blood group and antibody status

4. Management

- Consult MO/NP who will advise analgesia, preferably IM or IV opioid and arrange evacuation/further treatment immediately

- For analgesia see [Acute abdominal pain, page 200](#)
- Keep nil by mouth
- MO/NP may request the woman be catheterised

5. Follow up

- Consider grief counselling if appropriate
- All Rh (D) negative women should be offered Rh(D) immunoglobulin⁴. See [Rh\(D\) immunoglobulin, page 536](#)
- If applicable follow up STI test results and treat. See [Sexually transmitted infections, page 578](#)

6. Referral/consultation

- Consult MO/NP on all occasions of suspected ectopic pregnancy

Miscarriage/incidental bleeding in pregnancy

Recommend

- Recommended resource is the *Maternity and Neonatal Clinical Guideline: Early Pregnancy Loss* available at: <https://www.health.qld.gov.au/qcg/documents/g-epl.pdf>

1. May present with

- Cramping/suprapubic or low back pain
- Bleeding usually precedes pain and is the predominant symptom
- Vaginal bleeding may include clots and products of conception
- Hypotension/shock due to either blood loss, cervical shock or sepsis
- Confirmed intrauterine pregnancy
- If incidental bleeding, bleeding is light unless due to trauma, and abdominal pain is uncommon

2. Immediate management

- See [Ectopic pregnancy, page 505](#)
- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- See [Shock, page 55](#)

3. Clinical assessment

- Take complete patient history including:
 - contraceptive, reproductive and menstrual history
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or if not available ADDS/CEWT score or other local Early Warning and Response Tools)
- Urine pregnancy test, with consent, on any woman of child-bearing age (12 - 52 years) who presents with abnormal vaginal bleeding or low abdominal pain. These tests are very sensitive. Positive pregnancy test does not always mean a viable pregnancy
- STI check for chlamydia/gonorrhoea/trichomonas/bacterial vaginosis/mycoplasma genitalium and syphilis serology if not already done
- See [Sexually transmitted infections, page 578](#) and [Antenatal care, page 484](#)
- Monitor amount and rate of blood loss
- Take blood to commence series of β hCG levels for threatened miscarriage
- Perform physical examination including:

- palpate abdomen for tenderness around the uterus, fallopian tubes and ovaries
- speculum examination i:
 - is blood coming through os?
 - is the os closed?
 - is os open with products of conception protruding?
 - is there offensive cervical discharge?
- Check documentation of blood group and antibody status

4. Management

- Keep nil by mouth
- On vaginal examination:
 - if cervical os is closed the pregnancy may be viable (threatened miscarriage) or nonviable (missed or complete miscarriage)
 - incidental bleeding - even if the amount of bleeding is small, consult MO who will advise further management
 - if bleeding not heavy MO will advise rest at home and review immediately if bleeding increases or abdominal pain occurs
 - if cervical os is open, heavy bleeding and/or products of conception seen, MO will likely advise:
 - if fever or offensive cervical discharge - IV antibiotics
 - evacuation/hospitalisation
- If extreme life threatening situations MO may order ergometrine. **Must consult MO**

Schedule	4	Ergometrine		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	500 microgram / 1 mL	IM	500 microgram	Stat
		IV Give slowly (IHW and IPAP may not administer IV)	250 microgram	
Provide Consumer Medicine Information: advise the woman ergometrine may cause nausea and vomiting				
Note: administer slowly over at least one minute to avoid hypotension				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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5. Follow up

- Consider grief counselling for parents who have experienced miscarriage/intrauterine fetal death
- If not evacuated/hospitalised review according to MO instructions
- All Rh (D) negative women with no preformed Anti-D who miscarry, and those who have bleeding > 12 weeks gestation should be offered Rh (D) immunoglobulin⁴. See [Rh\(D\) immunoglobulin, page 536](#)
- Next MO/NP clinic including repeat blood/urine pregnancy test and ultrasound scan (appropriately skilled Midwives may perform dating scans)

- If applicable follow up STI test results and treat
- See [Sexually transmitted infections, page 578](#)

6. Referral/consultation

- Consult MO on all occasions of vaginal bleeding in pregnancy

Antepartum haemorrhage (APH) Bleeding after 20 weeks gestation

Recommend

- Do not perform digital vaginal examination
- If blood loss heavy see Immediate management
- Definition of antepartum haemorrhage (APH) is bleeding after 20 weeks gestation of more than 15 mL of blood
- Recommended resource is the *Maternity and Neonatal Clinical Guideline: Early Pregnancy Loss* available at: <https://www.health.qld.gov.au/qcg/documents/g-epl.pdf>

Background

Causes of APH

- Placental abruption:
 - part of the placenta has separated from the uterine wall
 - bleeding may be partly or completely hidden behind the placenta. Consider this when assessing vaginal blood loss
 - uterus hard and tender
 - pain (if posterior placenta, may have vague backache only)
 - if labour occurs it is often rapid
- Placenta praevia:
 - placenta partially or completely overlies the cervical canal
- Vasa praevia:
 - results in fetal blood loss
 - it is painless
 - fetal distress occurs
 - usually results in fetal death
- Antepartum haemorrhage of unknown cause:
 - bleeding painless, usually bright red and may be recurrent
- Other causes
 - lower genital tract bleeding

Related topics

 [Rh\(D\) immunoglobulin, page 536](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)

1. May present with

- Painless or painful vaginal bleeding
- Increased maternal HR, hypotension/shock

- Vomiting
- Uterus hard and tender or contracting
- Fetal distress

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- Consult MO/NP urgently
- If blood loss is heavy or continuing or increased HR or hypotension/shock:
 - insert 2 x large bore IV cannula (14 G or 16 G if possible)
 - commence IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities/rate. The aim is to keep HR < 120/min., systolic BP > 90 - 100 mmHg, urine output > 0.5 mL/kg/hour. See [Shock, page 55](#)
- Take blood for FBC, U/Es, group and x-match and clotting factor
- Give O₂. See [Oxygen delivery systems, page 44](#)
- Lie woman in left or right lateral position - not supine

3. Clinical assessment

- Take complete patient history including:
 - any documentation in clinical record of ultrasound results which indicates location of placenta in the uterus in the current pregnancy
 - documentation of blood group and antibody status
 - contraceptive, reproductive and menstrual history
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or if not available ADDS/CEWT score or other local Early Warning and Response Tools) +
 - check fetal heart sound, rate and movements
 - monitor amount and rate of blood loss
- Perform physical examination including:
 - assess gestation from LNMP/early pregnancy ultrasound/fundal height
 - examine abdomen - is uterus soft or hard, tender, contracting
 - do not perform digital vaginal examination

4. Management

- Consult MO/NP on all occasions
- Urgent evacuation/hospitalisation to an obstetric facility will be necessary
- Keep nil by mouth
- Analgesia: MO/NP will advise - preferably IM or IV opioid and metoclopramide. See [Acute abdominal pain, page 200](#)
- MO/NP may request woman be catheterised
- MO/NP or Midwife will perform sterile speculum examination prior to evacuation to ensure that unexpected birth is not imminent

5. Follow up

- Offer grief counselling for parents who have experienced antepartum haemorrhage with fetal death
- All Rh (D) negative women should be given Rh (D) immunoglobulin⁴. See [Rh\(D\) immunoglobulin, page 536](#)

6. Referral/consultation

- Consult MO/NP on all occasions of vaginal bleeding in pregnancy

Urinary tract infection in pregnancy

Related topics

-  [Low abdominal pain in female, page 597](#)
-  [Group B *Streptococcus* prophylaxis, page 513](#)

- [Routine antenatal care, page 486](#)
- [Health check - women, page 482](#)

1. May present with

Acute cystitis

- Lower abdominal pain and sometimes mild low back pain, low abdominal or suprapubic pain, without dysuria or frequency, in early pregnancy could also be PID. Any woman presenting with low abdominal pain should be assessed for PID. See [Low abdominal pain in female, page 597](#)
- Urinary frequency
- Discomfort/burning on passing urine (dysuria)
- Abnormal urinalysis (leucocytes/nitrites/protein/blood)

Pyelonephritis

- Fever, rigors, nausea, vomiting
- Loin pain
- Abnormal urinalysis (leucocytes/nitrites/protein/blood)

Asymptomatic bacteriuria

- Asymptomatic bacteriuria in pregnancy should be treated due to the increased risk of pyelonephritis and preterm labour
- Abnormal urinalysis (nitrites/protein/blood)
- Pure growth $> 10^8$ /L on urine culture

2. Immediate management Not applicable

3. Clinical assessment

- Full history including:
 - past episodes of UTI both in and out of pregnancy and sexual history
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or if not available ADDS/CEWT score or other local Early Warning and Response Tools) +
 - urinalysis (nitrites/protein/blood)
- MSU for microscopy culture and sensitivity
- STI tests for:
 - gonorrhoea/chlamydia
 - trichomonas/bacterial vaginosis
 - syphilis if not already done
 - see [Routine antenatal care, page 486](#)
 - see [Health check - women, page 482](#)

– see [Sexually transmitted infections, page 578](#)

- Perform physical examination including palpating abdomen especially for suprapubic or loin tenderness
- Complete a routine antenatal maternal and fetal examination including abdominal palpation and assessment of fetal HR

4. Management

Acute cystitis

- Advise increased fluid intake
- Before result of MC/S is available treat empirically with cephalexin unless immediate hypersensitivity to penicillin
- If any allergic reaction to cephalosporins, or immediate hypersensitivity to penicillins or carbapenem treat empirically with nitrofurantoin
- Modify empirical therapy based upon the results of cultures and susceptibility testing⁶

Schedule	4	Cephalexin		DTP IHW/SM R&IP/IPAP/Mid
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicine Rural & Isolated Practice Registered Nurse and Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	500 mg bd	5 days
Provide Consumer Medicine Information: take until course completed unless advised by your health professional to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the cephalosporins have been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware of cross-reactivity between penicillins, cephalosporins and carbapenems. Use with caution in patients with impaired renal function - consider reducing dose if CrCL <20 ml/min. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by cephalosporins. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: if history of allergy to cephalosporin, or if severe or immediate allergic reaction to penicillin				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- If allergic to penicillins or cephalosporins treat with nitrofurantoin

Schedule	4	Nitrofurantoin		DTP IHW/SM R&IP/IPAP/Mid
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	50 mg 100 mg	Oral	100 mg bd	5 days
Provide Consumer Medicine Information: take with food or milk. Advise that nitrofurantoin may cause drowsiness or dizziness and not to drive or operate machinery if affected. Tell your health professional if you have difficulty breathing, develop a cough or get any numbness or tingling. Take until course completed. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the nitrofurantoin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Contraindication: do not use in women at, or near, term or delivery due to the risk of neonatal haemolytic anaemia. Not for use in patients with renal impairment (eGFR < 45 mL/minute/1.73 m ²), G6PD, enolase, or glutathione peroxidase deficiency. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by nitrofurantoin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Use in pregnancy: Catagory A. Contraindicated at or near term or delivery due to the risk of neonatal haemolytic anaemia				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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Pyelonephritis

- Consult MO/NP. Patient will need IV antibiotics (ceftriaxone) and evacuation/hospitalisation

Schedule	4	Ceftriaxone		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	1 g	IV/IO Give slowly over 2 - 4 minutes	Adult only 1 g daily	Stat
Provide Consumer Medicine Information: may cause pain and inflammation at injection site. May cause nausea, vomiting, diarrhoea, headache and dizziness				
Note: give slowly to avoid seizures				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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Asymptomatic bacteriuria (antenatal screening)

- Base treatment on results of cultures and sensitivity testing

5. Follow up

- Women with asymptomatic bacteriuria from Group B *Streptococcus* will require antibiotic cover in labour, even if treated¹³

- Check culture and sensitivity and consult MO/NP if resistant organism found
- Follow up STI test results and treat. See [Sexually transmitted infections, page 578](#)
- Confirm resolution of infection by repeating urine cultures in one to two weeks after treatment is completed. If persistent bacteriuria is identified, treat with a second course of antibiotics⁶
- Following resolution of the infection perform urine cultures at antenatal visits to monitor for persistent or recurrent bacteriuria
- Consult MO/NP if UTI persists or recurs after treatment
- Consider prophylaxis for the remainder of pregnancy for patients with recurrent infections or increased risk of UTI complications e.g. patients with diabetes

Post birth follow up

- MSU at six week postnatal visit
- Consult MO/NP re: renal ultrasound and serum urea/creatinine/uric acid at 3 months postpartum

6. Referral/consultation

- Consult MO/NP as above



Group B *Streptococcus* prophylaxis

Recommend

- Staff working in isolated or rural areas may be required to give the initial dose of antibiotic to affected women to ensure adequate prophylaxis
- Antibiotics where possible should be given at least 4 hours prior to delivery, however if birth is within 2 hours, this is not a reason to withhold antibiotic treatment¹³
- Facilities where planned births occur are advised to refer to the *Queensland Maternity and Neonatal Guideline on early onset Group B Streptococcal disease*¹³
- Queensland follows a risk factor approach, rather than a universal screening approach to management of Group B *Streptococcus* in pregnancy
- Recommended resource is the *Queensland Maternity and Neonatal Clinical Guideline: Early onset Group B Streptococcal disease* available at: https://www.health.qld.gov.au/qcg/documents/g_gbs5-0.pdf

Related topics



[Suppression of preterm labour, page 519](#)

1. May present with the following known risk factors

- Preterm labour at less than 37 weeks - spontaneous or induced labour
- Rupture of membranes > 18 hours prior to birth
- Maternal fever $\geq 38^{\circ}\text{C}$ - intrapartum or within 24 hours of giving birth
- Group B *Streptococcus* colonisation in current pregnancy
- Group B *Streptococcus* bacteriuria in current pregnancy
- Previous baby affected by early onset Group B *Streptococcus* disease irrespective of mother's colonisation status in current pregnancy

2. Immediate management

- To be determined by patient's individual diagnosis

3. Clinical assessment

- Take complete patient history including:
 - presence of Group B *Streptococcus* in previous pregnancy
 - current pregnancy, gestation and date and time membranes ruptured
- Perform standard clinical observations (full Q-MEWTR Rural and Remote - Antenatal or if not available ADDS/CEWT score or other local Early Warning and Response Tools) +
 - fetal HR and rhythm
- Perform physical examination

4. Management

- Consult MO/NP and advise of Group B *Streptococcus* status
- All women colonised with Group B *Streptococcus* in current pregnancy and/or with known risk factors (as in 1. above) should be managed as per Queensland Maternity and Neonatal Guideline: *Early onset Group B streptococcal disease*¹³
- Insert IV cannula as directed by MO/NP
- Plan evacuation to obstetric facility as per MO/NP directions
- If required to administer the first dose of antibiotics give IV penicillin

Schedule	4	Benzylpenicillin		DTP IHW/IPAP/Mid
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	600 mg 1.2 g 3 g	IV	Loading dose 3 g Maintenance dose 1.8 g 4 hourly	Loading dose stat Commence maintenance dose 4 hours after loading dose
Provide Consumer Medicine Information				
Note: Rapid IV injection may cause seizures				
Contraindication: in patients with severe hypersensitivity to penicillins, carbapenems and cephalosporins				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

13,30

13,30

- If allergic to penicillins, treat with lincomycin

Schedule	4	Lincomycin	DTP IHW/IPAP/Mid	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	600 mg/2 mL	IV - dilute in 100 mLs of sodium chloride 0.9% and infuse over 1 hour	600 mg	Stat then commence 8 hourly
Provide Consumer Medicine Information				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by lincomycin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: in patients with severe hypersensitivity to penicillins, carbapenems and cephalosporins				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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5. Follow up of neonate

- The baby born to a woman requiring Group B *Streptococcus* prophylaxis must have neonatal/ paediatric review immediately after birth
- If birth occurs prior to evacuation request neonatal support/advice from retrieval team

6. Referral/consultation

- Consult MO/NP on all occasions of a woman requiring Group B *Streptococcus* prophylaxis
- Paediatrician



Preterm prelabour rupture of membranes

Recommend

- Due to the risk of infection digital vaginal examination must not be performed if not in labour
- Consult MO/NP
- Recommended resource is the *Maternity and Neonatal Clinical Guideline: Early Pregnancy Loss* available at: <https://www.health.qld.gov.au/qcg/documents/g-epl.pdf>

Background

- Definitions of rupture of the amniotic membranes prior to the onset of labour:
 - prelabour rupture of membranes (PROM) means rupture of membranes after 37 completed weeks
 - preterm prelabour rupture of membranes (PPROM) is rupture of membranes before 37 weeks

Related topics

-  [Suppression of preterm labour, page 519](#)
-  [Prevention of neonatal respiratory distress syndrome, page 522](#)
-  [Group B *Streptococcus* prophylaxis, page 513](#)
-  [Rh\(D\) immunoglobulin, page 536](#)

[Sexually transmitted infections, page 578](#)
[Umbilical cord presentation or prolapse, page 523](#)

1. May present with

- Draining liquid from vagina - colour of liquid may be clear, blood stained, meconium (green to black), yellow
- Vaginal spotting or 'show'
- History of gush followed by continuing leak
- Pool of fluid in the posterior vaginal fornix is suggestive of liquor
- Cord prolapse
- Intrauterine infection
- Regular uterine activity (preterm labour)
- Lower back pain
- Lower abdominal cramping
- Pelvic pressure
- Infection - STI or non STI

2. Immediate management

- Check fetal HR. If fetal HR is abnormal a cord prolapse or presentation may be present. See [Umbilical cord presentation or prolapse, page 523](#)
- **Digital vaginal examination must not be performed** if not in labour or if membranes ruptured, due to the risk of infection
- Speculum examination should be performed by an experienced practitioner to exclude cord prolapse:
 - full sterile technique to be followed
 - lubricate speculum with sterile water (not obstetric cream or other lubricants)
 - approach, but **do not touch the cervix with speculum**
 - **Note:** cervical dilation, effacement, fetal hair/head or cord, cervical discharge, fluid coming through cervix
 - do not perform fetal Fibronectin (fFN) with rupture of membranes, visual evidence of moderate bleeding, cervical suture insitu or infection
 - check fFN if membranes intact
 - **Note:** fFN can be used after recent intercourse. A negative result is a valid negative. A positive result may be a false positive, but will still require transfer
 - if unsure whether fluid loss is liquor, amniator may help but not totally reliable. Observe the colour change from orange to blue. Liquor gives an immediate and distinct colour change. Blood and meconium cause false positives
 - collect low vaginal/anorectal swab for MC/S and PCR including to check for gonorrhoea chlamydia/trichomonas/bacterial vaginosis/Group B *Streptococcus* colonisation. See [Sexually transmitted infections, page 578](#)

3. Clinical assessment

- Obtain a complete patient history including:
 - past reproductive history
 - current pregnancy, sexual history, date and time membranes ruptured, colour of fluid loss and odour
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or if not available ADDS/CEWT score or other local Early Warning and Response Tools) 4 hourly at a minimum +
 - urinalysis and collect MSU for MC/S
 - check fetal heart sound, rate and fetal movements
 - monitor fluid loss: colour - meconium stained, bloody or offensive?
- Assess gestation from LNMP/early pregnancy ultrasound
- Assess placental site from pregnancy ultrasound to rule out placenta praevia (contraindication for vaginal examination)
- Perform physical examination including:
 - abdominal examination - fundal height, fetal lie and presentation, is the uterus contracting?

4. Management

- Consult MO/NP:
 - may request evacuation/hospitalisation in an obstetrics facility
 - may recommend commencement of amoxycillin/ampicillin IV and erythromycin oral
- Complete bed rest prior to evacuation
- If the gestation is < 35 weeks and in labour MO/NP may order betamethasone 11.4 mg IM to accelerate fetal lung maturation¹⁵

Schedule	4	Amoxycillin/Ampicillin		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	500 mg 1 g	IV/IO Dissolve in 10 - 20 mL of water for injection and inject slowly over 10 - 15 minutes	Adult only 2 g 6 hourly	48 hours
Provide Consumer Medicine Information: may cause pain and inflammation at injection site, may cause nausea and diarrhoea. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: avoid rapid IV administration as this may result in seizures				
Contraindication: in patients with severe hypersensitivity to penicillins, carbapenems, and cephalosporin antibiotics				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 648				

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Schedule	4	Erythromycin	DTP IHW/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg	Oral	Adult only 250 mg 6 hourly	7 days
Provide Consumer Medicine Information: best taken on an empty stomach - either 1 hour before or 2 hours after a meal unless the erythromycin is causing stomach upset in which case take with food. May cause nausea and diarrhoea. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: use with caution in patients with myasthenia gravis				
Contraindication: those who may be taking concurrent treatment with medicines that interact with erythromycin: macrolide hypersensitivity; severe hepatic impairment				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
31,32,33				

Schedule	4	Betamethasone Celestone® Chronodose®		DTP IHW/IPAP
Authorised Indigenous Health Workers and Isolated Practice Area Paramedics must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	5.7 mg/mL	IM	11.4 mg	Stat
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- See [Prevention of neonatal respiratory distress syndrome, page 522](#)
- Women with uterine activity who require transfer should be considered for tocolysis¹⁵ prior to evacuation to suppress labour. See [Suppression of preterm labour, page 519](#)
- A history of Group B *Streptococcus* colonisation or of recurrent herpes genitalis is important in deciding upon the necessary urgency of evacuation

5. Follow up

- Women who have a positive swab/urine for Group B *Streptococcus* in the current pregnancy will require antibiotic cover in labour. See [Group B *Streptococcus* prophylaxis, page 513](#)

6. Referral/consultation

- Consult MO/NP on all occasions of suspected pre term labour with or without rupture of membranes



Suppression of preterm labour

Recommend

- The best neonatal outcomes are achieved if the baby can safely be transported in-utero to receiving maternity facility
- Suppression of preterm labour is considered in rural and remote areas at less than 37 weeks to facilitate transfer to definitive care
- Consult MO/NP
- Aim to postpone birth for at least 48 hours whilst steroids accelerate fetal lung maturation
- Suppression of labour is likely to be successful at less than 4 cm of cervical dilatation, but less likely if dilatation is more than 6 cm
- Facilities where planned births occur are advised to refer to the *Queensland Maternity and Neonatal Clinical Guideline Preterm labour and birth*¹⁵ available at: <https://www.health.qld.gov.au/qcgc/documents/g-ptl.pdf>
- This *Primary Clinical Care Manual* chapter is intended for facilities that do not have planned birthing and is congruent with the *Queensland Maternity and Neonatal Clinical Guideline on Preterm labour and birth*¹⁵

Background

- Preterm labour is frequent uterine contractions along with cervical dilation before the 37th completed week of pregnancy¹⁵
- May be caused by febrile illness (e.g. UTI, intrauterine infection) or by trauma
- Contraindications to suppression of labour (tocolysis) include maternal contraindications to tocolysis (agent specific) and any condition where prolongation of pregnancy is contraindicated including but not limited to:
 - in-utero fetal death; lethal fetal anomalies; suspected fetal compromise; maternal bleeding with haemodynamic instability; severe pre-eclampsia; placental abruption; chorioamnionitis¹⁵
- Fetal fibronectin (fFN) testing: a negative result is associated with a 98% likelihood that birth will not occur within 72 hours of testing, unless a new pregnancy complication arises. A positive result indicates an approximately 50% likelihood of birth occurring within 72 hours

Related topics

[Rh\(D\) immunoglobulin, page 536](#)

[Prevention of neonatal respiratory distress syndrome, page 522](#)

[Group B *Streptococcus* prophylaxis, page 513](#)

[Normal labour and birth, page 526](#)

[Neonatal resuscitation, page 547](#)

[Urinary tract infection in pregnancy, page 510](#)

[Preterm prelabour rupture of membranes, page 515](#)

[Antepartum haemorrhage, page 508](#)

1. May present with

- Regular, painful, uterine contractions
- Evidence of change in the cervix - show, cervix effaced or dilated
- Ruptured membranes
- Urinary tract infection in pregnancy
- Maternal infection
- Lower abdominal cramping

- Lower back pain
- Pelvic pressure

2. Immediate management

- Consult MO/NP. If birth is imminent prepare for birth. See [Normal labour and birth, page 526](#)
- Prepare neonatal resuscitation equipment. See [Neonatal resuscitation, page 547](#)

3. Clinical assessment

- Take complete history including:
 - past reproductive, current pregnancy, sexual history
 - Group B *Streptococcus* status - if had positive swab/urine the patient will require antibiotic cover in labour
- Perform standard clinical observations (QMEWT if available, otherwise full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - urinalysis, collect MSU for MC/S
- Assess gestation from last normal menstrual period/early pregnancy ultrasound (if performed)
- Assess placenta not praevia from ultrasound reports (if performed)
- Examine fluid loss: liquor, blood, purulent, meconium
- Time uterine contractions: frequency, duration, strength
- Monitor fetal heart sound, rate and fetal movements

Perform physical examination including:

- maternal abdominal examination
- check fundal height and fetal lie and presentation
- sterile speculum examination should be performed by a competent practitioner to exclude cord prolapse:
 - full sterile technique to be followed
 - lubricate the speculum with sterile water (not obstetric cream)
 - approach, but do not touch the cervix with speculum
 - note cervical dilation and effacement, fetal hair/head or cord, cervical discharge
 - check fFN if membranes intact. Do not perform fFN with rupture of membranes, visual evidence of moderate bleeding, cervical cerclage insitu or infection
 - **Note:** fFN can be used after recent intercourse. A negative result is a valid negative. A positive result may be a false positive, but will still require transfer
 - if membranes intact collect low vaginal/anorectal swab for MC/S and PCR for gonorrhoea/chlamydia/trichomonas/bacterial vaginosis/Group B *streptococcus* colonisation
- Check prophylaxis for Group B *streptococcus*
- See [Sexually transmitted infections, page 578](#) and [Group B *Streptococcus* prophylaxis, page 513](#)
- Consider assessing cervical dilation by sterile digital vaginal examination unless contraindicated by ruptured membranes or suspected placenta praevia

4. Management

- Consult MO/NP who will:
 - organise evacuation/hospitalisation to an obstetrics facility with neonatal capability
 - inform the neonatal unit of transfer and admission
 - **may order steroids (betamethasone 11.4 mg IM) to accelerate fetal lung maturation¹⁵.**

See [Prevention of neonatal respiratory distress syndrome, page 522](#)

– may order antibiotics if UTI, Group B *Streptococcus* or STI suspected

- Insert large bore IV cannula
- Record maternal BP, pulse and respiratory rate at a minimum every 30 minutes until evacuated
- Perform fetal HR and sound at a minimum of 15 minute intervals until evacuated
- Monitor uterine contractions closely
- Prepare woman for evacuation - complete bed rest with pillow/rolled towel under right side so woman is lying on her left hand side
- Give tocolytic medication to suppress uterine contractions. Oral nifedipine is the preferred option unless contraindicated. Then if required, maintenance dose i.e. 20 mg q6h for 48 hours max. of 160 mg per day¹⁵. BP, HR, RR observations every 30 minutes for 1 hour then q1h for 4 hours then reassess)

Antibiotics¹⁵

Prophylactic antibiotics for Group B *Streptococcus* are not recommended in threatened preterm labour, but should be administered in established preterm labour

Schedule	4	Nifedipine		DTP IHW/IPAP/Mid
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet (not controlled release)	10 mg 20 mg	Oral Chew the tablet to aid rapid absorption	20 mg	Stat If contractions persist after 30 minutes repeat 20 mg If contractions persist after a further 30 minutes repeat 20mg on MO/NP order if BP stable
Provide Consumer Medicine Information: advise women nifedipine may cause facial flushing, headache, nausea and increase HR				
Contraindications for nifedipine. Discuss alternate tocolytic medicine with MO/NP				
• Maternal cardiac disease (including rheumatic heart disease) • Hypotension • Liver dysfunction • Antepartum haemorrhage • Documented allergy to nifedipine • Known hypersensitivity to nifedipine or any of the excipients • Concurrent use of transdermal nitrates or antihypertensives • Concurrent use of IV salbutamol or magnesium sulfate • Fetal distress/fetal death in utero • Intra-uterine infection¹⁶				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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15,34

5. Follow up

- Follow up MSU results and treat. See [Urinary tract infection in pregnancy, page 510](#)
- Follow up STI results and treat. See [Sexually transmitted infections, page 578](#)
- Women who have a positive swab/urine for Group B *Streptococcus* in the current pregnancy will

require antibiotic cover in labour¹³. See [Group B *Streptococcus* prophylaxis, page 513](#)

- All Rh (D) negative women who deliver an Rh (D) positive baby should be given Rh (D) immunoglobulin¹⁴. See [Rh\(D\) immunoglobulin, page 536](#)

6. Referral /consultation

- Consult MO/NP on all occasions of suspected preterm labour

Prevention of neonatal respiratory distress syndrome

Recommend

- Give corticosteroid therapy to women < 35 weeks gestation who are at risk of preterm birth within the next 7 days¹⁵

Background

- Corticosteroids given to women in early labour assist fetal lung maturation and reduce the risk of respiratory distress syndrome, intracerebral haemorrhage and/or necrotising enterocolitis after birth²⁰
- Seek specialist advice concerning repeat doses of corticosteroids²⁰

Related topics

-  [Suppression of preterm labour, page 519](#)
-  [Normal labour and birth, page 526](#)
-  [Neonatal resuscitation, page 547](#)
- [Preterm prelabour rupture of membranes, page 515](#)

1. May present with

- Preterm labour before 37 weeks gestation

2. Immediate management Not applicable

3. Clinical assessment

- Take complete history including:
 - past reproductive history
 - current pregnancy
 - sexual history
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or if not available ADDS/CEWT score or other local Early Warning and Response Tools) +
 - fetal HR, sound and movement
- Perform physical examination including:
 - assess gestation from last normal menstrual period/early pregnancy ultrasound (if performed)
 - check fundal height

4. Management

- Consult MO/NP before treatment and for order of second dose of betamethasone. It is vital these orders are complete. By the time a second dose is needed the woman should be in hospital
- Standard recommended treatment for prevention of neonatal respiratory distress syndrome is two (2) doses of betamethasone 24 hours apart

Schedule	4	Betamethasone injection Celestone® Chronodose®		DTP IHW/IPAP/Mid
Authorised Indigenous Health Worker must consult MO/NP				
Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	5.7 mg/mL	IM	11.4 mg	Stat Further doses on MO/NP orders
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

15

5. Follow up

- Evacuation/hospitalisation for ongoing management

6. Referral/consultation

- Consult MO/NP on all occasions of premature labour before treatment

Umbilical cord presentation or prolapse

Recommend

- This is a life threatening situation. See Immediate management

1. May present with

Umbilical cord presentation

- Umbilical cord found on digital vaginal examination to be in front of presenting part with intact membranes - of importance because of risk of cord prolapse if membranes rupture

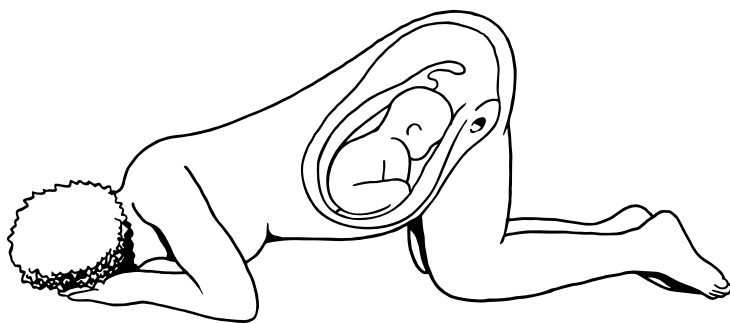
Umbilical cord prolapse

- Membranes ruptured and cord comes out before the baby, of importance because:
 - presenting part will press on the cord cutting off the O₂ supply to the baby and it will die
 - umbilical cord outside vagina will spasm, cutting off O₂ supply to the baby and it will die

2. Immediate management

If the umbilical cord is known or suspected to be either present behind intact membranes or prolapsed with ruptured membranes:

- Call for help and consult MO/NP urgently
- Assist mother into the knee-chest position (see diagram) or place two pillows under the buttocks or lie on left side with head tilted down
- Hold the presenting part of the baby off the cord using your fingers
- Avoid touching the cord
- Give O₂. See [Oxygen delivery systems, page 44](#)
- Check fetal heart sound and rate



3. Clinical assessment

- Take complete history if time allows and not documented in antenatal notes, including: past reproductive, current pregnancy, sexual history
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or if not available ADDS/CEWT score or other local Early Warning and Response Tools) +
 - fetal HR, sound and movement
 - assess gestation from LNMP/early pregnancy ultrasound
- Physical examination including:
 - check fundal height
- Where possible a second person will be required to assist

4. Management

- Insert an indwelling catheter into the bladder:
 - run 500 mL of sodium chloride 0.9% into the bladder
 - clamp the catheter - this may hold the presenting part off the cord
 - the fingers holding the presenting part of the baby can now be withdrawn
 - discuss with MO/NP the timing to release clamp and amount of urine to drain
- MO/NP:
 - will organise urgent evacuation/caesarean section
 - advise suppression if in labour and fetal heart present
 - advise analgesia (IM opioid or preferably IV)
- Insert largest IV cannulae x 2 (14G or 16G if possible)
- Keep nil by mouth
- In isolated areas, if a woman presents with a cord prolapse, the baby may already be deceased. However, unless this is certain, it is best to act as above

Schedule	8	Morphine		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL	IM/Subcut	Adult only 0.1 mg - 0.2 mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
		IV (IHW may not administer IV)	Adult only Initial dose of 2.5 mg then 0.5 mg - 2.5 mg increments slowly, repeated every 5 minutes if required to a max. of 10 mg	
Provide Consumer Medicine Information: advise patient morphine can cause nausea, vomiting, and drowsiness				
Note: caution in those with significant renal/liver disease. A reduced dose should be considered for these patients. As naloxone counteracts the opioid, it may cause the return of pain ¹⁸				
Management of associated emergency: respiratory depression is rare - if it should occur give naloxone. Naloxone has a shorter half-life than all opioids and therefore may require repeat doses if recurrence of the sedation or respiratory depression ¹⁹ . Consult MO/NP. See Toxicology/opioids, page 246				
18,19,20,21				

- Give metoclopramide if nauseated or vomiting

Schedule	4	Metoclopramide		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: tell your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Note: give IV slowly over 1-2 minutes				
Contraindication: in patients with epilepsy and Parkinson's disease				
Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction occurs (e.g. oculogyric crisis) consult MO/NP				

5

5. Follow up

- Requires urgent caesarean section if fetus alive
- Grief counselling as indicated
- All Rh (D) negative women should be given Anti D⁴

6. Referral/consultation

- Consult MO/NP on all occasions of umbilical cord presentation or prolapse

Labour, birth and postnatal care

Normal labour and birth

Recommend

- Plan for births to take place at an appropriately equipped and staffed facility
- Pregnant women from isolated areas where birthing services are not available should be advised to leave their communities at 36 weeks or earlier depending on woman's individual needs, and travel to the appropriate town or city where they attend the antenatal clinic as needed until birth
- Prepare for the event that some births will occur in facilities that do not undertake planned births
- Birth in an evacuation aircraft should be avoided if at all possible
- All births in rural and remote communities must, wherever possible, be attended by a Midwife or MO/NP
- Only Midwives or MO/NP should perform vaginal examinations on women in labour
- Registered Nurses and Health Workers should undertake a supportive role for the birthing woman and facilitate the normal physiological birth process
- Use Q-MEWT Rural and Remote - Antenatal and Postnatal forms or if not available use ADDS/CEWT score or other local Early Warning and Response Tools) The Vaginal Birth Clinical Pathway form can be accessed at: https://www.health.qld.gov.au/car/pathways/docs/pathway_vbirth.pdf

Background

- Facilities where planned births occur are advised to refer to the *Queensland Maternity and Neonatal Clinical Guidelines on Normal Birth*. Available at: https://www.health.qld.gov.au/qcg/documents/g_normbirth.pdf
- The *Primary Clinical Care Manual* chapter is intended for facilities that do not have planned births and is congruent with the *Queensland Maternity and Neonatal Clinical Guidelines on Normal Birth*

Related topics

 Neonatal resuscitation, page 547

 Group B *Streptococcus* prophylaxis, page 513

 Postpartum haemorrhage (PPH), page 539

 Rh(D) immunoglobulin, page 536

Preterm prelabour rupture of membranes, page 515

1st stage of labour

1. May present with

- Lower back pain
- A pattern of escalating uterine activity i.e. contractions which increase in strength, frequency and duration
- Evidence of rupture of membranes
- A show (passage of bloody mucous)

2. Immediate management

- If indicated the Midwife or MO/NP may perform a vaginal examination to determine changes in cervical effacement and/or dilatation, position and descent of the presenting part. If the membranes are ruptured digital vaginal examination should be avoided unless a cord prolapse is considered possible or birth is thought to be imminent

- If the baby is not born yet but birth is imminent, take time to prepare equipment, and consider:
 - time labour started
 - time membranes ruptured
 - any meconium
 - fetal movements
- Consider whether the baby is likely to be healthy or in need of resuscitation:
 - what is the gestation
 - is there one baby or twins
 - past reproductive history
 - any problems in this pregnancy
- Ask others to help
- Prepare birth and neonatal resuscitation equipment
- Prepare oxytocic medication
- Consult Midwife/MO/NP at this stage

3. Clinical assessment

- Take a complete history if not already taken during antenatal care including:
 - past reproductive history
 - current pregnancy
 - mental health history
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or if not available ADDS/CEWT score or other local Early Warning and Response Tools)
- The *Intrapartum Record Form* can be used and is available at: <https://www.health.qld.gov.au/improvement/pathways/docs/intrapartum-rec.pdf>
- Assess gestation from last normal menstrual period (LNMP)/early pregnancy ultrasound
- Vaginal loss: liquor, blood, meconium?
- Monitor fetal heart rate (FHR)
- Uterine contractions: frequency, duration, strength
- Perform physical examination including:
 - fundal height in relation to xiphisternum
 - fetal lie and presentation (cephalic, breech)

4. Management

A decision needs to be made as to whether birth will take place in the community or whether urgent evacuation is appropriate. This will depend on parity of the woman, stage of labour at presentation, labour progression and the staff availability/mix at the facility. Such a decision needs to be undertaken in consultation with the relevant evacuation provider e.g. RFDS MO. Specialist obstetric and/or neonatal advice may be obtained, if necessary, via Retrieval Services Queensland ☎ 1300 799 127 (or local retrieval services)

Ruptured membranes but not in labour

- See [Preterm prelabour rupture of membranes, page 515](#)
- In the absence of any contraindications, all efforts should be made to transfer to an appropriate maternity unit. If diagnosis is uncertain, only a speculum examination should be performed and digital vaginal examination should be avoided unless a cord prolapse is considered possible

Fetal observation in 1st stage of labour

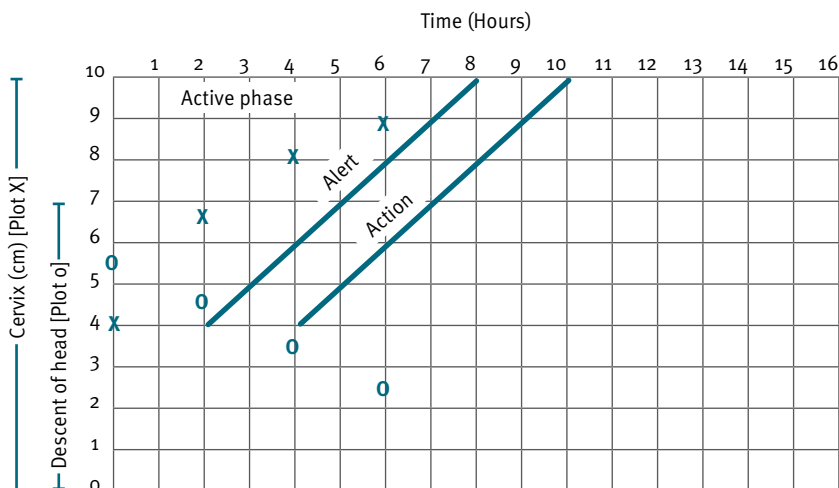
- Fetal HR (FHR) is auscultated towards the end of, and for at least 30 seconds after, the end of a contraction, $\frac{1}{4}$ to $\frac{1}{2}$ hourly. Normal range is 110 - 160/min
- After a contraction there should be no deceleration (slowing of) FHR. If there is a drop in FHR after contractions, ask the woman to change her position. Women in labour should not lie flat on their back due to potential supine hypotension

Maternal observations

- $\frac{1}{2}$ hourly (minimum) - contractions (number in 10 minutes), vaginal loss, heart rate
- 2 hourly - abdominal palpation, bladder emptying
- 2 hourly BP, temperature, urinalysis
- Vaginal examinations individualised to woman's needs - typically 4 hourly until cervix is 8 cm dilated, then 2 hourly. Assessment of cervical dilatation may need to be more frequent than would normally be undertaken in a maternity unit to allow for decision making if progress is abnormal

Partogram¹

- When the cervix reaches 4 cm - 5 cm dilatation, which for practical purposes demarcates the latent phase of labour from the active phase, and the warning (or alert) phase and the action phase. The observations of cervical dilatation and descent of the head can be recorded in the patient record or on a predesigned chart e.g. partogram. If using a partogram warning (or alert) and action lines should be drawn on the partogram, as demonstrated below:
 - X - cervical dilatation as measured at vaginal examination
 - O - descent of the head as measured on abdominal examination
- Encourage the woman to drink to thirst and maintain nutritional intake, monitor for nausea and dehydration and take action as appropriate. Offer light food as desired
- Support:
 - appropriate family member/support present
 - adequate explanation, encouragement and reassurance
- Consult Midwife/MO/NP if delay in progress:
 - if progress of cervical dilatation/descent of the head **crosses the warning (or alert) line** on the partogram, this will give an early indication of the need for transfer to referral maternity facility or intervention. In the setting of management of unexpected labour in a facility which does not manage planned births this is of particular importance
 - if cervical dilatation/descent of the head crosses the action line on the partogram the likelihood of a successful vaginal birth with continuation of the current management plan is unlikely and management should be carefully reviewed



An example of a partogram showing normal progress in labour

- Pain management as per woman's individual requirement:
 - try mobilisation, shower, massage, heat therapy
 - if requested by the woman, use nitrous oxide and O₂ (Entonox®)
 - if all other pain relief strategies are unsatisfactory and the woman requests further pain relief, she is not allergic and if birth is not imminent - give morphine in a single injection with or without metoclopramide. Morphine is opioid of choice in the first stage of labour. Prior to administration of opioid perform vaginal examination to determine progress of labour and exclude imminent birth

Schedule	4	50% Nitrous oxide and 50% oxygen (Entonox®)		DTP IHW/IPAP/Mid
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Pre-mixed gas	50% nitrous oxide mixed with 50% oxygen	Inhalation self administered	Titrated according to requirements	As required
Provide Consumer Medicine Information: self administered by woman under supervision - only the woman to hold the mouthpiece or mask. Commence breathing Entonox® with early onset of contraction or 30 seconds prior if possible. Breathe deeply at normal rate. Cease breathing the Entonox® when the contraction eases. Advise the woman that it may make her feel nauseous and light-headed				
Note: monitor patient for level of sedation, airway, breathing. Use with caution if opioid has been administered. Caution in the presence of Vitamin B12 deficiency				
Management of associated emergency: remove Entonox®. Consult MO/NP. See Unconscious/altered level of consciousness, page 52				
1,2,3,22,23				

1,2,3,22,23

Schedule	8	Morphine		DTP IHW/IPAP/Mid
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/mL	IM/Subcut	Adult only 0.1mg - 0.2mg/kg to a max. of 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: advise patient morphine can cause nausea, vomiting and drowsiness. Advise the woman that morphine may interfere with breastfeeding				
Note: avoid administration if birth is anticipated within 4 hours. The woman should not enter water (a birthing pool or bath) within 4 hours of opioid administration or if they feel drowsy. Administer anti-emetic if giving morphine. Caution in those with significant renal/liver disease				
Management of associated emergency: respiratory depression is rare. If it should occur give naloxone. Consult MO/NP. See Toxicology/opioids, page 246				
1,2,4,25				

- If an opioid is administered neonatal naloxone must be available. See [Neonatal resuscitation, page 547](#) for indications and use. Remain with the labouring woman after morphine has been administered

Schedule	4	Metoclopramide		DTP IHW/IPAP/Mid
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: tell your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Note: give IV slowly over 1-2 minutes				
Contraindication: in patients with epilepsy and Parkinson's disease				
Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction occurs (e.g. oculogyric crisis) consult MO/NP				

5

Transition

The period between the end of first stage and the commencement of the second stage of labour - maternal expulsive efforts. Women can become restless, fearful or may vomit. Attending staff should remain with the woman and be supportive and encouraging

2nd stage of labour

1. May present with

- Contractions: stronger, longer but less frequent
- Small amount vaginal blood and mucous 'show'
- Urge to defecate
- Urge to push involuntarily
- Membranes rupture
- Full dilatation of cervix

2. Immediate management See Management

3. Clinical assessment

- Document time second stage commenced
- Auscultate fetal HR towards the end of, and for at least 30 seconds after the contraction has finished, less than or equal to 5 minute frequency after each contraction. In the event that the apparent fetal heart rate is low, compare with maternal pulse to differentiate
- Check vulva for pouting, gaping of the anus and fullness of the perineum

4. Management

- Support and encourage the woman. Assist her to select a position in which she is most comfortable. She may change positions frequently. There may be some advantage in encouraging the mother to change her position if there is slow progress in the second stage of labour
- Delay pushing if no urge to push
- Maternal observations:
 - temperature and BP - 4 hourly (unless BP elevated in which case take ½ hourly)
 - maternal heart rate ½ hourly
 - abdominal palpation
 - vaginal examination
 - contractions - continuous assessment if indicated
 - bladder - monitor and encourage emptying
- Offer oral fluids between contractions
- Assess discomfort and pain
- Support the woman's natural instincts in relation to pushing
- Document time of spontaneous rupture of membranes, note colour consistency and odour of liquor
- If head is visible with contractions prepare for birth
- Use nitrous oxide and O₂ if required for analgesia
- Record fetal HR after each push by the woman - if fetal HR drops after contractions, ask the woman to change her Position. A labouring woman should not lie flat on their back due to potential supine hypotension
- Consult Midwife/MO/NP if delay in progress:
 - nulliparous woman 1 hour in passive second stage (if no urge to push), 2 hours in active second stage
 - multiparous woman after 1 hour in active second stage



Birth

- When the head is visible with contractions, encourage the woman to adopt a comfortable position - she may stand, kneel on all fours, or lie in a lateral position or in an upright sitting position
- Put on personal protective equipment
- Support the woman's own expulsive efforts
- The head will stretch the perineum as it slowly comes down with contractions
- When the perineum is thin and the head stretches the labia apart between contractions, the head will birth with the next two or three contractions
- The anus (not the perineum) may be covered with a peripad
- Using 'hands on' to flex the fetal head or 'hands poised' to stop sudden expulsion has no effect on perineal trauma
- Encouraging the woman to pant with contractions or to push between contractions will help slow the birth and may protect the perineum from trauma of the head. The head will birth and extend freeing the baby's chin. With the next contraction, the head will turn
- Encourage the woman's expulsive efforts until the anterior shoulder slips under the symphysis pubis, then when the anterior shoulder is visible support the baby and lift the baby towards the mother's abdomen
- Look at the clock, note time of birth, document time
- Check the uterus for another baby, the top of the uterus should be no higher than the umbilicus and firm
- Give oxytocin IM to the mother
- In women with previous history of post partum haemorrhage (PPH) or at risk of PPH, insert as large a bore IV cannula as possible (14G or 16G) during labour if there is time and consult MO/NP
- The cord is clamped when cord pulsation ceases, earlier if baby requires resuscitation. Active management of the third stage is recommended. Two cord clamps are placed not less than 2 cm from the baby's skin. The cord is cut using sterile scissors between the two clamps by the clinician, mother or other person
- Collect cord blood. The tests that may be ordered are: Group, Coombs, Bilirubin, Hb, RPR syphilis. Cord sampling procedure available at: http://qheps.health.qld.gov.au/caims/docs/iwhu_umbilical_samp.pdf

Schedule	4	Oxytocin (Syntocinon®)	DTP IHW/IPAP/Mid	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	5 International Units/mL 10 International Units/mL	IM	10 International Units	Stat
Provide Consumer Medicine Information				
Note: caution in women with previous uterine surgery, multiple pregnancy, or > 4 previous births. Rapid IV administration is associated with transient tachycardia, hypotension and ischaemic ECG changes				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

6,7

6,7

- With or without

Schedule	4	Metoclopramide		DTP IHW/SM R&IP/IPAP/Mid
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: tell your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Note: give IV slowly over 1-2 minutes				
Contraindication: in patients with epilepsy and Parkinson's disease				
Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction occurs (e.g. oculogyric crisis) consult MO/NP				

5

5

Care of the newborn

- Keep the baby warm. Pass baby to mother. Prevent neonatal hypothermia
- Keep baby skin-to-skin with mother for at least the first hour to assist baby with warmth, bonding, adaptation to extra-uterine life and facilitate breastfeeding¹
- The sex of the newborn is identified to the agreement of mother and support person(s)
- The Apgar score is used to evaluate and record the newborn's condition at 1 minute after birth and again at 5 minutes and 10 minutes after birth

Apgar score

Apgar Scoring is a method of providing an objective assessment of the neonate's condition at 1, 5 and 10 minutes after birth. It is not for determining action taken in resuscitation

The 10 minute score is the best predictor of long term outcome but still has a poor predictive value

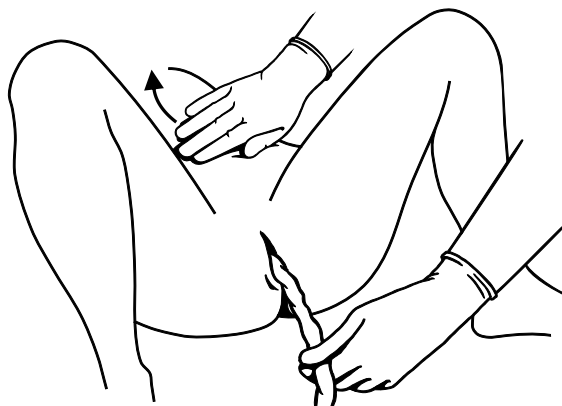
Min score = 0 Max score = 10

Score	0	1	2
HR	Absent	Less than 100	More than 100
Respiratory effort	Absent	Slow/irregular	Crying/good
Colour	Blue/white	Pink body, blue extremities	Pink
Tone	Limp	Poor tone	Active and flexed
Irritability to nasal catheter	Absent	Grimace	Cough/sneeze

3rd stage of labour

The third stage of labour refers to the period of time following the birth of the baby, to the separation and expulsion of the placenta and membranes and control of any bleeding

- Ensure oxytocic agent has been administered to the mother immediately after the birth of the baby
- Clamp and cut the umbilical cord close to the perineum within 2 - 3 minutes of administration of the oxytocic
- Immediately after cord clamping, place one hand on the uterine fundus and await the onset of a strong uterine contraction. This is likely to occur within 2 - 3 minutes after the oxytocic administration
 - deliver placenta by controlled cord traction (CCT, Brandt Andrews technique) in consultation with Midwife/MO/NP. Controlled cord traction must not be undertaken until oxytocic medication has been administered and the uterus is felt to be hard and contracted and not before. Guard the uterus by putting upward pressure on it with your left hand on the uterus (see diagram)
 - deliver the placenta and membranes by gentle downward traction on the cord
- During CCT observe signs of separation of the placenta including:
 - lengthening of the cord
 - small amount of fresh blood loss and
 - the uterine fundus becomes smaller and rounder



- **Note:** If the placenta does not descend during 20 - 30 seconds of CCT or there is resistance to CCT
- **Do not continue to pull on the cord**
- Hold the cord loosely i.e. without any pulling/traction and wait until the uterus is well contracted again
- With the next contraction, repeat controlled cord traction with counter traction on the uterus

Birth of placenta and membranes

Once the placenta is visible, release cord traction and counter traction on the uterus, then:

- The placenta may be taken into two hands and gently twisted so that the membranes form a 'rope'. In a gentle upward and downward movement ease the membranes out of the vagina without tearing them
- Note the time and document
- Immediately massage the uterus to ensure it remains contracted

- Examine the placenta and membranes to ensure they are complete, document findings
- Measure the blood loss and document
- Palpate uterus to ensure contracted
- Using good lighting, gently examine the vaginal walls and perineum for tears using a piece of gauze wrapped around your gloved fingers
- Bleeding from tears can be controlled with direct pressure
- Discuss need for sutures with evacuating MO/NP

Post birth observations and care

Mother

- Remove soiled clothing, drapes and bed linen. Make mother comfortable - provide sponge, shower, nutrition and hydration
- ¼ hourly observations; BP, HR, temperature, respiratory rate, vaginal loss, height of uterine fundus, perineum, urine output for 2 hours
- Encourage early breastfeeding
- If heavy or continuing vaginal blood loss. See [Postpartum haemorrhage \(PPH\), page 539](#)
- Check and dispose of placenta in accordance with mother's wishes. Record and complete mother's and neonate's health record

Newborn

- Work on the principle of keeping the baby pink, warm and sweet (BGL normal)
- Keep warm by placing warm dry wraps/blankets over both mother and baby (hat if available)
- A brief head to toe examination should occur within the first few minutes of life
- 15 - 30 minute observations (respiratory rate, respiratory distress, heart rate, temperature, cord, tone, colour, skin warmth) for first two hours and then only as indicated
- Naked weigh the baby and give vitamin K (with informed consent) as per instructions below
- BGL using heel prick blood
- Confirm the baby's identification arm and leg bands with the mother and secure them on the infant
- A plastic cord clamp is placed not less than 2 cm from the baby's skin
- Ensure adequate lighting for observation and position baby to ensure patent airway
- Give at birth immunisations e.g. Hepatitis B. See [Immunisation program, page 750](#)
- To prevent haemorrhagic disease of the newborn, the MO/NP may order Phytomenadione - Vitamin K (Konakion®) immediately after birth

Schedule	Not scheduled	Phytomenadione - Vitamin K (Konakion®)	NON DTP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Midwife may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	2 mg/0.2 mL	IM to newborn immediately after birth	1 mg if ≥ 1.5 kg 0.5 mg if < 1.5 kg	Stat

Provide Consumer Medicine Information: advise the injection is to prevent haemorrhagic disease of the newborn

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

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5. Follow up

- Women who have an unplanned birth in a facility that does not undertake planned births should be subsequently managed in referral hospital
- Follow up will include seeing Midwife/MO/NP/Child Health Nurse for 6 week postnatal visit, including Pap smear if required
- Close neonatal monitoring is required for babies of women with diabetes in pregnancy, small for gestational age babies or babies with intrauterine growth restriction.
- Feed the baby as soon as possible after delivery and monitor for detection of hypoglycaemia
- All Rh(D) women should be given Anti D if baby positive within 72 hours of birth⁹. See [Rh\(D\) immunoglobulin, page 536](#)
- Place baby on Birth Register

6. Referral/consultation

- Newborn check of baby is required by Midwife/MO/NP/Child Health Nurse within 72 hours of birth

Rh(D) immunoglobulin

Recommend

- Rh(D) immunoglobulin is indicated for the prevention of Rh(D) sensitisation in Rh(D) negative women
- Administer Rh(D) immunoglobulin as soon as possible after the sensitising event, but always within 72 hours⁹
- Offer routine antenatal anti-D prophylaxis to all non-sensitised pregnant women who are Rh(D) negative at 28 weeks and 34 weeks gestation
- Screen for antibodies with blood sample from mother at 28 weeks before the first routine prophylactic injection is given

Background

- A sensitising event is when during pregnancy a small amount of blood from a Rh(D) positive foetus enters the maternal circulation of a Rh(D) negative woman leading to the woman producing an immune response of anti-D antibodies²¹

Related topics

 [Normal labour and birth, page 526](#)

[Vaginal bleeding in early pregnancy, page 504](#)

[Antepartum haemorrhage, page 508](#)

[Preterm prelabour rupture of membranes, page 515](#)

[Antenatal care, page 484](#)

1. May present with**Guidelines for the use of Rh (D) immunoglobulin**

In pregnant women with Rh (D) negative blood group, and no pre-existing anti-D antibodies

For each sensitising event^{26,27}

e.g. all occasions of normal delivery, miscarriage, termination of pregnancy, and chorionic villus sampling; and if more than 12 weeks gestation also for amniocentesis, abdominal trauma, antepartum haemorrhage, or external cephalic version

Week 1 to week 12 (first trimester)		Beyond week 12 (second and third trimester)	Postpartum
Rh(D) immunoglobulin-VF (single pregnancy)	Rh(D) immunoglobulin-VF (multiple pregnancy e.g. twins)	Rh(D) immunoglobulin-VF	Rh(D) immunoglobulin-VF
250 IU	625 IU	625 IU	625 IU
Routine prophylaxis is recommended For all Rh(D) negative pregnant women		Rh(D) immunoglobulin-VF	
Administer at week 28 and week 34		625 IU The doses at 28 and 34 weeks are given in ADDITION to any doses given for sensitising events	

Rh(D) immunoglobulin-VF is administered by intramuscular injection only

2. Immediate management Not applicable**3. Clinical assessment**

- Rh(D) negative woman⁹
 - feto-maternal haemorrhage volume - 2.5 mL of fetal red cells (5 mL whole blood)/up to 6 mL of fetal red cells (12 mL whole blood)/greater than 6 mL fetal red cells (12 mL whole blood)
 - sensitising event up to and including 12 weeks gestation
 - sensitising event after 12 weeks gestation
 - antenatal prophylaxis - at 28 weeks and 34 weeks gestation
 - postpartum

4. Management

- Consult MO/NP
 - administration of 250 International Units Rh(D) immunoglobulin (minidose) is sufficient to

prevent immunisation by feto-maternal haemorrhage (FMH) of 2.5 mL of fetal red cells (5 mL whole blood)

- administration of 625 International Units Rh(D) immunoglobulin is sufficient to prevent immunisation by FMH of up to 6 mL of fetal red cells (12 mL whole blood)

- **Note:** give anti-D, test maternal blood for antibodies. If pathology result shows greater FMH give more anti-D within 72 hours

Schedule	4	Rh(D) Immunoglobulin-VF		DTP Mid
Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	250 International Units 625 International Units	Deep, slow intramuscular injection (if more than 5 mL is required give in divided doses in different sites)	Pregnancy sensitising events in the first trimester <i>Single pregnancy</i> 250 International Units <i>Multiple pregnancy (e.g. twins)</i> 625 International Units Sensitising events beyond the first trimester <i>Single and multiple pregnancy</i> 625 International Units Antenatal prophylaxis <i>28 and 34 weeks</i> 625 International Units Postpartum <i>unless the baby is known to be Rh(D) negative</i> 625 International Units	Stat
Provide Consumer Medicine Information				
Contraindication: in the maternity setting Rh(D) Immunoglobulin should not be given to: a baby; an Rh(D) positive woman; an Rh(D) negative woman with preformed anti-D antibodies				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction - adult/child, page 67				

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5. Follow up

- Where FMH quantitation shows that FMH greater than that covered by the dose already administered has occurred, administration of an additional dose(s) sufficient to provide immunoprophylaxis must be administered and preferably within 72 hours
- Women who have a body mass index (BMI) ≥ 30 should have the clearance of fetal cells and the presence of Rh(D) antibodies confirmed post administration of Rh(D) immunoglobulin⁹

6. Referral/consultation

- For sensitising events beyond the first trimester consult with MO/NP
- If it is unclear whether the anti-D detected in the mother's blood is passive from the anti-D administration or preformed, consult MO/NP

Postpartum haemorrhage (PPH)



Primary postpartum haemorrhage

Recommend

- Provide immediate management for patients who have a large blood loss (≥ 500 mL) from genital tract or drop in blood pressure
- Facilities where planned births occur are advised to refer to the *Queensland Maternity and Neonatal Clinical Guideline on Primary Postpartum Haemorrhage*⁶

Background

- Definition - Primary postpartum haemorrhage occurs within 24 hours of birth
- High risk women include those who are over 35 years of age, or who have: obesity, asian ethnicity, grand multiparity (P4 or more), over distended uterus, fibroids, anaemia, past history of PPH, APH, placenta praevia, Von Willebrand disease, prolonged or precipitate labour, operative delivery, large baby, chorioamnionitis⁶

1. May present with

- Bleeding from the genital tract during the third stage of labour or within 24 hours of birth
- Haemorrhage may occur before or after the placenta is delivered

The 4 T's - cause of haemorrhage

Tone - is the uterus firm?

Trauma - is there cervical, vaginal and perineal lacerations, pelvic haematoma, uterine inversion, ruptured uterus?

Tissue - is there retained membranes, placenta?

Thrombin - is there evidence of an abnormal bleeding tendency?⁶

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)

If blood loss is heavy or continuing or there is increased maternal HR or signs of hypotension/shock:

- See [Shock, page 55](#)
- Summon help
- Send someone to consult MO/NP
- Ensure standard precautions
- Lie woman flat and reassure
- If the uterus it is atonic, massage firmly to stimulate contraction, unless retained placenta
- Administer O₂ via mask. See [Oxygen delivery systems, page 44](#)
- Keep woman warm
- Ensure active management of third stage has occurred i.e. oxytocin given
- Insert 2 x large bore (greater than 16 G) IV cannula
 - collect group and x-match, FBC, coagulopathy
 - commence IV fluids, usually starting with sodium chloride 0.9% or Hartmann's solution - do not wait for signs of shock. Use rapid infusion sets, pump sets or pressure bags. MO/NP will order fluids including:

- 2 - 3 litres of crystalloid fluid
- blood component therapy as necessary and available in the event that significant crystalloid fluid is required
- aim for HR < 120, systolic BP > 90 - 100 mmHg, urine output > 0.5 mL/kg/hour
- check clinical observations every 5 minutes and temperature 15 minutely⁶

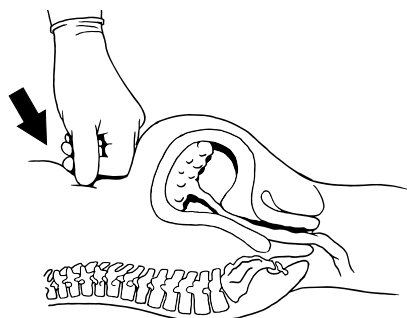
3. Clinical assessment

- Take emergency patient history (if re-presents)
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Postnatal or if not available ADDS/CEWT score or other local Early Warning and Response Tools) +
 - perform pulse and blood pressure, respirations every 5 minutes
 - 15 minute temperature, O₂ saturations and level of consciousness
 - see [Glasgow coma scale \(GCS\)/AVPU](#), page 766
 - ½ hourly pain level as indicated
- Perform physical examination including:
 - tone check for atonic uterus, check bladder - is it full?
 - tissue check for completion of third stage - check to ensure placenta and membranes are complete and ascertain whether tissue has been left behind
 - check for trauma to genital tract (cervix, vagina and perineum) - identify the apex of any tear or laceration
- Monitor fluid balance (intake and loss)
- Monitor urine output

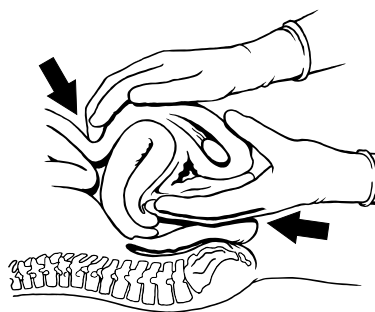
4. Management

- Consult MO/NP urgently who will organise urgent evacuation to appropriately equipped and staffed facility
- Tone
 - for **Atonic Uterus**
 - massage fundus
 - administer 2nd dose of oxytocin (Syntocinon®) 5 units IV or 10 units IMI
 - pass an in/out urinary catheter or insert an indwelling catheter
 - MO/NP may administer ergometrine, provided it is not contraindicated i.e. not hypertensive (diastolic BP not ≥ 90 mmHg or history of hypertension) and no heart disease
 - administer misoprostol per rectum
 - if bleeding continues and the woman's condition continues to deteriorate commence bimanual compression until MO/NP assistance arrives - avoid vigorous massage
- Tissue
 - if placenta is still in uterus, deliver as soon as possible
 - perform vaginal examination to see if placenta felt in vagina, trapped in cervix or unable to be felt and/or adherent
 - if placenta, membranes incomplete - notify MO/NP
- Trauma
 - apply firm pressure or clamps to bleeding vessels/wounds until repair possible
 - repair by an appropriately skilled practitioner with suitable lighting, positioning and pain relief
 - consult with MO/NP if tear includes anal sphincter or for other complex trauma
- Observe closely as woman is at risk of further bleeding. If heavy bleeding recurs at any time, consult MO/NP and consider:

- applying bimanual compression to uterus
- aortic compression below the umbilicus



Aortic Compression



Bimanual Compression

- Use blankets to keep woman warm
- MO/NP will advise further management
- If retained placenta and evacuating and attending MO/NP is on site, the MO/NP may attempt manual removal of placenta under Entonox® (nitrous oxide and O₂) and appropriate analgesia. It is prudent also to give atropine because of vagal effect of cervical dilatation and to start antibiotics afterwards

Schedule**4****Oxytocin (Syntocinon®)****DTP**

IHW/SM R&P/IPAP/Mid

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse and Midwife may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	5 International Units/mL 10 International Units/mL	IM	10 International Units	Stat
		IV (slowly) over 1 - 2 minutes	5 International Units	Stat Can be repeated after 5 minutes up to a total dose of 10 International Units

Provide Consumer Medicine Information

Note: caution in women with previous uterine surgery, multiple pregnancy, or > 4 previous births. Rapid IV administration is associated with transient tachycardia, hypotension and ischaemic ECG changes

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

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- In addition MO/NP may order oxytocin infusion 40 units in 1 L sodium chloride 0.9% or Hartmann's solution
- MO/NP will advise rate, initially start to run over 4 hours
Note: oxytocin must never be given in an infusion of 5% glucose or any other hypertonic solution

- If placenta delivered and bleeding heavy or continues give ergometrine as well as oxytocin, provided not contraindicated, i.e. not hypertensive (diastolic BP not > 90 mmHg) and no heart disease

Schedule	4	Ergometrine maleate	DTP IHW/IPAP/Mid	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	500 microgram/1 mL	IM or IV (IV slowly over 1 -2 minutes) (IHW and IPAP may not administer IV)	250 microgram	Stat May be repeated once
Provide Consumer Medicine Information				
Note: administer IV slowly over 1 - 2 minutes				
Contraindication: retain placenta, pre-eclampsia, eclampsia, hypertension or a history of hypertension, severe/persistent sepsis, renal, hepatic or cardiac disease				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- With or without metoclopramide. Do not delay administration of oxytocic by preparing antiemetic

Schedule	4	Metoclopramide		DTP IHW/SM R&IP/IPAP/Mid
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	10 mg/2 mL	IM or IV (IHW may not administer IV)	Adult > 20 years only 10 mg	Stat Further doses on MO/NP order
Provide Consumer Medicine Information: tell your health professional if you develop uncontrolled or repeated body movements (such as in your tongue)				
Note: give IV slowly over 1 - 2 minutes				
Contraindication: in patients with epilepsy and Parkinson's disease.				
Management of associated emergency: dystonic reactions occur in 1% of patients given metoclopramide. If dystonic reaction occurs (e.g. oculogyric crisis) consult MO/NP				

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- If indicated for persistent postpartum haemorrhage not responsive to oxytocin (Syntocinon®) or ergometrine give misoprostol

Schedule	4	Misoprostol	DTP IHW/SM R&IP/IPAP/Mid	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 microgram	Per rectum	800 - 1000 microgram	Stat
Provide Consumer Medicine Information				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
				6

- 15-methyl prostaglandin F₂ alpha (carboprost) is available (with restrictions) as second line management of life-threatening primary postpartum haemorrhage⁶. Will not be available in remote areas

5. Follow up

- Evacuation is required to facility with equipment and expertise

6. Referral/consultation

- Consult MO/NP urgently on all occasions of primary postpartum haemorrhage

Secondary postpartum haemorrhage

Recommend

- Provide immediate management for secondary PPH if blood loss is heavy i.e estimated above 500 mL. See [Postpartum haemorrhage \(PPH\), page 539](#)

Background

- Definition:
 - secondary PPH occurs between twenty four hours and six weeks postpartum
 - can be caused by: infection including STI and/or retained products of conception/hormonal imbalance/pregnancy related tumour (rare, gives false positive pregnancy test)/incidental

Related topics

 [Primary postpartum haemorrhage, page 539](#) [Sexually transmitted infections, page 578](#)

1. May present with

- Suprapubic cramps or low back pain
- Vaginal bleeding may include clots and products of conception
- Hypotension/shock due to either blood loss or sepsis

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 36](#)

- See [Shock, page 55](#)
- If blood loss is heavy (estimated above 500 mL) see [Primary postpartum haemorrhage, page 539](#)

3. Clinical assessment

- Take complete history including:
 - details of delivery and completeness of placenta and membranes
 - history of fever
 - history of abdominal cramping
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination including:
 - palpate abdomen for palpable uterus and tenderness. What is the uterine size?
 - if experienced, perform sterile speculum examination:
 - is blood coming through os?
 - is os open with products of conception protruding?
 - is there offensive cervical discharge?
 - if blood loss not heavy do a STI check
 - if late postpartum haemorrhage > 6 weeks postpartum, perform urine β hCG
 - collect urine for MSU
 - collect vaginal swabs including episiotomy or tear sites. See [STI specimen collection, page 582](#)
 - if febrile (temperature > 38°C) take blood cultures
 - see [Sexually transmitted infections, page 578](#)

4. Management

- Consult MO/NP
- If os is open, heavy bleeding and/or products seen MO/NP may advise:
 - removal of products with sponge forceps
 - commencement of IV antibiotics as per MO/NP order
 - evacuation/hospitalisation. May require curettage of retained products of conception under general anaesthesia)
- Keep nil by mouth
- Monitor amount and rate of blood loss
- If os is closed and fever or offensive cervical discharge MO/NP may advise IV antibiotics
- If os is closed and bleeding not heavy, MO/NP may advise oral antibiotics and advise bed rest at home

5. Follow up

- If not evacuated/hospitalised, review next day
- See next MO/NP clinic
- Follow up STI test results and treat. See [Sexually transmitted infections, page 578](#)

6. Referral/consultation

- Consult MO/NP on all occasions of secondary postpartum haemorrhage

Post birth care

Episiotomy and repair of perineum

Recommend

- Do not perform episiotomy as a routine procedure in a normal birth
- Offer perineal massage/perineal warm packs as a preventative measure¹⁰
- Episiotomy should only be performed by a Midwife or MO/NP if indicated

Background

- Episiotomy is used to hasten birth in the situation of acute fetal distress, facilitate birth if the mother is in immediate life threatening danger, to achieve satisfactory progress with the birth when the perineum is responsible for lack of progress
- Midwife and/or MO/NP will also advise in case of breech delivery, fetal distress, or the perineum remains white, rigid and thick as the baby's head crowns

1. May present with

- Fetal distress
- Rigid, white, thick perineum as head crowns
- Delayed second stage
- Instrumental delivery
- Breech delivery
- Prematurity

2. Immediate management

- Consult Midwife/MO/NP urgently
- Infiltrate perineum with 1% lignocaine as appropriate and if time permits
- Perform 3 - 4 cm cut with sterile straight, blunt ended scissors

3. Clinical assessment

- Physical examination including inspect the perineum
- Note and document elasticity and identifying reason for performing episiotomy

4. Management

- Infiltrate the perineum with 1% lignocaine plain, a total of 5 - 10 mL
- Guard the baby's head by putting two fingers between it and the perineum
- Place the fingers of your left hand on the baby's head
- Use straight, blunt ended scissors
- Leave your fingers between the head and the perineum
- Make a cut 3 - 4 cm at 7 o'clock
- Apply gentle pressure to control/prevent sudden expulsion of the head

Schedule	4	Lignocaine	DTP Mid	
Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	1% 50 mg/5 mL	Local infiltration	Adult up to max. of 3 mg/kg/dose to a total max. infiltration of 200 mg	Stat
Provide Consumer Medicine Information: advise patient about onset and duration of action and how to avoid injury to the anaesthetised area. Report any drowsiness, dizziness, blurred vision, vomiting or tremors				
Note: ask patient to report any drowsiness, dizziness, blurred vision, vomiting or tremors				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

11

11

Repair of the perineum

- Should only be attempted by an experienced Midwife or MO/NP trained in perineal/genital assessment and repair
- Use 2/0 vicryl undyed suture material on the biggest needle or 2/0 vicryl rapide
- Repairs can be left for the receiving hospital

5. Follow up

- Wash perineum daily and after opening bowels
- Change perineal pads every 4 to 6 hours or more frequently if heavy lochia
- Give advice on diet - at least 8 glasses of water/fluids per day and healthy diet to prevent constipation
- Avoid sexual intercourse until the perineal wound heals

6. Referral/consultation

- Non-midwives consult MO/NP on all occasions of impending birth where episiotomy may be required
- Consult MO/NP for all third/fourth degree tears



Neonatal resuscitation¹²

Recommend

- If time allows always prepare neonatal resuscitation equipment items prior to delivery in the order in which they would be used (see flowchart later in this section)
- Effective ventilation is the key to successful neonatal resuscitation¹²
- Naloxone is rarely used for new born babies and should never be considered a resuscitation drug. If neonatal respiratory depression from maternal opiate administration is suspected the priority is to provide airway support and ventilation. Naloxone is never indicated if adequate ventilation of the lungs and adequate heart rate has not yet been achieved¹³
- Never administer neonatal naloxone to the infant of a mother with opioid addiction or on methadone maintenance. Sudden reversal of chronic opioid action can cause severe life-threatening withdrawal symptoms, including refractory seizures

Background

- Neonatal resuscitation equipment is required in all facilities in the event of unplanned delivery
- The most important interventions in neonatal resuscitation are ensuring the airway is open and if the infant is not breathing, provide effective positive pressure ventilation
- If a mother received opioids within 4 hours of birth, her newborn may experience some degree of respiratory depression due to transplacental medication effect
- Neonatal naloxone is not a resuscitation medicine

1. May present with

- Unresponsive newborn
- Newborn with low (HR < 100) or absent HR
- Newborn with poor colour - blue/white
- Gasping, absent, laboured or poor respiratory effort
- Newborn with poor muscle tone (limp)
- Meconium

2. Immediate management

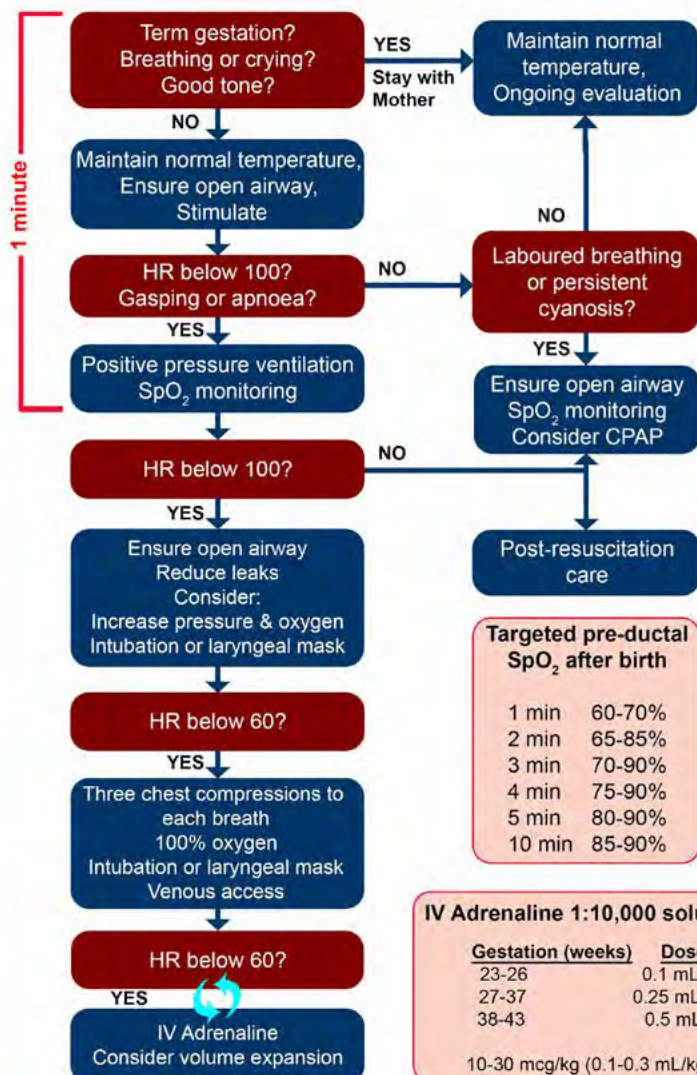
- Call for help
- Consult MO/NP urgently
- See [Newborn Life Support flowchart, page 548](#) for immediate management

Important clinical observations

- HR over 100 bpm
- Spontaneous breathing
- Temperature is > 36.5°C

Newborn Life Support

At all stages ask: do you need help?



January 2016



NEW ZEALAND
Resuscitation Council
WHAKAHAUORA AOTEAROA

Australian Resuscitation Council Guideline 2016

3. Clinical assessment

- Perform standard clinical observations (full CEWT score or other local Early Warning and Response Tools) +
 - HR (use paediatric stethoscope)
 - colour, BGL, assess baby's tone
 - respiratory effort
- Take temperature unless resuscitation is required, in which case, use measures to maintain infant's body temperature and take temperature after resuscitation

4. Management

- Temperature:
 - for term and near term newborn dry the baby and remove wet linen
 - for very premature newborn:
 - increase air temperature to 26°C if possible
 - immediately after birth place the baby in a polyethylene bag (cover the body only with plastic leaving head exposed) or under a polyethylene sheet without drying and continue such care until temperature is stable¹³. Examples of food or medical grade heat resistant plastic include ziplock bag, oven bag, NeoWrap[®], plastic wrap
 - as soon as possible after the baby is born cover the head, as babies lose most heat through their head. Do not cover baby's head with plastic



- Keep the face, neck and chest observable
- Place baby flat on back or side with head towards and feet away from you on neonatal resuscitation trolley or equivalent with overhead heater
- Ensure that the baby's head, neck and jaw are in a neutral or slightly extended position to allow an open airway¹²
- Clear the airway, using suction if required
- Provide resuscitation measures according to [Newborn Life Support flowchart, page 548](#)¹²

Note: O₂ is not usually required unless the baby remains centrally cyanosed at 5 minutes of age or unless ventilation plus chest compressions are needed. The priority is to establish breathing and HR, rather than to give O₂

- If neonate requires retrieval, prepare baby as outlined in the Queensland Maternity and Neonatal Clinical Guidelines on *Neonatal Stabilisation for Retrieval* in consultation with retrieval team and referring MO/NP. Available at: https://www.health.qld.gov.au/qcg/documents/g_stabile5-o.pdf

5. Follow up

- Mother and baby should be subsequently managed in maternity service
- It is important post birth to facilitate mother/baby attachment and initiate breastfeeding or expressing if the mother intends to breastfeed
- The health of the neonate will determine follow up when returning home but will include seeing Child Health Nurse regularly and MO/NP at 6 weeks
- For asymptomatic well baby with risk factors for hypoglycaemia¹⁴:
 - check BGL at 30 minutes then 1, 2 and 4 hours of age and then every 4 - 6 hours pre-feeds for the first 24 hours or until monitoring is ceased. Aim pre-feed BGL is ≥ 2.6 mmol/L for 24 hours
 - initiate early feeds within 30 - 60 minutes of birth, then feed at least 3 hourly or more frequently if baby demanding¹⁴
 - if BGL 1.5 - 2.5 mmol/L offer feed immediately, recheck BGL after 30 - 60 minutes
 - if BGL is persistently less than 2.0 mmol/L, MO/NP will discuss with Neonatologist and/or Paediatric Endocrinologist
- Maintain close monitoring of baby until medical evacuation occurs

6. Referral/consultation

Consult MO/NP urgently on all occasions where neonatal resuscitation is required



Mastitis/breast abscess

Recommend

- Regular breastfeeding or expressing should be continued to reduce the risk of complications such as breast abscess. It is safe for healthy infants to receive this milk
- Assist the mother to continue breastfeeding or expressing. If the mother decides to cease breastfeeding, weaning should wait until the condition is resolved to reduce the risk of breast abscess

Background

- Some causes include:
 - blocked ducts due to breastmilk not being removed from the breast
 - damaged nipples
 - oversupply of milk in the first few weeks
 - sudden changes in feeding patterns
 - tiredness, illness and stress
- Most episodes of mastitis occur in the first 6 weeks postpartum but can occur anytime during lactation

1. May present with¹⁵

- Tenderness and redness usually in one quadrant of the breast
- Fever, malaise, flu-like aches and pains, headaches, anxiety and occasional vomiting
- Fluctuation will not be evident until the abscess is well advanced and considerable breast tissue damage has occurred
- Decreased milk flow
- Breast firmness
- Breast swelling

- Fistula, or other extra mammary skin lesions
- Nipple discharge
- Nipple inversion/retraction
- Enlarged axillary lymph nodes

2. Immediate management Not applicable

3. Clinical assessment

- Take complete patient history:
 - birth details for mother and baby, including gestation and current age of baby, any difficulties with breastfeeding, if any decreased milk output, other methods of feeding being used, social and emotional wellbeing including availability of support
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Physical examination including:
 - note attachment of baby to breast
 - examine breast for redness, tenderness and mass, examine axilla for lymph nodes, observe for signs of blocked ducts while palpating the breast tissue
 - check for evidence of thrush in the baby's mouth and/or mother's nipples
 - damage to nipples - sore, cracked, bleeding
 - if no obvious risk factors perform pregnancy test¹⁵

4. Management

- Give paracetamol. See [Simple analgesia pull out](#)
- Discuss possible causes with the mother, reinforcing appropriate breastfeeding management and specific treatment strategies related to the identified cause
- First line treatment is effective milk removal. Continue to breastfeed baby
- The baby can feed from the breast that is affected but often this is too painful or baby will refuse this breast
- If the baby is not feeding on the affected breast it should be expressed every 3 - 4 hours
- With advice and support the mother can independently manage the condition
- Assess mother's risk factors which may have contributed to occurrence e.g. nipple trauma, maternal or neonatal infections, milk stasis, ineffective milk removal, trauma and anaemia¹⁵
- Encourage the mother to wear unrestrictive clothing and ensure that her bra, if she wears one, is supportive but not tight
- Encourage the mother to rest, increase fluid intake and maintain a healthy diet
- Apply warm packs just prior to, or during feeds and encourage gentle massage to assist the ejection reflex. Cold packs after the feed may provide comfort and decrease venous congestion if present
- Without treatment, the mastitis will exacerbate
- The early use of antibiotics will prevent the formation of most breast abscesses. If not allergic to penicillin, treat with flucloxacillin. In the event that there is a history of anaphylactic reaction to penicillins and of reactions to cephalosporins, MO/NP must be consulted before antibiotics are prescribed
- If nipple and/or oral candidiasis is identified both mother and infant must be treated simultaneously. See [Candidiasis/oral \(thrush\), page 324](#) and [Candidiasis/skin, page 381](#)

Schedule	4	Di/flucloxacillin		DTP IHW/SM R&IP/IPAP/Mid
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Adult 500 mg qid	5 days
Provide Consumer Medicine Information: should be taken on an empty stomach, ½ to 1 hour before, or 2 hours after, food. Take until course completed unless advised by your health professional to stop. Patients should report development of jaundice immediately to their health professional. Tell health professional if a sore white mouth, tongue or vagina develops. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the penicillins have been stopped				
Note: can cause severe hepatitis and cholestatic jaundice, which may be protracted. Risk of hepatitis increases in people > 55 years, females, and with courses > 2 weeks. Be aware of potential cross-sensitivity in patients allergic to carbapenems or cephalosporins. Use with caution in patients with renal impairment - reduce dose if CrCl < 10mL/min. Pre-existing hepatic impairment is not a risk factor. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillins. If the patient develops severe diarrhoea contact the MO/NP immediately. Considered safe for breastfeeding women. May cause diarrhoea in breast feeding infants				
Contraindication: in patients with: history of cholestatic hepatitis with dicloxacillin or flucloxacillin, a history of severe or immediate allergic reaction to a penicillin				
Use in Pregnancy: dicloxacillin is Category B2. Flucloxacillin is B1				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

16,17,18

- Cephalixin can be used for patients with penicillin hypersensitivity, excluding immediate hypersensitivity i.e. do not have anaphylaxis to penicillin use

Schedule	4	Cephalexin		DTP
				IHW/SM R&IP/IPAP/Mid
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Adult and child ≥ 12 years 500 mg qid	5 days
Provide Consumer Medicine Information: take until course completed unless advised by health professional to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the cephalosporins have been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware of cross-reactivity between penicillins, cephalosporins and carbapenems. Use with caution in patients with impaired renal function - consider reducing dose if CrCL < 20 ml/min. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by cephalosporins. If the patient develops severe diarrhoea contact the MO/NP immediately. Considered safe in breastfeeding. May cause diarrhoea in breastfeeding infants				
Contraindication: if history of allergy to cephalosporins and penicillins, or if severe or immediate allergic reaction to penicillin				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

18, 24

- If immediate hypersensitivity to penicillins give clindamycin

Schedule	4	Clindamycin	DTP IHW/SM R&IP/IPAP/Mid	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Midwife may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	150 mg	Oral	Adult and child ≥ 12 years 450 mg tds	5 - 7 days
Provide Consumer Medicine Information: take with a full glass of water. Take until course completed unless advised by health professional to stop. Patients should report development of diarrhoea immediately to health professional even if it occurs several weeks after the clindamycin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by clindamycin. If the patient develops severe diarrhoea contact the MO/NP immediately. Considered safe in breastfeeding. May cause diarrhoea in breastfeeding infants				
Use in pregnancy: Category A				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
				18,19

- If a breast abscess is suspected consult MO/NP. Incision and drainage under general anaesthesia is usually necessary

5. Follow up

- Provide breastfeeding advice and support as required
- Refer mother to breastfeeding support services if available
- Review next day, if no improvement consult MO/NP - may need evacuation
- If mother wishes to wean from breastfeeding provide information

6. Referral/consultation

- Consult Midwife/MO/NP on all occasions of breast abscess
- Consult MO/NP on all occasions of mastitis if not improving on review next day

Postnatal check up

Recommend

- It is recommended that the postnatal visit occurs in the first 6 - 8 weeks post delivery. However the postpartum visit should be individualised to reflect the urgency and needs of mother and baby
- To be performed by experienced practitioner

Related topics

 [Progestogen only pill, page 570](#)

 [Episiotomy and repair of perineum, page 545](#)

 [Rh\(D\) immunoglobulin, page 536](#)

1. May present with

- Post natal check to be performed ≥ 6 weeks post partum

2. Immediate management Not applicable

3. Clinical assessment

- Take complete birth history from the woman plus discharge summary including:
 - specific enquiry on vaginal bleeding, perineal/caesarean wound pain, tiredness, backache, urinary symptoms, bowel movements, rectal bleeding, breast and nipple tenderness, sleep patterns and mood
 - check antenatal record for blood group, if Rh Neg, confirm Anti D has been given
 - confirm birth details - vaginal or caesarean delivery, gestation?
 - socioeconomic status
 - parity (primipara, completed family)
 - personal choice and previous experience with contraceptive methods
 - past medical history, present illness, family history
 - stability of relationship and need for protection against STI
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Pap & OGTT if indicated
- Observe for signs of anaemia
- Physical examination including:
 - wound (if caesarean) or perineum if episiotomy
 - breasts and nipples (if indicated)

- palpate uterine fundus (vaginal delivery only)
- skin and hair

4. Management

- Discuss with woman:
 - breastfeeding
 - contraception - oral, depo, tubal ligation, IUCD, vasectomy. See [Contraception, page 556](#)
 - after pains, fatigue, sleeping
 - family or other support networks, financial situation, housing condition, food security, domestic/ social environment
 - intercourse - can probably be resumed safely as early as two weeks postpartum
 - smoking, nutrition, physical activity, alcohol and other substance use
 - SIDS prevention
 - infection prevention/hygiene
 - immunisations for baby
- Mood - administer Edinburgh Postnatal Depression Scale available at: www.blackdoginstitute.org.au/docs/CliniciansdownloadableEdinburgh.pdf
- Ensure Rh(D) immunoglobulin has been given (if indicated). See [Rh\(D\) immunoglobulin, page 536](#)
- Offer MMR if indicated from antenatal testing. Check not pregnant first. See [Immunisation program, page 750](#)

5. Follow up

- Refer to Mental Health/Social Worker as required
- Refer to Child Health Nurse for child health check
- Refer as required to MO/NP, visiting outreach Obstetric service

6. Referral/consultation

- Consult Midwife/MO/NP

Contraception

Contraception - adult

Recommend

- This section is based on Family Planning New South Wales (FPNSW), Family Planning Queensland (FPQ), Family Planning Victoria (FPV) *Contraception: An Australian Clinical Practice Handbook 3rd edition 2012*. Please refer to this for comprehensive information for the safe supply of contraception
- Contraception is always initiated by MO/NP
- Recommend simultaneous use of condoms and other contraception methods for protection against HIV and other STIs when a risk of STI/HIV transmission exists¹

Background

- Properly used, contraception reduces the rate of fertility to between < 1% (sterilisation, implants and injectable progestogen) and 25% (coitus interruptus)
- Even methods with higher failure rates can help with birth spacing

Related topics

[Sexually transmitted infections, page 578](#)

[Health check - women, page 482](#)

1. May present with

- Present to the clinic requesting contraception
- Subject raised during a consultation for another reason

2. Immediate management Not applicable

3. Clinical assessment

- Take full history:
 - medical history particularly migraines, venous thromboembolism (VTE), liver disease, gynaecological cancer, breast cancer, history of CVA or heart disease or arterial risk factors e.g. smoking, diabetes, hypertension
 - family history particularly VTE and hereditary thrombophilias
 - sexual history
 - menstrual history
 - gynaecological and Pap smear history
 - obstetric history
 - previous contraceptive use
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weight/height - BMI
 - urine pregnancy test where indicated
- Perform initial physical examination including Pap smear and STI screen if indicated
- Discuss contraception needs - method of contraception choice influenced by:
 - efficacy, accessibility, cost, age, relationship status, reversibility

- health risks, side effects, past and present medical and family history
- user friendliness
- personal beliefs
- social or cultural factors
- socioeconomic status
- parity (primipara, completed family)
- personal choice and previous experience with contraceptive methods
- need for protection against STI
- Provide information on types of contraception available, supported with appropriate written/verbal information. True Relationships & Reproductive Health fact sheets are available at: <http://www.true.org.au/Reproductive-health/Health-information/contraception>
- Hormonal contraception
 - long-acting reversible contraception (LARCs) have the lowest failure rates
 - injectable progestogen (Depo-Provera®, Depo-Ralovera®)
 - progestogen releasing subdermal implant (Implanon NXT®)
 - progestogen releasing intrauterine device or system (Mirena®)
 - hormonal intrauterine contraceptive device (IUCD)
 - combined hormonal contraception ('The Pill' or vaginal ring NuvaRing®)
 - progestogen only Pill ('Mini-pill')
 - emergency hormonal contraception
- Intrauterine contraceptive device
 - copper bearing IUD or Cu-IUD
- Barrier methods
 - condom (male and female), diaphragm
- Sterilisation
 - tubal sterilisation, vasectomy
- Natural methods
 - fertility awareness based methods
 - coitus interruptus (withdrawal)
 - lactational amenorrhoea
 - abstinence
- The WHO and UK Medical Eligibility Criteria (MEC) for contraceptive use takes into account a patient's personal characteristics (age, history of pregnancy) or a patient's pre-existing past or newly acquired medical conditions (e.g. diabetes, hypertension)³

WHO and UKMEC for contraceptive use^{2,3}

WHO/UKMEC Category 1	A condition for which there is no restriction for use of the contraceptive method
WHO/UKMEC Category 2	A condition where the advantages of using the method generally outweigh theoretical or proven risks
WHO/UKMEC Category 3	A condition where theoretical or proven risks usually outweigh the advantages of using the method
WHO/UKMEC Category 4	A condition which represents an unacceptable health risk if the contraceptive method is used

4. Management

- Consult MO/NP for assessment
- Consult MO/NP if a medical condition is present in a patient who is currently using contraception that is contraindicated for its use
- Consult MO/NP for review and prescription once the contraceptive method has been chosen
- Attention needs to be paid to providing all young men and women who are sexually active with information and appropriate support from the perspectives of pregnancy, STI prevention and child protection
- See [Sexually transmitted infections, page 578](#) and [Child protection, page 740](#)
- Valid consent is required for methods which are either irreversible (sterilisation), long acting/ temporarily irreversible (injectable progestogen) or not reversible without medical intervention (intrauterine devices and hormonal implants)
- Informed consent in this context means:
 - providers are fully informed about the variety of methods, the methods are available to their patients and they inform their patients that some methods may take time to arrange
 - time is allowed during the consultation to give information and accurately answer questions about the method and alternatives. Patients are encouraged to take time to think about their choice of method prior to commencing its use
 - information is current and understandable in a language and cultural context
- Storage for the contraceptive device is available to the patient (e.g. NuvaRing® requires storage at 25°C after dispensing and should be protected from sunlight and temperatures above 30°C)

5. Follow up

- Information on what to do if contraceptive method fails
- When to return for clinical follow up

6. Referral/consultation

- MO/NP for assessment and prescription
- Referral to MO/NP/specialist with skills for contraceptive implants, IUCD and sterilisation



Long-acting hormonal contraception - adult Depot medroxyprogesterone acetate (DMPA)

Recommend

- For women not able to take combined hormonal contraception
- For women who choose a longer acting method

Background

- Works by preventing ovulation and changing the endometrial lining and cervical mucous

Related topics

[Contraception, page 556](#)

[Health check - women, page 482](#)

1. May present with

- Request for contraception
- Request for administration of depot medroxyprogesterone acetate
- Side effects with other forms of contraception

2. Immediate management Not applicable

3. Clinical assessment

- Initial assessment by authorised SRH, NP or MO/NP
- Clinical assessment. See [Contraception, page 556](#) including:
 - contraception needs
 - methods of contraception available
 - choice of contraception
 - WHO/UKMEC for contraceptive use
 - pregnancy test where indicated. A negative test does not always exclude pregnancy and recent conception
 - BP, weight, BMI and menstrual pattern

WHO/UKMEC for contraceptive use^{2,3}

WHO/UKMEC category 4

Absolute contraindications

Conditions which represent unacceptable health risks

Medical condition

- Current breast cancer

WHO/UKMEC category 3

Strong relative contraindications

Conditions where the risks usually outweigh the advantages

For comprehensive list see^{2,3}

Medical condition

- Ischaemic heart disease or stroke/TIA
- Multiple risk factors for cardiovascular disease
- Hypertension with vascular disease
- Type 2 diabetes with vascular complications (including hypertension, nephropathy, retinopathy or neuropathy) or of > 20 years duration
- Past history of breast cancer with no evidence of disease ≥ 5 years
- Hepatocellular liver tumour (benign or malignant)
- SLE with positive (or unknown) antiphospholipid antibodies
- Severe (decompensated) cirrhosis
- Unexplained vaginal bleeding (suspicious for serious underlying condition)

WHO/UKMEC category 2 Generally safe to use	Medical condition
Conditions where the advantages generally outweigh the risks For comprehensive list see^{2,3}	• Women < 18 years and > 45 years • Systolic BP $\geq$ 160 or diastolic $\geq$ 95mmHg • History of VTE - past or present • Migraine with or without aura at any age • Diabetes < 20 years without vascular complications • Breast disease e.g. mass, gene mutation • Known thrombogenic mutations • History of VTE - past or present • CIN or cervical cancer (awaiting treatment) • Lactation < 6 weeks postpartum • Hyperlipidaemia • Gallbladder disease • SLE without positive antiphospholipid antibodies • Vaginal bleeding - irregular patterns, with/without heavy bleeding • HIV/AIDS • Liver tumours • Inflammatory bowel disease

- Side effects include:
 - a change in vaginal bleeding patterns occurs in all women who use progestogen only contraception. Amenorrhoea is common in women using depot medroxyprogesterone acetate. Some women will get irregular light bleeding
 - weight gain, headaches and acne
 - delayed return of ovulatory cycle and therefore a delay in the return of fertility
 - average return to previous menstrual pattern is 8 months
 - depot medroxyprogesterone acetate users experience a reduction in bone mineral density of about 6% over 2 years, however, bone loss will be reversible for most women - bone issues important for women < 18 years and > 45 years of age

4. Management

- Confirm that < 12 months since last MO/NP review for depot medroxyprogesterone acetate prescription and initiation of first dose
- The first dose should be given day 1 - 5 of a normal menstrual cycle. Day 1 is first day of menses and day 5 is 4 days later. It is effective immediately in this situation
- If given at any other time, exclude pregnancy and particularly recent conception and advise additional contraception or abstinence for the next 7 days
- Each subsequent dose is given 12 weekly. Beyond 12 weeks there is a risk of pregnancy⁵
- Prior to administration of depot medroxyprogesterone acetate injection check annually:
 - BP, weight, menstrual/bleeding pattern and review medical eligibility
 - a urine pregnancy test is only necessary if later than 14 weeks since the last injection
 - if presenting later than 14 weeks since previous injection it is important to exclude pregnancy. If pregnancy cannot be excluded the risk of giving the injection needs to be weighed against the possible risk of pregnancy if the injection is not given². Consult MO/NP

Schedule	4	Depot medroxyprogesterone acetate		DTP IHW
Authorised Indigenous Health Worker must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	150 mg/mL	IM upper outer quadrant of buttock or deltoid	150 mg	Administered once every 12 weeks
Provide Consumer Medicine Information				
Note: The patient must be initially assessed by an MO/NP and prescribed hormonal contraception. Confirm it is less than 12 months since last MO/NP assessment				
Management of associated emergency: consult MO/NP				

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5,6

- Irregular vaginal bleeding is not common with the use of injectable progestogen contraception. However, bleeding history should be checked before each dose is given. If any doubt about normality of bleeding pattern perform [Health check - women, page 482](#) and refer to MO/NP
- Some patients may experience side effects such as weight gain, breast tenderness and mood change with injectable hormonal contraception, but the incidence is low. Patients who experience side effects require review by an MO/NP
- Interactions
 - liver enzyme inducing medicines including antiretrovirals do not affect the efficacy of depot medroxyprogesterone acetate. It is therefore a good choice of contraception for women taking these medicines

5. Follow up

- Patients on injectable hormonal contraception should be followed up every 12 months by an MO/NP
- Delayed return of fertility and amenorrhoea may occur after discontinuing treatment. This is normal and in the vast majority of patients normal fertility and normal periods will return within a year. If in doubt consult MO/NP or refer to next MO/NP clinic

6. Referral/consultation

- MO/NP

Sub-dermal progestogen implant - adult

Recommend

- Assessment, insertion, follow up and removal must be performed by a specifically trained Health Professional. If implant is not palpable conduct pregnancy test and advise alternate method until location is confirmed. Implanon® is only visible with ultrasound and MRI but Implanon NXT® (implant used in Australia since June 2011) is radio opaque and can be seen on plain x-ray, CT and ultrasound

Background

- Long-acting contraceptive effect lasting 3 years
- Failure rates < 0.1%
- Important to exclude pregnancy or recent conception before insertion as amenorrhoea is a common side effect
- Effective immediately if inserted on day 1 – 5 of the cycle or if currently on reliable contraception. Otherwise patient should be advised to abstain or use condoms consistently for the following 7 days and that a follow up pregnancy test is necessary 4 weeks after insertion.
- Side effects include change in menses (amenorrhoea, oligomenorrhoea, frequent periods, prolonged periods or prolonged spotting are all possible), breast tenderness, weight gain, acne and mood changes
- Is easily reversible

Intrauterine contraceptive device (IUCD) - adult

Recommend

- Assessment, insertion, follow up and removal of an IUCD must be performed by a specifically trained health professional

Background

- Two types of copper IUCD in Australia (Multiload® and TT380A®) and levonorgestrel intrauterine contraceptive device (Mirena®)

Copper IUCD

- Acts by changing the lining of the uterus making it unsuitable for a pregnancy implantation and preventing sperm from reaching the ovum
- Can be used as emergency contraception if inserted within 5 days of unprotected intercourse
- Very effective - failure rate < 1% and can be left in place for up to 10 years (TT380® standard) or 5 years (Multiload® and TT380® short)
- Copper IUCD inserted after the age of 40 can be left in place as contraception until 12 months after LNMP if menopause at > 50 years old or 2 years after LNMP if menopause at < 50 years

Progestogen-releasing intrauterine device - Mirena®

- This intrauterine contraceptive device contains levonorgestrel that is released continuously for at least 5 years
- Acts by altering the lining of the uterus making it unsuitable for a pregnancy and by preventing sperm travelling through cervical mucus
- Very effective contraceptive with failure rate of 0.1%
- The device can be used to treat menorrhagia (excessive periods) and to provide the progestogen source for Hormonal Replacement Therapy (HRT), as well as for contraception

Side effects

- Copper IUD or IUCD
 - heavy, painful periods - can lead to anaemia, however it is not uncommon to have irregular vaginal spotting in the first month after insertion
- Progestogen releasing IUD or IUCD e.g. Mirena®
 - after initial irregular spotting which can last for up to 5 months, users of this device usually experience a very light regular period or amenorrhoea (absence of periods)
- Acne, weight gain, headaches and breast tenderness have been reported with the levonorgestrel IUCD however the amount of circulating hormone is extremely low

Complications

- Expulsion or displacement is the commonest cause of IUD failure. There is an overall risk of expulsion of about 5% with the highest risk within the first year²
- Lost threads - the threads should be visible extruding from the external cervical os on speculum examination. If not visible, the most common cause is that it has drawn up into the cervical canal or uterus and the IUCD itself is still insitu and providing contraception. The IUCD presence can be confirmed by ultrasound. Other possibilities include the IUCD has been expelled, the IUCD has perforated the uterine wall or the woman is pregnant and the uterus has enlarged. Perform a pregnancy test:
 - if negative, refer to next MO/NP clinic, advising additional contraception until the location of the device is established
 - if positive, consult MO/NP
- Unusual bleeding or lower abdominal pain - refer to MO/NP immediately, even if pregnancy test is negative
- Ectopic pregnancy - if pregnancy occurs with an IUCD in place there is a higher risk of ectopic pregnancy but overall the rate is less than for women not using contraception
- Uterine pregnancy - there is a risk of early miscarriage and 2nd trimester septic miscarriage. If IUCD threads are seen on speculum examination, consult MO/NP regarding removal of IUCD
- Pelvic inflammatory disease (PID) - the risk of PID is 1:400 in the first 20 days. After that the risk of PID reflects the woman's risk of exposure to STI
- Uterine perforation is rare - approximately 2.3 per 1000 insertions, but serious complication



Combined hormonal contraception - adult

Recommend

- See [Missed pill flowchart, page 569](#)

Background

- Combined hormonal contraception can take the form of oral contraceptive pill or vaginal ring

Related topics

[Health check - women, page 482](#)

[Contraception, page 556](#)

1. May present with

- Request for repeat supply of oral contraceptive pill or vaginal ring

- Request for contraception
- Subject raised during a consultation for another reason

2. Immediate management Not applicable

3. Clinical assessment

- Initial assessment by MO/NP
- Clinical assessment. See [Contraception, page 556](#) including:
 - contraception needs
 - methods of contraception available
 - choice of contraception
 - WHO/UKMEC for contraceptive use
 - pregnancy test where indicated. A negative test does not always exclude pregnancy and recent conception
 - BP, weight, BMI
 - menstrual pattern

WHO/UKMEC for contraceptive use^{2,3}

WHO/UKMEC category 4 Absolute contraindications	Medical condition
Conditions which represent unacceptable health risks For comprehensive list see ^{2,3}	• Breastfeeding and less than 6 weeks postpartum • Migraine with aura at any age • Ischaemic heart disease, stroke, TIA (current or past) • Smoking ≥ 15 cigarettes/day in a woman aged ≥ 35 years • BP systolic ≥ 160 or diastolic ≥ 95 mmHg • Vascular disease • Diabetes with vascular complications or of > 20 years • History of VTE/currently on anticoagulants • Known thrombogenic mutation • Major surgery with prolonged immobilisation • Breast cancer • Active viral hepatitis, severe decompensated cirrhosis, hepatocellular adenoma or carcinoma • SLE with positive (or unknown) antiphospholipid antibodies • Raynaud's disease with lupus anticoagulant • Valvular and congenital heart disease • Liver tumours

**WHO/UKMEC category 3
Strong relative
contraindications**

Conditions where the risks usually outweigh the advantages

For comprehensive list see^{2,3}

Medical condition

- Smoking up to 15 cigarettes daily in a woman aged ≥ 35 years
- Ceased smoking < 1 year ago in a woman aged ≥ 35 years
- Raised blood pressure BP systolic $> 140 - 159$ mmHg or diastolic $> 90 - 94$ mmHg
- BMI of $\geq 35 \text{ kg/m}^2$
- Adequately controlled hypertension
- Known hyperlipidaemia
- Past history (> 5 years ago) of migraine with aura at any age
- Migraine without aura if it develops when using combined hormonal contraception
- Diabetes with vascular complications or of > 20 years, nephropathy, retinopathy, neuropathy and other vascular disease
- Breastfeeding ≥ 6 weeks to < 6 months postpartum fully or almost fully breastfeeding
- Less than 21 days postpartum
- Family history of venous thromboembolism (VTE) e.g. DVT/PE in first degree relative aged < 45 years
- History of breast disease - no evidence of disease > 5 years
- Carriers of known gene mutations associated with breast cancer e.g. BRCA1
- Undiagnosed breast mass
- Gallbladder disease - current or medically treated
- Liver enzyme inducing medications
- VTE: Immobility unrelated to surgery

Note: if a woman has more than one of the first nine conditions, which increase the risk of cardiovascular disease, clinical judgement must be exercised. In most instances, the combined conditions should be regarded as belonging to category 4 (contraindicated). If the method is provided, record the woman's special condition in the clinical record and advise her of warning signs relevant to her condition

WHO/UKMEC category 2 Generally safe to use	Medical condition
Conditions where the advantages generally outweigh the risks For comprehensive list see^{2,3}	• Smoking in a woman aged < 35 years • Age ≥ 35 years who stopped smoking ≥ 1 year ago • Age ≥ 40 years • Diabetes - non-insulin or insulin dependant • Migraine without aura at any age • Family history of VTE (first degree relatives ≥ 45 years) • Breastfeeding and ≥ 6 weeks to < 6 months postpartum partial breastfeeding medium to minimal • Superficial venous thrombosis • Uncomplicated valvular and congenital heart disease • History of high BP during pregnancy (current BP normal) • BMI ≥ 30 - 34 kg/m² • Unexplained vaginal bleeding • AIDS (using antiretroviral therapy) • Cervical intraepithelial neoplasia • Cervical cancer (awaiting treatment) • Gallbladder disease (asymptomatic or past cholecystectomy) • Pregnancy related cholestasis • Inflammatory bowel disease: Crohns, ulcerative colitis • Sickle cell disease • Major surgery without prolonged immobilisation • Benign liver tumours • SLE - severe thrombocytopenia, immunosuppressive
Note: when a woman has more than one of the first five conditions, which increase the risk of cardiovascular disease, clinical judgement must be exercised. In most instances, the combined conditions should be regarded as belonging to category 3 (strong relative contraindication). If the method is provided, record the woman's special condition in the clinical record and advise her of warning signs relevant to her condition	

- Interactions:
 - liver enzyme inducing medicines which may render the pill and other hormonal contraceptives less protective:
 - most anticonvulsants
 - many antiretroviral medicines used for HIV management
 - rifampacin, rifabutin
 - some herbal products e.g. St John's Wort. See [Depression, page 452](#)
 - additional contraceptive precautions are not required during or after courses of antibiotics that do not induce liver enzymes. Detailed information on medication interactions with hormonal contraceptives can be obtained from Australian Contraception Handbook², MO/NP/True Relationships and Reproductive Health/Pharmacist or *Drug interactions with hormonal contraception*⁷ available at: <https://www.fsrh.org/documents/ceu-guidance-drug-interactions-with-hormonal-contraception-jan/>
- Side effects:
 - unscheduled bleeding
 - nausea

- breast tenderness
- acne (usually improves)
- headache
- reduced libido
- mood changes
- weight gain
- chloasma
- amenorrhoea
- Additional device related side effects reported by users of the vaginal ring are²:
 - increased vaginal discharge
 - device discomfort
 - expulsion of the ring
 - discomfort for either partner during sex

4. Management

- Confirm that it is less than 12 months since last MO/NP assessment for oral contraceptive pill prescription

Schedule	4	Oral contraceptive pills (Combined pills)	DTP IHW/SRH
Authorised Indigenous Health Worker must consult MO/NP			
Sexual and Reproductive Health Program Authorised Registered Nurse may proceed			
Form	Strength		Route of administration
Tablet	Ethinylestradiol 30 microgram/levonorgestrel 150 microgram e.g. Nordette®, Monofeme®, Microgynon 30®, Levlen®		Oral
Tablet	Ethinylestradiol 35 microgram/norethisterone 500 microgram e.g. Brevinor®, Norimin®		Oral
Tablet	Ethinylestradiol 35 microgram/norethisterone 1 milligram e.g. Brevinor-1®, Norimin-1®		Oral
Tablet	Ethinylestradiol 30 microgram/levonorgestrel 50 microgram		Oral
Tablet	Ethinylestradiol 40 microgram/levonorgestrel 75 microgram		Oral
Tablet	Ethinylestradiol 30 microgram/levonorgestrel 125 microgram		Oral
Tablet	Ethinylestradiol 20 microgram/levonorgestrel 100 microgram		Oral
Tablet	Ethinylestradiol 30 microgram/desogestrel 150 microgram		Oral
Tablet	Ethinylestradiol 30 microgram/gestodene 75 microgram		Oral
Tablet	Ethinylestradiol 35 microgram/cyproterone acetate 2 mg		Oral
Tablet	Ethinylestradiol 30 microgram/drospironone 3 mg		Oral
Tablet	Ethinylestradiol 20 microgram/drospironone 3mg		Oral
Tablet	Ethinylestradiol 30 microgram/dienogest 2 mg		Oral
Provide Consumer Medicine Information: most problems relate to missed pills, vomiting and diarrhoea, poor cycle control and what to do in the event of surgery. Side effects such as nausea, breast tenderness, acne and increase in blood pressure require review by an MO/NP. Nausea can be helped by taking the pill at night. If the symptoms are severe the pill may be stopped but other forms of contraception will be needed			
Note: the patient must be initially assessed by an MO/NP and prescribed hormonal contraception. Confirm it is less than 12 months since last MO/NP assessment. Max. supply at any one time not to exceed 4 months. If the symptoms are severe the patient may respond to a change of prescription or other interim measures such as antiemetics			
Management of associated emergency: consult MO/NP if signs of DVT/PE with sudden pain and swelling of leg or increased shortness of breath and chest pain			

2

2

- Vaginal ring e.g. NuvaRing® is a soft plastic ring which is inserted into the vagina. It contains oestrogen and progestogen and is 99% effective when used properly. A new ring is inserted into the vagina every 4 weeks. After insertion the ring is left in place for 3 weeks, then removed and a new ring inserted a week later². Women who request a vaginal ring will be assessed for suitability by MO/NP

- **Essential information: combined hormonal contraception**

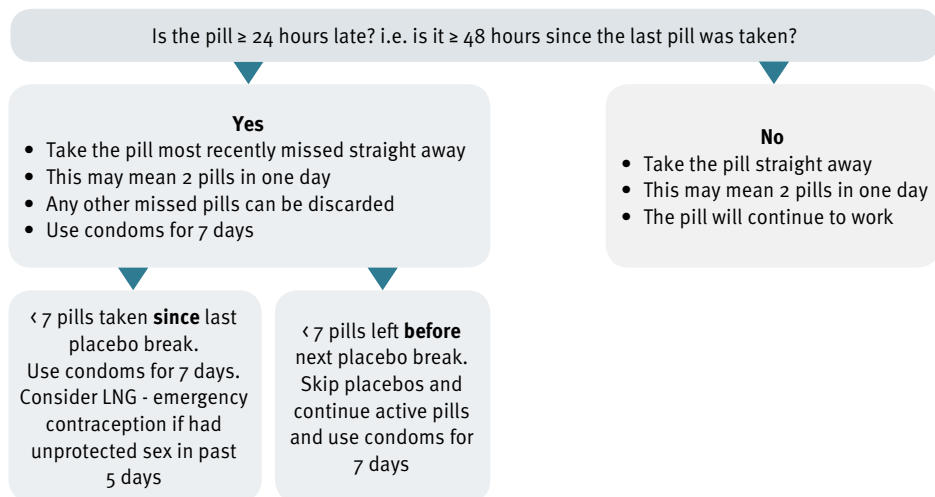
Starting combined pill or ring:

- preferably start an active pill or insert the first ring on day 1 - 5 of a normal menstrual cycle (day 1 is first day of menses and day 5 is 4 days later) as it is then effective immediately. However, packaging varies and health care providers need to be familiar with the way different combined

pill packaging types are 'followed' to assist patients to commence and continue taking pills correctly

- active pills or the ring can be started at any time of cycle if not pregnant or at risk of recent conception. If commenced beyond day 5 will not be effective until 7 active pills taken or the ring insitu for 7 days
- start 'at risk' patients anytime in the cycle with active pills or the ring using 'the 7 day rule' where additional methods of contraception or abstinence are advised for this first 7 days
- Missed pills²:
 - oral contraceptive pill should be taken at around the same time each day. If taken late by less than 24 hours then still protected, take missed pill as soon as remembered
 - if more than 24 hours, a back up method of contraception or abstinence is required until seven consecutive active pills have been taken

Missed pill flowchart²



Note: 7 consecutive days of active pills is required before contraception is effective

- Vomiting or severe diarrhoea:
 - due to the risk of incomplete absorption, additional methods of contraception should be used during the illness and for 7 days following. If the vomiting and/or severe diarrhoea occurs during the last 7 active tablets of the packet, take the next packet without the pill free interval
- Poor cycle control:
 - as a general rule the lowest dose pill should be used that obtains good cycle control. Breakthrough bleeding in the first 2 months is common and is likely to settle spontaneously. However, some patients have a continuing problem with breakthrough bleeding and it may be necessary to change their prescription. In this instance consult MO/NP and refer the patient to the next MO/NP clinic as necessary. Other causes of abnormal bleeding, particularly pregnancy, cervical pathology (polyps, cancer) or infection related bleeding need to be considered before assuming bleeding is pill related. Chlamydia infection should always be excluded in any patient presenting with bleeding abnormalities
- Thromboembolic disease risk - major surgery with prolonged immobilisation:
 - combined hormonal contraceptives (pill or ring) containing oestrogen should be stopped 4

weeks prior to major elective surgery and any surgery to the legs. The pill can be recommenced 2 weeks after the surgery. Arrange another contraceptive method if ceasing combined pill or ring

- Other risk factors include: obesity, age, family history of venous thromboembolic event (VTE) in first degree relatives, postpartum, history of current VTE, known thrombogenic mutations
- Advise the patient to consult MO/NP immediately if any of the following occur:
 - severe chest pain
 - sudden onset shortness of breath
 - calf pain
 - severe abdominal pain
 - severe prolonged headache
 - migraines with aura

5. Follow up

- Patients should be reviewed after the first 3 - 4 cycles on the pill or ring to:
 - check BP
 - discuss side effects and review any problems in pill taking or ring use
- Patients on the combined oral contraceptive pill or ring should be followed up every 12 months by an MO/NP

6. Referral/consultation

- MO/NP

Progestogen only pill - adult

Recommend

- For women not able to take combined hormonal contraception who wish to use an oral method

Background

- Works by changing cervical mucous and endometrium. Does not suppress ovulation therefore medicine must be taken at the same time each day

Related topics

 [Combined hormonal contraception, page 563](#)

1. May present with

- Postnatal lactating woman
- Request for repeat supply of oral contraceptive pill
- Request for contraception
- Side effects of combined hormonal contraception
- New contraindication has developed for combined oral contraceptive pill

2. Immediate management Not applicable

3. Clinical assessment

- Initial assessment by MO/NP

- Clinical assessment. See [Contraception, page 556](#) including:
 - contraception needs
 - method of contraception available
 - choice of contraception
 - WHO/UKMEC for contraceptive use

WHO/UKMEC for contraceptive use^{2,3}

WHO/UKMEC category 4

Absolute contraindications

Conditions which represent unacceptable health risks

Medical condition

- Current breast cancer

WHO/UKMEC category 3

Strong relative contraindications

Conditions where the risks usually outweigh the advantages

For comprehensive list see^{2,3}

Medical condition

- Active viral hepatitis
- Liver tumour (benign or malignant)
- Severe (decompensated) cirrhosis
- Past history of breast cancer - no evidence of disease > 5 years
- SLE with positive (or unknown) antiphospholipid antibodies
- Ischaemic heart disease current/history or if stroke develops when using progestogen only pill

WHO/UKMEC category 2 Generally safe to use	Medical condition
Conditions where the advantages generally outweigh the risks For comprehensive list see^{2,3}	• Ischaemic heart disease or stroke - current or history • Hypertension with vascular disease • Multiple risk factors for cardiovascular disease • Migraine • Diabetes - insulin or non-insulin dependant with or without complications • History of VTE - past or present • Major surgery with prolonged immobilisation • Known thrombogenic mutations • Carriers of known gene mutations associated with breast cancer e.g. BRCA1, undiagnosed mass • Unexplained abnormal vaginal bleeding • Known hyperlipidaemia • Gallbladder disease • Inflammatory bowel disease (Crohns, ulcerative colitis) • SLE without positive antiphospholipid antibodies • AIDS using antiretrovirals • HIV infected not using antiretrovirals • Vaginal bleeding - unexplained, irregular, heavy or prolonged

4. Management

- Confirm less than 12 months since last MO/NP assessment for progestogen only pill prescription

Schedule	4	Oral contraceptive pills (Progestogen only pills)		DTP IHW/SRH/Mid
Authorised Indigenous Health Worker must consult MO/NP				
Sexual and Reproductive Health Program Authorised Registered Nurse may proceed to supply on current prescription				
Midwife may proceed to supply levonorgestrel only (max. 8 weeks)				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	Levonorgestrel 30 microgram e.g. Microlut®	Oral	1 tablet daily Taken at the same time each day	Max. supply at any one time not to exceed 4 months
	Norethisterone 350 microgram e.g. Micronor®			
Provide Consumer Medicine Information: must be taken ± 3 hours of the same time each day or contraceptive protection may be reduced				
Note: the patient must be initially assessed by an MO/NP to be prescribed hormonal contraception. Confirm it is less than 12 months since last MO/NP assessment. Supply not to exceed current prescription				
Management of associated emergency: consult MO/NP if signs of DVT/PE with sudden pain and swelling of leg or increased shortness of breath and chest pain				

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Essential information: progestogen only pill (POP)

- Starting progestogen only pill
 - start on day 1 - 5 of a normal menstrual cycle (day 1 is first day of menses and day 5 is 4 days later) as it is then effective immediately. If started at any other time, additional methods of contraception or abstinence should be advised for the first 48 hours until contraceptive effect (3 consecutive pills) is reliably established
- Missed pills
 - if any more than 3 hours late with a progestogen only pill (POP) (27 hours or more since last one taken) contraceptive efficacy will be lost for the next 48 hours so the pill is considered 'missed'. If a pill is missed take it as soon as possible and the next one at the normal time. Advise abstinence or additional methods of contraception during the next 48 hours (3 consecutive pills) and emergency contraception if any unprotected intercourse takes place
- Lactation
 - excreted in breast milk. Dosage to infant is extremely small and not found to affect milk quality, quantity or infant growth or development. Suitable for breastfeeding women
- Vomiting and/or severe diarrhoea
 - due to the risk of incomplete absorption, additional methods of contraception should be used during the illness and for 48 hours (3 consecutive pills) following
- Interactions - medicines which may render the pill less protective
 - see [Combined hormonal contraception, page 563](#)
 - antibiotics do not affect the absorption of the progestogen only pill but rifamycins e.g. rifampicin, rifabutin can reduce the contraceptive effectiveness
 - detailed information on medication interactions with hormonal contraceptives can be obtained from Australian Contraception Handbook², MO/NP/True Relationships and Reproductive Health/Pharmacist or *Drug interactions with hormonal contraception*⁷ available at: <https://www.fsrh.org/documents/ceu-guidance-drug-interactions-with-hormonal-contraception-jan/>
 - the progestogen only pill is not recommended in those taking liver enzyme inducing medicines
- Irregular vaginal bleeding
 - irregular vaginal bleeding is a known side effect of progestogen only pill. Troublesome spotting occurs in some women. In this instance consult MO/NP and refer the patient to the next MO/NP clinic as necessary. Other causes of abnormal bleeding, particularly pregnancy, cervical pathology (polyps, cancer) or infection related bleeding need to be considered

5. Follow up

- Patients on the oral contraceptive pill should be followed up every 12 months by MO/NP
- Ensure adequate supply of progestogen only pill

6. Referral/consultation

- MO/NP

Emergency contraception - adult

Recommend

- Approved for use within 72 hours of unprotected sexual intercourse (UPSI). Proven effectiveness up to 4 days but may be used up to 5 days after unprotected sexual intercourse
- Copper Intrauterine Contraceptive Device (Cu-IUD). Limited possibility of use as specialist needs to insert the device within 5 days of unprotected sex)
- Levonorgestrel 1.5 mg may be purchased over the counter in pharmacies. Proof of age may be requested by some Pharmacists)

Related topics

[Sexually transmitted infections, page 578](#)

[Rape and sexual assault, page 620](#)

1. May present with

- Request for emergency contraception following unprotected sexual intercourse or contraception failure
- Sexual assault/rape
- Need for emergency contraceptive pill (ECP) found with health history for other presentation
- Taking medicine that interferes with hormonal contraception and unprotected sex has occurred in appropriate time frame for emergency contraceptive pill (ECP)

2. Immediate management Not applicable

3. Clinical assessment

- If history of sexual assault/rape - forensic examination may be required using the sexual assault investigation kit
- Obtain patient history including:
 - menstrual, coital, contraceptive history to assess risk of established pregnancy and need to give emergency contraception
 - STI risk and medication
- Perform standard clinical observations if required

WHO/UKMEC for contraceptive use^{2,3}

WHO/UKMEC category 4 Absolute contraindications	Medical condition
Conditions which represent unacceptable health risks	There are no evidence based absolute contraindications to hormonal levonogestrel emergency contraception except: • established pregnancy • allergy to its components

**WHO/UKMEC category 3
Strong relative
contraindication**

Conditions where the risks usually outweigh the advantages

Medical condition

There are no evidence based strong contraindications to hormonal emergency contraception

**WHO/UKMEC category 2
Generally safe to use**

Conditions where the advantages generally outweigh the risks

For comprehensive list see^{2,3}

Medical condition

- Current DVT/PE on anticoagulants
- Breast cancer (current or past)
- Inflammatory bowel disease affecting absorption
- Acute intermittent porphyria

4. Management

- Ensure the following:
 - the woman is clear on how to take the tablet(s)
 - advise barrier methods until the next period or commence another method immediately - consult MO/NP
 - review for pregnancy test and/or ongoing contraception in 3 weeks if indicated
 - if levonorgestrel 1.5 mg is not available discuss alternatives with MO/NP
 - where relevant the woman is offered STI screening, urine testing or lower vaginal swab for PCR and possibly serology

Schedule	3	Levonorgestrel	DTP IHW/IPAP/SRH/Mid	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Midwife and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	1.5 mg	Oral	1.5 mg	Stat Within 72 hours (3 days) of the first episode of unprotected sexual intercourse
Provide Consumer Medicine Information: if vomiting occurs within 2 hours of administration, the dose should be repeated with the addition of an antiemetic. Vomiting more than 2 hours after either dose is not considered to affect effectiveness. This medicine is affected by liver enzyme inducing medicines. Women who are currently taking or have ceased a liver enzyme inducing medicine within 28 days should be advised to use a 3 mg dose				
Note: emergency contraception with levonorgestrel is approved for use, and is most effective, used up to 72 hours after unprotected sexual intercourse (UPSI). It has proven effectiveness up to 96 hours (4 days), and possibly up to 5 days however the risk of pregnancy significantly increases				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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2,8,9

5. Follow up

- All patients require follow up to exclude pregnancy and STI, if at risk, at the MO/NP clinic in 3 weeks to discuss contraception
- If vomited within 2 hours of swallowing tablets, repeat the treatment. Vomiting after 2 hours should not affect efficacy

6. Referral/consultation

- See MO/NP

Barrier methods of contraception² - adult

Condoms

- Safe, side effect free method of contraception
- Availability of emergency contraception in case of condom failure may increase acceptability
- Provides a high degree of protection against bacterial and viral STI, HIV and unwanted pregnancy
- Used properly failure rate is approximately 2 - 12%
- There are many different types of condoms available in chemist shops, supermarkets or by mail order (latex and non-latex, lubricated or non-lubricated, different sizes, different colours, different flavours, smooth, ribbed or studded, in packets of 3, 12 or 24)
- How to use a male condom. See [Sexually transmitted infections, page 578](#)
- Female condoms are available by mail order

Diaphragm²

- Soft non-latex device which acts as a cervical barrier. Placed over the cervix before intercourse and left in place for at least 6 hours after intercourse

- Needs to be fitted by a trained health care worker who will assess the woman, fit the correct size device and teach the woman how to insert and remove it
- Manufacturer's advice is to use with spermicidal creams however these creams are not currently available in Australia
- Failure rates higher than other methods. Typical use efficacy rate is 88%²
- Size of diaphragm needs to be reassessed with an increase or decrease in weight of 3 or more kilograms
- Diaphragms should be checked for deterioration. With proper care they may last up to 2 years

Sterilisation

- Sterilisation should be regarded as a permanent procedure
- Usually only considered in older men or women who are sure their childbearing is complete
- Female
 - tubal sterilisation usually requires general anaesthesia and is performed laparoscopically. Failure rates are low, although higher if performed at the same time as caesarean section
 - does not affect menses or sexual function
- Male
 - vasectomy is a relatively straight forward procedure usually performed under local anaesthetic
 - effect is not immediate - it may take several months to obtain a zero sperm count and during this time other contraception is necessary
 - generally few side effects, might have pain, bruising and infection

Natural methods

- Fertility awareness based methods
 - relies on avoiding intercourse during the most fertile time of the month i.e. around ovulation
 - comprehensive knowledge of the menstrual cycle is important
 - time of ovulation can be calculated if the cycle is regular. It is usually accompanied by a measurable temperature rise and changes in cervical mucous
 - can be successful if both partners are highly motivated and have been taught about the method by a trained health care worker
 - failure rate quoted as from 1 - 25%
 - women with irregular periods, around menopause and after child birth may find this method difficult
- Coitus interruptus
 - relies upon withdrawal of the penis prior to ejaculation
 - the least effective method of contraception especially for those with little experience with this method. Failure rate may be up to 25%
 - sperm is in pre-ejaculate which lubricates the penis before ejaculation and can remain alive in the female genital tract for several days
- Lactational amenorrhoea²
 - can be 98% effective as contraceptive for up to 6 months after childbirth as long as remain amenorrheic and fully breastfeeding
 - must be fully breastfeeding (no complements of milk or solids) and regularly breastfeeding including night feeds
 - ovulation occurs before the first menstrual bleed, so care must be taken with this method

Sexually transmitted infections

Sexually transmitted infections (STIs)

Recommend

- Informed consent to be obtained prior to STI testing
- See [Rape and sexual assault, page 620](#)
- Consult MO/NP on any occasion patient presents acutely ill and with single or multiple painful/inflamed joints (possible disseminated gonococcal infection). Will urgently require hospital admission and parenteral antibiotics

Background

- Often STIs do not have any symptoms
- Every opportunity for testing should be taken to increase testing for STIs in priority populations. The highest rate of infection occurs in the 15 - 30 year olds age group and testing should be offered to people at all presentations in this age group
- The presence of a STI increases the likelihood of transmission of HIV
- Chlamydia is the most common notifiable STI in Australia. Chlamydia and genital herpes are seen in all areas. Gonorrhoea and trichomonas are common in rural and remote regions. Data suggests that the HPV vaccine has had an effect and that now genital warts are not a common presentation
- Excessively high rates of chlamydia and gonorrhoea persist in remote regions, leading to psychosocial distress, gynaecological problems, pregnancy loss, infertility and a population particularly vulnerable to an epidemic of HIV infection
- **There is currently a resurgence of syphilis in remote populations** and a significant epidemic is continuing among men who have sex with men
- Donovanosis is now rare but it should be considered in remote areas especially in the context of genital ulcer disease

Important principles of treating STIs

- Symptomatic cases and contacts of individuals with a positive STI result must be treated at first presentation (presumptive treatment). **Do not wait for pathology results**
- Timely i.e. immediate contact tracing and treatment of sex partners is essential to avoid reinfection
- People diagnosed with chlamydia or gonorrhoea need to be re-screened at 3 months as one third of patients will be reinfected
- If someone tests positive for a STI, offer testing for other common STIs, and for HIV, hepatitis B and hepatitis C. See [Tests/investigations for STIs, page 580](#)
- Pelvic inflammatory disease (PID) should be considered in all sexually active women, particularly those under 25 years of age, who have new onset of pelvic pain. See [Low abdominal pain in female, page 597](#)
- For patients with genital sores contact the Syphilis Surveillance Centre ☎ 1800 032 238 or email North-Qld-Syphilis-Surveillance-Centre@health.qld.gov.au
- Asymptomatic screening is important and should be offered annually in high risk populations or where prevalence rates are high, and when a risk is identified

When to test for STIs

Who	When	What
Sexually active people < 39 years in remote Aboriginal and Torres Strait Islander settings or where prevalence rates are high ²	Annually (at a minimum)	Chlamydia Gonorrhoea Trichomonas Syphilis
Sexually active young people 15 - 29 years in other rural and remote areas/ general population ²		Chlamydia
Men and women aged 40 - 49 years in remote Aboriginal and Torres Strait Islander settings or where prevalence rates are high ³	Annually	Syphilis
A patient presents with/as: • symptoms of a STI • a sexual contact of someone with a symptom of a STI • a sexual contact of someone who has tested positive for a STI • positive pathology of a STI • a recent change of sexual partner or inconsistent/no condom use • requesting a STI check	At presentation	A full STI check: chlamydia gonorrhoea trichomonas mycoplasma genitalium syphilis HIV hepatitis B (if not immune or not chronically infected) hepatitis C
Is pregnant	See Antenatal care, page 484	
Regular screening is recommended for other groups including - men who have sex with men (MSM), people who inject drugs, sex industry workers and culturally and linguistically diverse populations, migrants, refugees, international students, backpackers, others such as first and second generation families of these groups, or based on epidemiological disease patterns - contact local Sexual Health Service for advice		

How to perform a STI check

Take a patient history

Note: Only a limited history is required if a person is requesting a check up. Assess STI risk and if any symptoms present. If no symptoms identified an examination is not required. Proceed to test according to Asymptomatic STI Specimen Collection

- Take a reproductive history including:
 - menstrual
 - obstetric
 - contraceptive
 - Pap smear history
- Take a sexual history and assess STI risk including:
 - new partner, multiple partners, or partner has multiple partners, regular/casual partners
 - same sex partners
 - condom use
 - recent history of STI

- nature of sexual intercourse - do they have oral, vaginal, anal intercourse
- Assess Blood Born Virus (BBV) risk:
 - injecting drug use (IDU), tattoos, body piercing, prison term, cultural penile incisions
- Ask about symptoms:
 - urethral (penile)/vaginal discharge - onset, colour, odour
 - pain or burning on passing urine (dysuria)
 - abnormal vaginal or rectal bleeding
 - genital rashes, lumps and sores
 - itching/discomfort in the perineum, perianal and pubic region
 - low abdominal pain in women
 - pain with sex (dyspareunia)
 - if a STI is not treated it may cause symptoms such as fever, muscle/joint pains, rashes, enlarged lymph nodes
- For each symptom ask about:
 - site - where is the pain/lesion/discharge located
 - onset - when did the symptom start
 - character - size, appearance, distribution, description of discharge, odour
 - radiation - does it go anywhere else/are there other associated symptoms
 - alleviating factors - does anything help to relieve the symptom(s)
 - timing - have you had it before, does it come and go or is it consistent
 - exacerbating factors - does anything make it worse
 - severity - of pain/symptom

Perform examination

- If a patient has no symptoms and is not a 'contact', examination is often not necessary
- The extent and nature of the examination depends on the history and may include:
 - the mouth, the skin (rash), lymph nodes for swelling or tenderness
 - the abdomen for tenderness. See [Acute abdominal pain, page 200](#) and [Low abdominal pain in female, page 597](#)
 - the external genitalia including the perianal area for rashes, lumps, ulcers or skin splits
 - men - urethral opening for discharge and inflammation. Testes and epididymis for tenderness or swelling
 - women - vulva/vagina/cervix for inflammation, discharge, bleeding
 - bi-manual examination for tenderness and masses (if practitioner experienced)

Take tests/investigations for STIs

- All STI testing must be done with the patient's knowledge and informed consent. Pre-test information and discussion is particularly important in relation to HIV testing. See [HIV infection, page 616](#)
- The local Sexual Health Service will provide advice if needed

A full STI check includes tests/investigations for:

- Chlamydia
- Gonorrhoea
- Trichomonas
- Mycoplasma Genitalium

- Syphilis
- HIV
- Hepatitis B* (if not immune)
- Hepatitis C (also offered for surveillance purposes)
- If there is a genital sore, in addition to the above, collect tests for genital ulcer disease (GUD). See [Genital sores/ulcers, page 603](#)

*Hepatitis B immune status should be established and vaccination offered if not immune and not chronically infected. See [Acute hepatitis B, page 405](#). If immune or documented to be fully vaccinated, it is not necessary to repeat at each STI check. If chronically infected see current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* for recommended monitoring available at <https://publications.qld.gov.au/dataset/chronic-conditions-manual>

STI tests should be appropriate to the symptoms present and sex acts performed (oral, anal, vaginal) e.g. men who have sex with men (MSM), also take throat swabs (chlamydia/gonorrhoea PCR) and anal swabs (chlamydia/gonorrhoea PCR and MC/S)

STI specimen collection

No symptoms

First Catch Urine for PCR (20 mL+)

- Chlamydia, gonorrhoea
- Trichomonas (female only)

OR

2 x vaginal dry swabs for PCR

- 1 x Gonorrhoea, chlamydia
- 1 x Trichomonas
(self-collected or clinician collected)

+

Blood: 2 x Serum gel tubes

- Syphilis
- HIV
- Hepatitis B (HBsAb, HBsAg, HBcAb) if not immune
- Hepatitis C Ab if risk

Symptoms: discharge, dysuria, low abdominal pain, lesions

3 x dry swabs for PCR

- 1 x Gonorrhoea, chlamydia
- 1 x Trichomonas
- 1 x Mycoplasma genitalium
(Female - vaginal self-collected or clinician collected
Male - if visible penile discharge)

+

1 x MC/S charcoal swab plus slide

(roll swab onto slide before inserting into charcoal medium)

OR

If unable to obtain swabs or no penile discharge:

First catch urine for PCR (20mL+)

- Chlamydia, gonorrhoea
- Trichomonas
- Mycoplasma genitalium

+

If lesion:

1 x dry swab for PCR

- Herpes, donovanosis, syphilis
- Call Syphilis Register ☎ 1800 032 238

AND

Blood: 2 x Serum gel tubes

- Syphilis
- HIV
- Hepatitis B (HBsAb, HBsAg, HBcAb) if not immune
- Hepatitis C Ab if risk



Urine PCR



Gel tube



Dry swab



MC/S swab plus slide

All specimens can be stored in fridge and transported cold

STI management

Medication management

- Symptomatic cases and contacts of individuals with a positive STI result must be treated at first presentation (presumptive treatment). **Do not wait for pathology results**
- Once only treatment is highly effective for chlamydia/gonorrhoea however retesting is recommended especially if symptoms persist or reoccur
- If single dose treatments are used, observe the patient take the medicine and document this in the medical record
- All STI pathology must be followed up and reviewed and treatment given within 7 days of testing
- Review in **1 week** provides an opportunity to:
 - assess for symptom resolution
 - confirm contact tracing has been undertaken or offer more contact tracing support
 - provide further sexual health education and prevention counselling
- Test of Cure (TOC)
 - all patients should be re-tested 3 months post treatment and:
 - those who have tested positive for mycoplasma genitalium should have a TOC at 2 weeks after treatment
 - herpes and trichomonas - no TOC required
- Check for allergies prior to treatment e.g. to penicillin, or other beta-lactam antibiotics (includes ceftriaxone), the macrolide group of antibiotics (includes azithromycin) or to metronidazole

Contact tracing/partner notification

- Timely i.e. immediate, on day of presentation, contact tracing and treatment of sex partners is essential to avoid reinfection
- Contacts of individuals with a known STI must be treated on the day of presentation. Do not wait for pathology results

How to perform contact tracing

- The aims of contact tracing are:
 - to prevent reinfection
 - to identify individuals who may be infected and would benefit from treatment
 - to interrupt on-going transmission of disease
- Confidentiality of all parties must be maintained:
 - names of all contacts from the previous 6 months or as relevant to STI
 - the name of the index case must never be disclosed to the contacts
 - document in the contact medical record that they need immediate treatment for the diagnosed STI and testing for the other common STI's
 - do not write the name of the index case in the contacts' medical record, do not write the name of the contact in the medical record of the index case
 - the patient may choose to inform their contact(s) themselves or may want the clinic staff to do this
 - if clinic staff are initiating contact tracing, three attempts by telephone or home visits should be made and documented
 - notify the appropriate health service staff if a named contact is outside your health centre's area
 - maintain an information system to track notification and treatment of contacts as applies in your region

- consult the MO/NP, Sexual Health Clinic or Contact Tracing Support Officer if you need advice or help with contact tracing:
Far North Queensland ☎ 07 4226 4773
Townsville, Mackay, North West ☎ 07 4433 9600
Sunshine Coast, Wide Bay, Central Queensland, Central West and Metro North ☎ 0429 340210
Brisbane Metro South, Gold Coast, West Moreton, Darling Downs and South West ☎ 07 3176 7587

For contact tracing information: <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/sex-health/contact-tracing/default.asp>

Education and prevention and condoms

- Assure the patient that confidentiality will be protected
- If treatment is required see relevant HMP for abstinence period
- Give information about the transmission, symptoms and complications of STI. Available at: <https://www.qld.gov.au/health/staying-healthy/sexual-health/sti/index.html>
- Discuss safe sex practises, contact tracing/partner notification - explain why and how and provide condoms
- Condoms and lubricant should be available with 24 hour access in discreet locations

Condom education

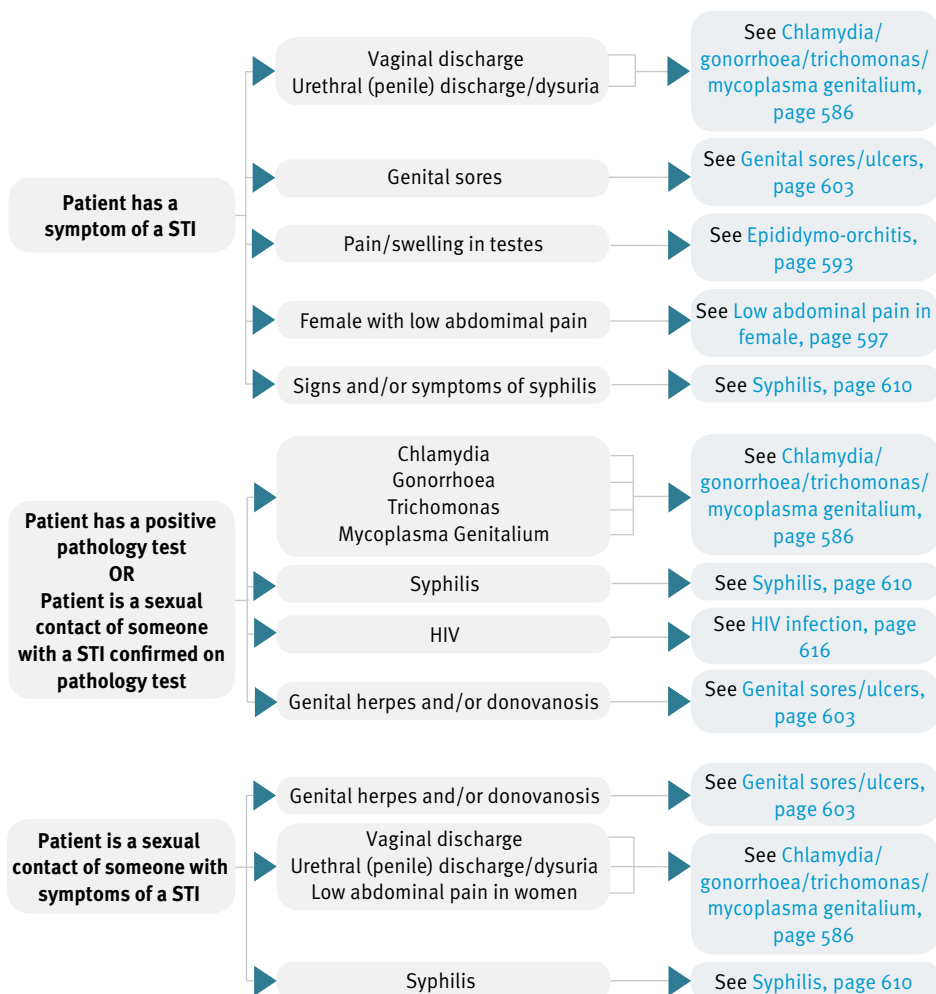
- Demonstrate how to use a condom: check expiry date when opening packet. Take care with sharp fingernails, rings, etc.
 - squeeze the end of the condom to keep air out of the tip
 - gently roll condom down the shaft of the erect penis before having sex
 - use only water based lubricant e.g. Wet Stuff®, Glyde®, Sylk®
 - do not use paraffin based lubricants such as baby oil or vaseline as this can make the rubber perish
 - when finished, the base of the condom should be held on during withdrawal so it is not left inside the partner
 - used condoms should be tied in a knot and put in the rubbish, not down the toilet
 - do not store condoms in a hot place as this can make the rubber perish

STI follow up

- Encourage follow up one week after presentation/treatment:
 - check adherence with medication and symptom resolution
 - check test results: STI results (especially HIV) should be given in person
 - ask again about sex partner(s) and check if sexual partner(s) have been tested/treated - contact tracing is essential to avoid reinfection
 - reinforce education and prevention information and check condoms supplied
 - encourage patient to present for a check any time they get symptoms or are at risk of STI e.g. new partner. See [When to test for STIs, page 579](#)
- Every patient with a STI diagnosis should have a STI check at 2 to 3 months after initial treatment:
 - about one third are re-infected at 3 months, often because their partner was not treated
 - patients treated for infectious syphilis e.g. syphilis of less than 2 years duration, should be tested at 3 - 6 months and at 12 months. See [Syphilis, page 610](#)
 - HIV test should be offered at the time of initial STI diagnosis, however a repeat test may be needed at 6 weeks - after the 'window period'. See [HIV infection, page 616](#)

Selecting STI HMP flowchart

Use the following flowchart to assist in the selection of HMP based on the patient presentation



Chlamydia/gonorrhoea/trichomonas/mycoplasma genitalium

Recommend

- Treat for chlamydia, gonorrhoea, trichomonas, mycoplasma genitalium, if a man has a urethral discharge or dysuria, or a woman presents with vaginal discharge. The cause of vaginal discharge is difficult to diagnose on clinical examination alone
- If symptomatic or a contact of a patient with a known STI, treat at first presentation (presumptive treatment). Do not wait for pathology results
- Timely i.e. immediate contact tracing and treatment of sex partners is essential to avoid re-infection

Background

- Chlamydia, gonorrhoea, trichomonas, mycoplasma genitalium are often asymptomatic or the symptoms go unrecognised
- The most likely cause of a urethral discharge in a man is chlamydia and/or gonorrhoea
- 10 - 15% of women with untreated chlamydia or gonorrhoea will develop an upper genital tract infection (PID) which usually presents with low abdominal pain. Mycoplasma genitalium is implicated in PID
- Chlamydia, gonorrhoea and mycoplasma genitalium can damage the fallopian tubes increasing the risk of ectopic pregnancy and infertility
- Trichomonas is a STI that may persist in women for years, in men probably up to 4 months¹

Related topics

 [Low abdominal pain in female, page 597](#)
 [Epididymo-orchitis, page 593](#)

[How to perform a STI check, page 579](#)
[STI specimen collection, page 582](#)
[Contact tracing, page 583](#)

1. May present with

- Asymptomatic:
 - positive pathology result for chlamydia and/or gonorrhoea and/or trichomonas and/or mycoplasma genitalium
 - named contact of someone with chlamydia, gonorrhoea, trichomonas, mycoplasma genitalium, PID, epididymo-orchitis
- Symptoms:
 - men:
 - a urethral (penile) discharge and/or pain or dysuria
 - testicular pain
 - women:
 - creamy yellow or blood stained vaginal discharge or cervix bleeds easily when swabbed
 - abnormal bleeding: intermenstrual bleeding (IMB) or post coital (after sex) bleeding (PCB)
 - low abdominal pain (PID) which may be mild to severe (acute abdomen) or pain with penetrative sex
 - PV bleeding during pregnancy: threatened miscarriage, preterm rupture of membranes, preterm labour, neonatal infection or postpartum infection
 - inflammation of the vulva and vaginal walls which may cause soreness or itching. White or green vaginal discharge which is typically 'frothy' and has a 'fishy' odour (typical of trichomonas)
- Occasionally may present acutely ill with single or multiple painful/inflamed joints - possible disseminated gonococcal infection

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history and offer an examination. See [How to perform a STI check, page 579](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- If symptomatic test for: See [STI specimen collection, page 582](#)
 - chlamydia, gonorrhoea, trichomonas, mycoplasma genitalium
 - also offer testing for syphilis, HIV, hepatitis B, hepatitis C
 - additionally for women:
 - urine pregnancy test on all women of childbearing age (12 - 52 years)
 - urinalysis - if nitrites positive send MSU for MC/S
 - if the woman complains of low abdominal pain or experiences pain during the examination or complains of pain during sexual intercourse assess for PID. See [Low abdominal pain in female, page 597](#)
 - Pap smear if due. See [Health check - women, page 482](#)
- If patient has been recalled due to positive pathology result or is a named contact of a patient with a known STI, offer full STI screen. See [How to perform a STI check, page 579](#)

4. Management

- Contact MO/NP on any occasion patient presents acutely ill and with single or multiple painful/inflamed joints - possible disseminated gonococcal infection. Will require emergency hospital admission and IV antibiotics
- Medication management:
 - treat at this presentation (presumptive treatment). Do not wait for pathology results
 - symptomatic cases with vaginal discharge/penile discharge or dysuria in men
 - contact(s) of patient with chlamydia, gonorrhoea, trichomonas, mycoplasma genitalium
 - people with a positive pathology test for chlamydia, gonorrhoea, trichomonas, mycoplasma genitalium
 - check for allergies and treat as per the following table
 - observe the patient taking the medication
- Perform timely i.e immediate contact tracing and treatment of sex partners which is essential to avoid reinfection. See [Contact tracing, page 583](#)
 - if chlamydia and/or gonorrhoea and/or mycoplasma genitalium diagnosed, trace sexual contact(s) from previous 6 months¹
 - if trichomonas only on pathology result, treat current partner only
- Provide education, prevention and condoms. See [How to perform a STI check, page 579](#)
- Advise no sexual contact for **7 days** after treatment is administered. Advise no sex with partners from the last **6 months** until the partners have been tested and treated if necessary. See www.sti.guidelines.org.au

Sexually transmitted infections treatment guide

Presents with	Treat for	If not allergic treat with
Vaginal discharge or penile discharge and/or dysuria in men	Chlamydia, gonorrhoea and trichomonas If pregnant discuss need for treatment of trichomonas with MO/NP	Azithromycin and ceftriaxone and metronidazole (or tinidazole)
Chlamydia and gonorrhoea are detected on a pathology test or gonorrhoea alone detected, or named as a sexual contact of someone with gonorrhoea, cervicitis, PID or epididymo-orchitis	Chlamydia and gonorrhoea	Azithromycin and ceftriaxone
Chlamydia alone or mycoplasma genitalium alone detected on pathology test or named as a sexual contact of someone with chlamydia or mycoplasma genitalium	Chlamydia or mycoplasma genitalium	Azithromycin
Trichomonas detected on pathology test or named as a sexual contact of someone with trichomonas	Trichomonas If pregnant discuss need for treatment of trichomonas with MO/NP	Metronidazole (or tinidazole)

- Treatment for chlamydia or mycoplasma genitalium - give azithromycin

Schedule	4	Azithromycin	DTP IHW/SM R&IP/IPAP/SRH

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	1 g	Stat

Provide Consumer Medicine Information: may be taken with or without food

Use in pregnancy: Category B1

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

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- Treatment for gonorrhoea - give azithromycin plus ceftriaxone

Schedule	4	Ceftriaxone		DTP
				IHW/SM R&IP/IPAP/SRH
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	1 g (dissolve in 3.5 mL 1% lignocaine) = 4 mL solution	IM deep intragluteal injection	500 mg (2 mL)	Stat
Provide Consumer Medicine Information: may cause pain and inflammation at injection site. May cause nausea, diarrhoea, headache and dizziness				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillins. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: with a history of allergy to cephalosporins or a severe or immediate allergic reaction to a penicillin. There is the potential for cross-reactivity between penicillins, cephalosporins and carbapenems				
Use in pregnancy: Category B1				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

6,19

6,19

- Treatment for trichomonas give metronidazole. If pregnant, discuss need for treatment of trichomonas with MO/NP (category B2)

Schedule	4	Metronidazole	DTP IHW/SM R&IP/IPAP/SRH	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicine Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg 400 mg	Oral	2 g	Stat
Provide Consumer Medicine Information: avoid alcohol while taking and for 24 hours after taking this medicine. Take tablets with food or immediately after food to reduce stomach upset. Tell health professional if a sore white mouth, tongue or vagina develops. Metronidazole can cause dizziness and confusion. Those affected should not drive or operate machinery				
Note: be aware that metronidazole potentiates the effect of warfarin - monitor INR				
Use in pregnancy: Category B2. Consult MO/NP for advice				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

7,20

7,20

- Or tinidazole (contraindicated in pregnancy B3)

Schedule	4	Tinidazole		DTP IHW/SM R&IP/IPAP/SRH	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP					
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed					
Form	Strength	Route of administration	Recommended dosage	Duration	
Tablet	500 mg	Oral	2 g	Stat	
Provide Consumer Medicine Information: take with food. Avoid alcohol for 72 hours after taking dose					
Use in pregnancy: Category B3. Consult MO/NP before proceeding					
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67					

7,22

7,22

5. Follow up

- Follow up at 1 week and 2 - 3 months. See [How to perform a STI check, page 579](#)
- There is rapidly emerging resistance of mycoplasma genitalium to azithromycin. It is essential that treatment is followed by a test of cure at 2 - 4 weeks after treatment. If treatment failure detected it is important to exclude reinfection

6. Referral/consultation

- Consult MO/NP as above if allergic, pregnant or if symptoms have not resolved following treatment

Bacterial vaginosis - adult

Background

- Bacterial vaginitis is not sexually transmitted. It is caused by an overgrowth of bacteria e.g. *gardnerella*

Related topics

 [Chlamydia/gonorrhoea/trichomonas/mycoplasma genitalium, page 586](#)

[How to perform a STI check, page 579](#)

1. May present with

- Laboratory report from the high vaginal swab notes the presence of 'clue cells' (asymptomatic infection)
- Vaginal discharge that is typically thin, white or grey and has a 'fishy' odour, similar to trichomonas but not frothy and vaginal walls are not inflamed

2. Immediate management Not applicable

3. Clinical assessment

- Obtain relevant patient history and offer an examination. See [How to perform a STI check, page 579](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)

4. Management

- Consult MO/NP if symptoms are recurrent or severe
- If presents with a symptom of vaginal discharge, treat as a STI. The cause of vaginal discharge is difficult to diagnose on clinical examination alone. See [Chlamydia/gonorrhoea/trichomonas/mycoplasma genitalium](#), page 586
- Contact tracing is not required
- Provide education on bacterial vaginosis
- Medication management - if high vaginal swab is suggestive of bacterial vaginosis treat with oral metronidazole or clindamycin 2% vaginal cream. If pregnant discuss need for treatment with MO/NP (Category B2)

Schedule	4	Metronidazole	DTP IHW/SM R&IP/IPAP/SRH	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg 400 mg	Oral	400 mg bd	7 days
			OR	
			2 g	Stat
Provide Consumer Medicine Information: avoid alcohol while taking and for 24 hours after taking this medicine. Take tablets with food or immediately after food to reduce stomach upset. Tell health professional if a sore white mouth, tongue or vagina develops. Metronidazole can cause dizziness and confusion. Those affected should not drive or operate machinery. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the metronidazole has been stopped				
Note: be aware that metronidazole potentiates the effect of warfarin - monitor INR. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by metronidazole. If the patient develops severe diarrhoea contact the MO/NP immediately				
Use in pregnancy: Category B2. Consult MO/NP for advice				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

8,20

- Or clindamycin vaginal cream. Is safe in pregnancy

Schedule	4	Clindamycin 2% vaginal cream	DTP IHW/SM R&IP/IPAP/SRH	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Vaginal cream	2%	Vaginal	1 full applicator nocte	7 nights
Provide Consumer Medicine Information: cream may damage condoms during treatment period and for up to 72 hours after course has finished. Complete course				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

8, 21

8, 21

5. Follow up

- Not required

6. Referral/consultation

- Consult MO/NP if recurrent or severe

Candidiasis/vaginal (thrush)

Background

- Candidiasis (thrush) is caused by an overgrowth of yeast. It is common in healthy women, but can also be as a result of high oestrogen (pregnancy), high sugar (uncontrolled diabetes), immune suppression (HIV) or after taking some antibiotics. Candidiasis is not sexually transmitted

1. May present with

- Inflammation (redness, swelling) of the vulva or vagina causing itch or soreness
- Vaginal discharge is typically white, curd like, and sticks to the vaginal walls
- Cracks or fissures in the skin folds. Genital herpes must be excluded. See [Genital sores/ulcers, page 603](#)

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history and offer a relevant examination
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- If the patient presents with repeated episodes of vaginal thrush, do a BGL and assess for risk of HIV

4. Management

- Consult MO/NP if symptoms are recurrent or severe
- Medication management. If inflammation or discharge is typical of candida, or candida is detected on a vaginal swab and symptoms are present, treat with clotrimazole vaginal cream. Ask about allergy to anti-yeast/anti-fungal preparations. If allergy present discuss with MO/NP

- Contact tracing is not required
- Provide education on candidiasis (thrush)
- Treatment for candidiasis give clotrimazole vaginal cream

Schedule	3	Clotrimazole vaginal cream/pessary	DTP IHW/IPAP/SRH	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Pessary	100 mg	Vaginal	1 pessary / applicator nocte	6 nights
Cream	1%			
Provide Consumer Medicine Information: use once daily, preferably in the evening for 6 successive days. 1 applicator should be filled with cream and inserted as deeply as possible into the vagina with the patient lying on her back. Pessary should be inserted using the applicator provided with the product. In late pregnancy digital insertion of pessary may be preferable. Complete course				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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5. Follow up

- Not required

6. Referral/consultation

- Consult MO/NP if symptoms are recurrent or severe



Epididymo-orchitis - adult

Recommend

- If acute onset or severe pain consider torsion of the testes. Torsion of the testes is a medical emergency and must be excluded
- See [Testicular/scrotal pain, page 222](#)

Background

- Epididymo-orchitis may occur as a result of infection with STI (gonorrhoea or chlamydia) or urinary tract infections
- If due to STI, treatment of sexual contacts is essential to prevent reinfection

Related topics

- [Urinary tract infection, page 355](#)
- [Chlamydia/gonorrhoea/trichomonas/mycoplasma genitalium, page 586](#)

- [Testicular/scrotal pain, page 222](#)
- [How to perform a STI check, page 579](#)
- [STI specimen collection, page 582](#)
- [Contact tracing, page 583](#)

1. May present with

- Unilateral pain and swelling in the testes/scrotum with or without fever
- Due to STI (gonorrhoea, chlamydia, mycoplasma genitalium) will be the likely cause in men who:
 - are aged < 40 or are at increased risk for acquiring STI
 - have a recent history of discharge or dysuria
 - whose partner has a STI
- Due to UTI will be the more likely cause in men who:
 - are aged > 40 years
 - have had recent catheterisation of the urethra
 - have an underlying renal tract or prostate problem
- See [Urinary tract infection, page 355](#)

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history and offer relevant examination
- See [How to perform a STI check, page 579](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Test for: See [STI specimen collection, page 582](#)
 - MSU for MC/S
 - chlamydia, gonorrhoea, trichomonas and mycoplasma genitalium
 - also offer testing for syphilis, HIV, hepatitis B, hepatitis C

4. Management

- Consult MO/NP on all occasions to exclude torsion of the testes
- Medication management. If STI is the likely cause and not allergic treat with:
 - an initial stat dose of azithromycin and ceftriaxone followed by 14 days of doxycycline
 - where adherence to 14 days of doxycycline is likely to be suboptimal, doxycycline may be replaced by a repeat dose of azithromycin on day 8
 - observe the patient taking the medication
 - if UTI is the likely cause treat as per UTI in men. See [Urinary tract infection, page 355](#)
- Give analgesia as required. See [Simple analgesia pull out](#)
- Bed rest
- Scrotal support
- Perform timely (immediate) contact tracing and treatment of sex partners in sexually active partners. This is essential to avoid reinfection. See [Contact tracing, page 583](#)
- Provide education, prevention and condoms. See [How to perform a STI check, page 579](#)
- If sexually acquired infection treat with azithromycin plus ceftriaxone plus doxycycline

Schedule	4	Azithromycin		DTP IHW/SM R&IP/IPAP/SRH	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP					
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed					
Form	Strength	Route of administration	Recommended dosage	Duration	
Tablet	500 mg	Oral	1 g	Stat	
Provide Consumer Medicine Information: may be taken with or without food					
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67					

10,27

- Plus

Schedule	4	Ceftriaxone	DTP IHW/SM R&IP/ IPAP/SRH	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	1 g (dissolve in 3.5 mL 1% lignocaine) = 4 mL solution	IM deep intragluteal injection	500 mg (2 mL)	Stat
Provide Consumer Medicine Information: may cause pain and inflammation at injection site. May cause nausea, diarrhoea, headache and dizziness				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillins. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: with a history of allergy to cephalosporins or a severe or immediate allergic reaction to a penicillin. There is the potential for cross-reactivity between penicillins, cephalosporins and carbapenems				
Use in pregnancy: Category B1				
Management of associated emergency: contact the MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- Plus doxycycline for 14 days. If adherence to doxycycline likely to be suboptimal, replace with a repeat dose of azithromycin on **day 8**

Schedule	4	Doxycycline		DTP IHW/SM R&IP/IPAP/SRH
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicine Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet/ Capsule	50 mg 100 mg	Oral	100 mg bd	14 days
Provide Consumer Medicine Information: take with a large glass of water plus some food or milk. Remain upright (do not lie down) for an hour after taking a tetracycline. Do not take iron, calcium, zinc, or antacids within 2 hours of taking doxycycline. Avoid sun exposure, wear protective clothing and use sunscreen while taking doxycycline. Take until course completed unless advised by health professional to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the doxycycline has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by doxycycline. If the patient develops severe diarrhoea contact the MO/NP immediately. Interacts with warfarin - monitor INR				
Contraindication: in patients with allergy to tetracyclines or concurrent treatment with retinoids				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- If adherence to doxycycline likely to be suboptimal, replace with a repeat dose of azithromycin on day 8

5. Follow up

- Early follow up is important if MO/NP decides to treat as acute epididymo-orchitis and not to evacuate. Review next day
- If the patient is not significantly improved, consult MO/NP
- Complete resolution of the swelling may take several weeks but a substantial response should occur within 4 - 5 days
- Follow up at 1 week and 2 - 3 months. See [How to perform a STI check, page 579](#)

6. Referral/consultation

- Consult MO/NP on all occasions epididymo-orchitis is suspected
- In severe cases treatment may need to be continued for up to 3 weeks. Seek specialist advice



Low abdominal pain in female - adult

Probable pelvic inflammatory disease (PID)

Recommend

- Consult MO/NP urgently if patient is a severe case with board-like rigidity of abdomen
- Consider ectopic (tubal) pregnancy in all women who present with abdominal pain and/or vaginal bleeding whether or not the woman suspects she is pregnant
- Diagnosis of PID is clinical. **Do not wait for pathology results.** Response to treatment confirms the diagnosis
- PID must be considered in the presence of low abdominal pain in sexually active women in whom other causes have been excluded

Background

- Low abdominal pain due to PID may range from mild with no other symptoms to severe with acute abdomen
- PID is usually polymicrobial, caused by sexually acquired pathogens and/or vaginal flora²⁷
- PID in early pregnancy may present as a threatened miscarriage with pain +/- bleeding
- While laboratory tests may help, negative results do not exclude PID

Related topics

- [Acute abdominal pain, page 200](#)
- [Chlamydia/gonorrhoea/trichomonas/mycoplasma genitalium, page 586](#)
- [Urinary tract infection in pregnancy, page 510](#)
- [Urinary tract infection, page 355](#)

- [Vaginal bleeding in early pregnancy, page 504](#)
- [How to perform a STI check, page 579](#)
- [STI specimen collection, page 582](#)
- [Contact tracing, page 583](#)
- [HIV infection, page 616](#)

1. May present with

- Low abdominal pain which may be mild or severe
- Positive chlamydia or gonorrhoea test with low abdominal pain or tenderness on bi-manual examination
- Following instrumentation of the genital tract - termination of pregnancy, dilatation and curettage, IUCD insertion or birth
- Other symptoms include pain with sexual intercourse (dyspareunia), abnormal vaginal bleeding or discharge

2. Immediate management

- In severe cases see [Acute abdominal pain, page 200](#)
 - assess HR, temperature, BP
 - if ill, with board-like rigidity of abdomen, insert largest bore IV cannula possible (14 G or 16 G)
 - consult MO/NP urgently. MO/NP will advise further management and arrange evacuation/hospitalisation
 - keep patient nil by mouth
 - when and if appropriate, history, examination and testing as follows will be required

3. Clinical assessment

- Obtain patient history see [How to perform a STI check, page 579](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform examination see [How to perform a STI check, page 579](#)
 - examine the abdomen see [Acute abdominal pain, page 200](#)
 - if possible (and practitioner experienced) perform a speculum and bi-manual pelvic examination looking for discharge, bleeding, tenderness or masses
- See [STI specimen collection, page 582](#)
- Test for:
 - urine pregnancy test on all women of child bearing age (12 - 52 years)
 - urinalysis and MSU for MC/S
 - chlamydia, gonorrhoea, trichomonas and mycoplasma genitalium
 - also offer: syphilis, HIV, hepatitis B, hepatitis C
 - Pap smear if due. See [Health check - women, page 482](#)
- Using the following table as a guide to the differential diagnosis of low abdominal pain in female

Differential diagnosis of low abdominal pain in female

Possible causes of low abdominal pain (may be multiple)	Clues to diagnosis
Pregnancy test positive ± PV bleeding Ectopic (tubal) pregnancy Threatened/incomplete/septic (PID) miscarriage	If pregnant, an ultrasound will confirm or exclude a viable intrauterine pregnancy PID may be the cause of threatened miscarriage in early pregnancy See Urinary tract infection in pregnancy, page 510 and See Vaginal bleeding in early pregnancy, page 504
Pregnancy test negative PID Ovarian or pelvic abscess (PID) Ovarian cyst or tumour Pelvic adhesions Endometriosis Uterine fibroids Urinary tract infection Appendicitis Diverticulitis	PID is likely if: • low abdominal pain alone is present • the woman is sexually active, of reproductive age and living in an area where gonorrhoea, chlamydia and mycoplasma genitalium are common • pain responds quickly to appropriate antibiotic treatment UTI is likely if: • urinary frequency/dysuria are present or • nitrites are positive See Urinary tract infection, page 355 Appendicitis usually presents with a typical history - pain moves from umbilicus to RIF, associated low grade fever, anorexia, nausea Pelvic adhesions and endometriosis can only be diagnosed by laparoscopy Uterine fibroids and diverticulitis are uncommon in women aged < 40 See Acute abdominal pain, page 200

4. Management

- Consult MO/NP on all occasions of acute abdominal pain, abnormal vaginal bleeding and/or pregnancy test is positive (consider ectopic pregnancy) or an IUCD is present
- PID must be considered in the presence of low abdominal pain in sexually active women in whom other causes have been excluded. Diagnosis of PID is clinical. **Do not wait for pathology results.** Response to treatment confirms the diagnosis
- Medication management:
 - medicine for PID should be given to women < 25 years or at any age if at risk of STI if:
 - the woman complains of low abdominal pain and/or
 - pain is present on moving the cervix or adnexae during bimanual examination and
 - no other cause can be identified
 - an initial stat dose of azithromycin plus ceftriaxone should be given followed by 14 days of metronidazole plus 14 days of doxycycline
 - if pregnant, breastfeeding or if adherence to 14 days of doxycycline is likely to be suboptimal, replace doxycycline with another single dose of azithromycin 1 g on **day 8**
 - consult MO/NP if allergic or is pregnant
- Give analgesia if required. See [Simple analgesia pull out](#)
- Perform timely i.e. immediate contact tracing and treatment of sex partners which is essential to avoid reinfection. See [Contact tracing, page 583](#)
- Provide education, prevention and condoms. See [How to perform a STI check, page 579](#)
 - at first presentation, explain the diagnosis, the importance of adherence to medicines and the need for early follow up for patient and partner(s)
 - advise to abstain from sex until course of treatment is finished and 3 days after partner has been treated
- Treat with azithromycin

Schedule

4

Azithromycin

DTP
IHW/SM R&IP/IPAP/SRH

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	1 g	Stat

Provide Consumer Medicine Information: may be taken with or without food

Use in pregnancy: Category B1

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

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- Plus ceftriaxone

Schedule	4	Ceftriaxone	DTP IHW/SM R&IP/IPAP/SRH	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	1 g (dissolve in 3.5 mL 1% lignocaine) = 4 mL solution	IM deep intragluteal injection	500 mg (2 mL)	Stat
Provide Consumer Medicine Information: may cause pain and inflammation at injection site. May cause nausea, diarrhoea, headache and dizziness				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillins. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: with a history of allergy to cephalosporins or a severe or immediate allergic reaction to a penicillin. There is the potential for cross-reactivity between penicillins, cephalosporins and carbapenems				
Use in pregnancy: Category B1				
Management of associated emergency: contact the MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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- The following day commence treatment with metronidazole plus doxycycline. If pregnant discuss need for treatment with MO/NP

Schedule	4	Metronidazole	DTP IHW/SM R&IP/IPAP/SRH	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicine Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg 400 mg	Oral	400 mg bd	14 days
Provide Consumer Medicine Information: avoid alcohol while taking and for 24 hours after taking this medicine. Take tablets with food or immediately after food to reduce stomach upset. Tell health professional if a sore white mouth, tongue or vagina develops. Metronidazole can cause dizziness and confusion. Those affected should not drive or operate machinery. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the metronidazole has been stopped				
Note: be aware that metronidazole potentiates the effect of warfarin - monitor INR. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by metronidazole. If the patient develops severe diarrhoea contact the MO/NP immediately				
Use in pregnancy: Category B2. Consult MO/NP for advice				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

11,20

11,20

- Plus doxycycline (contraindicated in pregnancy B3). If pregnant, breastfeeding or adherence to 14 days of doxycycline is likely to be suboptimal, replace doxycycline with a repeat dose of azithromycin on **day 8**

Schedule	4	Doxycycline		DTP
				IHW/SM R&IP/IPAP/SRH
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicine Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet / Capsule	50 mg 100 mg	Oral	100 mg bd	14 days
Provide Consumer Medicine Information: take with a large glass of water plus some food or milk. Remain upright (do not lie down) for an hour after taking a tetracycline. Do not take iron, calcium, zinc, or antacids within 2 hours of taking doxycycline. Avoid sun exposure, wear protective clothing and use sunscreen while taking doxycycline. Take until course completed unless advised by health professional to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the doxycycline has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by doxycycline. If the patient develops severe diarrhoea contact the MO/NP immediately. Interacts with warfarin - monitor INR				
Contraindication: in patients with allergy to tetracyclines or concurrent treatment with retinoids				
Use in pregnancy: safe in the first 18 weeks of pregnancy. Doxycycline can cause enamel loss and staining of developing teeth and should not be taken after 18 weeks pregnancy, the neonatal period, and the first 8 years of life				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

11, 25

11, 25

5. Follow up

- Follow up at 1 - 2 days
 - provide education and counselling:
 - explain pelvic infection and its complications
 - give general information on the transmission and prevention of STI and HIV
 - discuss safe sex practises and provide condoms
 - encourage compliance with medication to guard against risk of complications
 - complete contact tracing/partner notification
 - stress the importance of follow up
- Clinical assessment:
 - if medication compliant, should be significant improvement within 48 hours
 - if no improvement or if worse, consult MO/NP. IV antibiotics may be required, alternatively PID may not be the cause
 - if not already done, offer blood tests for syphilis, HIV, hepatitis B, hepatitis C. See [How to perform a STI check, page 579](#)
 - advise no sexual contact for 7 days after treatment is administered
- Follow up within 2 weeks - check:
 - treatment adherence and symptom resolution. If pain not resolved consult MO/NP
 - contacts have been tested and treated
 - test results have been given
 - if treatment completed and symptoms resolved a test of cure is not needed
- Follow up at 2 - 3 months
 - a repeat self collected swab or urine PCR test for chlamydia, gonorrhoea, trichomonas,

mycoplasma genitalium should be collected to check if the patient has been reinfected

- a follow up test for HIV should be offered to cover the 'window period'. See [HIV infection, page 616](#)

6. Referral/consultation

- Consult MO/NP on all occasions of acute abdominal pain, abnormal vaginal bleeding and/or pregnancy test is positive (consider ectopic pregnancy) or an IUCD is present
- If pain recurs, reassess for PID. If reinfection is unlikely, referral may be needed for pelvic ultrasound and laparoscopy to assess for ovarian masses, adhesions and endometriosis



Genital sores/ulcers - adult Herpes, syphilis, donovanosis

Recommend

- Always consult the Public Health Nurse, Syphilis Register on ☎ 1800 032 238 or email North-Qld-Syphilis-Surveillance-Centre@health.qld.gov.au
- If syphilis or donovanosis are likely or cannot be excluded, give treatment to cover both infections

Background

- The diagnosis of genital sores can be difficult and is based on a combination of clinical symptoms and signs, laboratory tests and response to treatment
- Herpes is the most common cause of genital ulcers
- Scabies and candidiasis may cause genital sores but other signs of these infections should be present
- There is currently a resurgence of syphilis in remote populations and a significant epidemic is continuing among non-Aboriginal and Torres Strait Islander men who have sex with men

Related topics

- [Genital warts, page 614](#)
- [Syphilis, page 610](#)

[How to perform a STI check, page 579](#)

1. May present with

- Lumps in the genital skin/mucosa, genital warts, molluscum, syphilis
- Ulceration (where the skin is broken or inflamed), herpes, syphilis, donovanosis

	Genital warts	Genital herpes	Syphilis	Donovanosis
Typical sores	Solid lumps, may be smooth or warty, asymmetrical, no ulceration and no inflammation of surrounding skin	Painful skin splits or cluster of blisters, which break down to form small shallow ulcers, with irregular borders. Surrounding skin may be inflamed	Primary (chancres) one or few sores, 1 - 2 cm with well defined edges Secondary (condylomata lata) multiple, often perianal skin, symmetrical and flat	Commences as one or more sores or nodules and may join to form large destructive ulcers which are beefy red and bleed easily
Painful?	No	Painful or itchy	Usually painless	Usually painless
Enlarged lymph nodes?	No	Yes/No	Yes/No	No
Heals without treatment?	No	Yes, within 1 - 2 weeks but usually recurs	Yes, primary sores within 2 - 3 weeks, secondary sores may come and go over 12 months	No, continues to become larger over time
Treatment	Multiple treatment modalities. Exclude syphilis before treating. See Genital warts, page 614	Valaciclovir	Commence presumptive treatment for syphilis with Bicillin LA®. If donovanosis is confirmed add azithromycin	

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history. See [How to perform a STI check, page 579](#)
 - obtain a full history including previous episodes of genital sores and whether the current partner has symptoms or signs of a STI
 - ask about other symptoms: fever, headache, muscle aches and pains, rashes
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform examination. See [How to perform a STI check, page 579](#)
 - examine mouth and skin including palms of hands, soles of feet for sores, ulcers, rashes and hair loss
 - examine the genital area for discharge, nodules, sores and ulcers, and the armpits, neck and groin for enlarged nodes
- Test for: See [STI specimen collection, page 582](#)
 - urine pregnancy test in all women of childbearing age (12 - 52 years)
 - chlamydia, gonorrhoea, Trichomonas and mycoplasma genitalium. For women - if sores are multiple or painful do not do a speculum examination but obtain low vaginal swabs or first catch urine
 - blood for syphilis serology
 - also offer HIV, hepatitis B, hepatitis C
 - swab of any discharge for MC/S
 - dry swab syphilis, donovanosis and herpes for PCR
 - **Note:** herpes serology is not useful in this context and should not be taken

4. Management

- See Management guidelines for genital ulcer disease (GUD) flowchart following
- The diagnosis of genital ulcers is based on a combination of clinical findings, laboratory tests and response to treatment. Test results for herpes and donovanosis may be negative
- Individuals presenting with genital ulcers thought to be consistent with syphilis and/or donovanosis must be treated immediately for both syphilis and donovanosis. Contact tracing must be initiated
- If treating for genital ulcer consult Syphilis Surveillance Centre or specialist MO/NP regarding the likely diagnosis and ongoing management: Syphilis Surveillance Centre ☎ 1800 032 238 or North-Qld-Syphilis-Surveillance-Centre@health.qld.gov.au
- If outside Queensland contact the local public health unit
- Medication management at time of presentation:
 - check allergies and observe the patient taking oral medicine

Lesions	Action	Treatment
Lesions not typical of herpes and syphilis is likely or if unsure	Treat for syphilis	Benzathine penicillin (Bicillin LA [®])
Lesions typical of genital herpes	Consult MO/NP before starting treatment if pregnant Keep lesions dry with salt baths and topical Betadine [®] solution	Always treat with valaciclovir if a primary (first) or moderately severe episode
Donovanosis	Treat for donovanosis	Azithromycin

- Perform timely i.e. immediate contact tracing and treatment of sex partners which is essential to avoid reinfection. See [Contact tracing, page 583](#)
 - syphilis: trace, treat and investigate sexual contacts, usually up to 12 months, according to the advice of the Syphilis Surveillance Centre
 - herpes: contact tracing is not necessary, however partner(s) may need to be counselled regarding the infection
 - donovanosis: contacts should be examined and have a complete STI check
- Provide education, prevention and condoms. See [How to perform a STI check, page 579](#)
- For genital herpes treat with valaciclovir. If pregnant discuss need for treatment with MO/NP (category B₃)

Management guidelines for genital ulcer disease (GUD) flowchart (including donovanosis)

Patients presenting with genital ulcer

Possible diagnosis

- Painless ulcers or beefy red/crusty sores, smelly discharge, bleeds easily: consider donovanosis
- Raised, firm, painless, punched out: consider syphilitic chancre
- Painful or itchy multiple blisters or shallow ulcers: consider herpes especially if recurrent

Note: Remember these infections may coexist

Offer a full STI check

See [How to perform a STI check, page 579](#)

Additional testing for genital ulcer disease

- Take swab for syphilis, donovanosis and herpes PCR

Clean the lesion with water or sodium chloride 0.9% (not antiseptic) then using a sterile cotton tipped dry swab (e.g. PCR swab), roll the swab firmly around the edge and across the lesion, place in a dry sterile container



Write on pathology form

Syphilis, donovanosis and herpes PCR

GUD Syndromic Management (treat immediately do not wait for results)

- Commence presumptive treatment for syphilis with Bicillin LA[®]
- If donovanosis confirmed add azithromycin
- If clinically suggestive of herpes discuss with Syphilis Surveillance Centre or Sexual Health Unit and treat

Contact trace sexual partners

Notify Syphilis Surveillance Centre
☎ 1800 032 238

Review patient in one week -
check lesion, all laboratory results and that contacts have been traced and treated

Schedule	4	Valaciclovir	DTP IHW/SM R&IP/IPAP/SRH	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	Adult: initial episode 500 mg bd	5 days
			Recurrence: episodic therapy 500 mg bd	3 days
Provide Consumer Medicine Information: drink plenty of water, at least 1.5 L per day during treatment. Take until course completed				
Note: dose adjustment is required in patients with renal impairment. Seek advice from MO/NP				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

12, 26

12, 26

- For syphilis treat with Benzathine penicillin: If allergic to penicillin consult the Queensland Syphilis Surveillance Centre ☎ 1800 032 238 or email North-Qld-Syphilis-Surveillance-Centre@health.qld.gov.au

Schedule	4	Benzathine penicillin (Bicillin LA®)		DTP IHW/SM R&IP/IPAP/SRH
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Pre-filled syringe	900 mg in 2.3 mL	IM	Adult 1.8 g (give 2 separate injections)	Stat
Provide Consumer Medicine Information: may lead to development of diarrhoea, nausea and inflammation at injection site. Patients should report development of diarrhoea immediately to health professional. Tell health professional if you get severe pain in the muscle where the injection was given				
Note: be aware of cross-reactivity in patients with allergy to carbapenems and/or cephalosporins. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: in patients with a history of hypersensitivity to penicillin				
Use in pregnancy: Category A				
Administration tips: See Administration tips for benzathine penicillin (Bicillin LA) and procaine penicillin, page 768				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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Note: talk to patient about Jarisch-Herxheimer reaction which is common and may occur with

treatment of early syphilis. Symptoms may occur 6 - 12 hours after treatment and include fever, chills, headache, hypotension and flare up of lesions lasting 12 - 14 hours¹³. Can normally be managed with paracetamol for 24 hours. May cause preterm labour, but this should not prevent or delay treatment¹⁴ because syphilis can result in miscarriage, stillbirth and congenital syphilis¹³

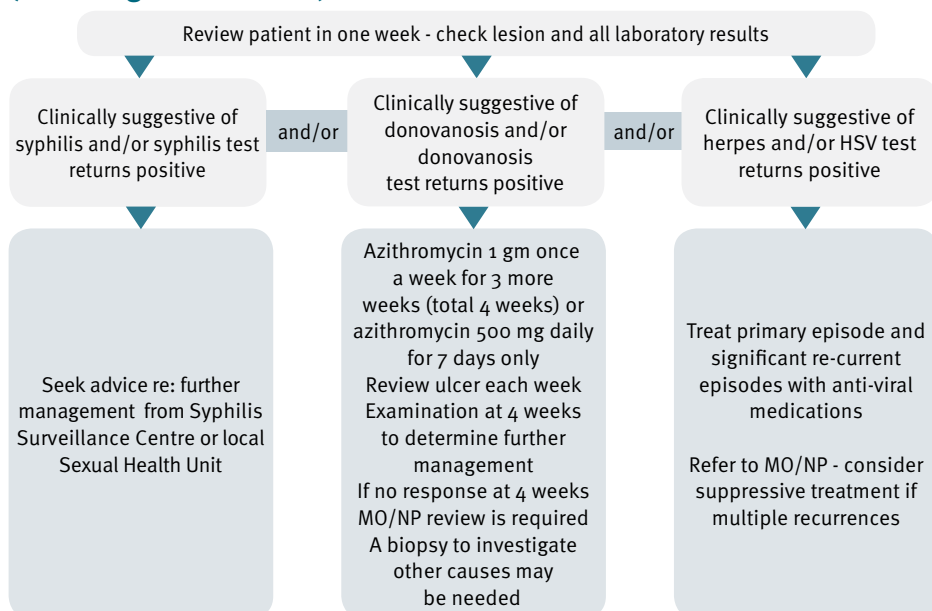
- And for donovanosis give azithromycin

Schedule	4	Azithromycin		DTP
				IHW/SM R&IP/IPAP/SRH
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicine Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	1 g	Stat
				If a diagnosis of donovanosis is made continue azithromycin treatment weekly for 3 more doses (total 4 doses) or longer until completely healed
Provide Consumer Medicine Information: may be taken with or without food				
Use in pregnancy: Category B1				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

15,24

5. Follow up

Follow up guidelines for genital ulcer disease (GUD) flowchart (including donovanosis)



- Review at 3 to 6 and at 12 months - include syphilis serology and PCR for chlamydia, gonorrhoea, mycoplasma genitalium. **Note:** STIs in children, women who are pregnant or breastfeeding and in patients with a history of allergy to the antibiotic, require specialist management. Please contact your local Sexual Health Unit if you have any questions
- Check:
 - patient was compliant with treatment and symptoms and signs have resolved
 - contacts have been tested and treated as appropriate
 - test results have been given
 - if a STI, check to include a HIV test is offered, if not done at initial visit
- Genital herpes:
 - follow up within 1 week to check symptoms have resolved
 - partners should have a STI check and counselling, but do not need to be treated
 - refer to MO/NP if symptoms have not resolved within 1 week or the patient has recurrent episodes, as further medicine may be indicated
- Primary, secondary or early latent syphilis (syphilis of less than 2 years duration):
 - follow up at 2 weeks to ensure symptoms have resolved and contacts have been tested and treated
 - follow up syphilis serology should be taken at 3 months, 6 months and if necessary again at 12 months after completing treatment¹³
 - a 2 titre or four fold fall in syphilis serology (e.g. 1 in 64 to 1 in 16) by 6 months indicates adequate response to treatment
 - if the syphilis serology has not fallen by 2 titres within 6 months call the Public Health Nurse, Queensland Syphilis Surveillance Centre ☎ 1800 032 238
 - consult MO/NP if symptoms have not resolved or if patient is pregnant
- Donovanosis:
 - follow up weekly for 4 to 6 weeks to continue treatment and ensure lesions are responding to treatment
 - check contacts have been examined and treated
 - consult MO/NP if sores have not significantly responded to treatment within 4 weeks. A snip or punch biopsy should be taken to exclude other causes
 - consult MO/NP if sores have not healed by 6 weeks
- Follow up at 2 - 3 months:
 - offer a full STI check including syphilis serology and HIV test

6. Referral/consultation

- Consult MO/NP as above if allergic, if pregnant or if symptoms do not respond to treatment
- ☎ For a patient with genital sores contact the Syphilis Surveillance Centre ☎ 1800 032 238 or email North-Qld-Syphilis-Surveillance-Centre@health.qld.gov.au
- If outside Queensland contact the local Public Health Unit

Syphilis - adult Reactive syphilis

Recommend

- Contact the Public Health Nurse for advice on diagnosis and management: Queensland Syphilis Surveillance Centre ☎ 1800 032 238 or email North-Qld-Syphilis-Surveillance-Centre@health.qld.gov.au
- Treatment of syphilis in pregnancy or newborn, contact Queensland Syphilis Surveillance Centre for immediate management
- If the time between treatments exceeds 10 days contact the Queensland Syphilis Surveillance Centre. Patient may need to re-commence treatment

Background

- Untreated syphilis can be transmitted to sexual partners up to two years after infection and to babies during pregnancy (by blood), up to nine years after infection in mother
- Infection of babies in pregnancy can lead to miscarriage, neonatal death or congenital syphilis
- To interpret syphilis serology the current RPR result and previous RPR/syphilis serology results and the treatment history is needed

Related topics

-  [Genital sores/ulcers, page 603](#)
-  [Genital warts, page 614](#)

[STI specimen collection, page 582](#)
[How to perform a STI check, page 579](#)

1. May present with

- No symptoms:
 - no symptoms but with reactive syphilis serology - latent syphilis defined by 2 specific tests being reactive (EIA/TPPA/TPHA/FTA). The non-specific test (RPR/VDRL) may be reactive or non-reactive. Latent syphilis is further defined as early latent (< 2 years) or late latent (> 2 years)
- Symptomatic:
 - primary syphilis may present with:
 - one or a few sores (chancres), which are usually painless, 1 - 2 cm in diameter and have a well defined edge
 - lymph nodes in the groin may be enlarged
 - if untreated, sores will heal by themselves within 3 to 4 weeks
 - secondary syphilis may present with any of the following:
 - genital sores (condylomata lata) that are typically multiple, painless, on genital and/or perianal skin and are often symmetrical
 - rashes on the palms of the hands or soles of the feet or may be generalised
 - fever, headache, muscle aches and pains, hair loss and swollen glands
 - if untreated, symptoms may come and go over a period of 12 months and sometimes up to 2 years
 - late (tertiary) syphilis:
 - is rare but should be excluded in anyone presenting with neurological signs who has positive syphilis serology and no history of treatment
 - management should always be in consultation with a specialist MO/NP

Syphilis

There are 2 types of tests, specific and non-specific:

- Specific tests (EIA, TPPA, TPHA, FTA)
 - are either reactive or non-reactive
 - if 2 specific tests are reactive, this indicates the patient has acquired syphilis but does not indicate when or whether the patient has been treated
 - specific tests will remain reactive for life irrespective of treatment
- Non-specific tests (RPR, VDRL)
 - can be assessed quantitatively - non-reactive or reactive at a serial dilution (titre e.g. 1:1, 1:2, 1:4, 1:8, 1:16 etc.)
- The RPR usually rises in early infection and falls, with or without treatment, over a period of 2 years
- In order to interpret an RPR result you need to know:
 - the current RPR result and
 - the previous RPR/syphilis serology results and
 - the treatment history
- Adequate response to treatment is usually indicated by a 2 titre or four fold fall within 3 to 6 months (e.g. 1:128 to 1:32), however this will depend on the stage of syphilis and the RPR titre at the time of treatment
- Re-infection with syphilis:
 - a rise in the RPR titre - at least a 2 titre or four fold rise (e.g. 1:4 to 1:16) is likely to indicate a new infection requiring treatment

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history. See [How to perform a STI check, page 579](#)
 - obtain a full history including whether the current partner has symptoms of a STI
 - check patient's clinical records and the Syphilis Surveillance Centre for previous syphilis serology results and treatment
 - ask about other symptoms: fever, headache, muscle aches and pains, rashes
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform examination. See [How to perform a STI check, page 579](#)
 - examine the genital area for discharge, nodules, sores and ulcers as well as the armpits, neck and groin for enlarged nodes
 - examine for rash on face, palms, soles of feet and for patches of hair loss
 - examine mouth for mucous patches
- Test for: See [STI specimen collection, page 582](#)
 - urine pregnancy test on all women of childbearing age (12 - 52 years)
 - syphilis serology if not done
 - chlamydia, gonorrhoea and trichomonas
 - HIV, hepatitis B, hepatitis C
 - if genital sores are present also collect a swab for syphilis, donovanosis and herpes PCR. See [Genital sores/ulcers, page 603](#)

4. Management

- Always contact the Syphilis Surveillance Centre for advice ☎ 1800 032 238 or email North-QLD-Syphilis-Surveillance-Centre@health.qld.gov.au

- **Note:** reactive syphilis serology is defined by 2 specific tests being reactive (EIA/TPPA /TPHA/FTA), the RPR may be reactive or non-reactive
 - early latent syphilis (less than 2 years duration) treat with Bicillin LA® 1.8 g (first line) as a single treatment
 - late latent syphilis (more than 2 years or unknown duration) treat with Bicillin LA® 1.8 g once weekly for 3 weeks
- Perform timely (immediate) contact tracing and treatment of sex partners which is essential to avoid reinfection. See [Contact tracing, page 583](#)
 - contacts of primary, secondary and early latent syphilis (syphilis of less than 2 years duration)
 - ensure confidentiality. Obtain a list of the names of sexual contacts up to 12 months, if practical
 - contacts should have a STI check, including blood for syphilis serology
 - treat at presentation with Bicillin LA® 1.8 g
 - contacts of late latent syphilis (syphilis of more than 2 years duration)
 - should have a STI check, including blood for syphilis serology
 - may or may not need treatment. Discuss with Queensland Syphilis Surveillance Centre
- Provide education, prevention and condoms. See [How to perform a STI check, page 579](#)
 - advise not to have sex until lesions have healed and sexual contacts have been treated (as appropriate)
- Medication management
 - if allergic to penicillin consult the Queensland Syphilis Surveillance Centre
 - primary and secondary syphilis
 - if genital sores are present and lesions are not typical of herpes and syphilis or donovanosis are likely, treat for both syphilis and donovanosis as it is difficult to distinguish syphilis from early donovanosis on clinical examination. If donovanosis is suspected do appropriate investigation prior to 4 week treatment
 - if treatment is commenced more than 2 weeks after testing, the serology may have risen. Repeat the syphilis serology on the first day of treatment (baseline RPR)
 - latent syphilis (early latent or late latent)
 - if no symptoms but syphilis serology is reactive and there is no previous history of adequate treatment (check medical record and the Queensland Syphilis Surveillance Centre)
 - early latent syphilis (less than 2 years duration) treat with Bicillin LA® 1.8 g (first line) as a single treatment
 - late latent syphilis (more than 2 years or unknown duration) treat with Bicillin LA® 1.8 g once weekly for 3 weeks
- If treating for donovanosis, see [Genital sores/ulcers, page 603](#)

Schedule	4	Benzathine penicillin (Bicillin LA®)		DTP IHW/SM R&IP/IPAP/SRH
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Sexual and Reproductive Health Program Authorised Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Pre-filled syringe	900 mg in 2.3 mL	IM	Adult 1.8 g (give 2 separate injections)	Primary syphilis: Secondary syphilis: Early latent syphilis: Stat dose
				Late latent syphilis: weekly for 3 weeks
Provide Consumer Medicine Information: patients should report development of diarrhoea immediately to their health professional. Tell health professional if a severe pain develops in the muscle where the injection was given				
Note: be aware of cross-reactivity in patients with allergy to carbapenems and/or cephalosporins. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: in patients with a history of hypersensitivity to penicillin				
Use in pregnancy: Category A				
Administration tips: See Administration tips for benzathine penicillin (Bicillin LA) and procaine penicillin, page 768				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

13,16

13,16

Note: talk to patient about Jarisch-Herxheimer reaction which is common and may occur with treatment of early syphilis. Symptoms may occur 6 - 12 hours after treatment and may include fever, chills, headache, hypotension and flare up of lesions lasting 12 - 14 hours¹³. Can normally be managed with paracetamol for 24 hours. May cause preterm labour, but this should not prevent or delay treatment¹⁴ because syphilis can result in miscarriage, stillbirth and congenital syphilis¹³

- Treatment of syphilis in pregnancy:
 - syphilis in pregnancy can result in miscarriage, neonatal death and congenital syphilis
 - congenital syphilis can be prevented through appropriate testing and management
 - testing for syphilis should occur at first antenatal visit, 28, 34 weeks and at birth
 - treatment of pregnant women and their contacts should be carried out urgently and in consultation with a specialist MO/NP and the Queensland Syphilis Surveillance Centre
 - diagnosis and treatment is the same as for non-pregnant women, although more frequent follow up may be needed
 - treatment is adequate if completed at least 30 days prior to delivery and there is a documented 2 titre or fourfold fall in RPR by the time of delivery

5. Follow up

- Follow up 1 - 2 weeks to check:
 - treatment completed and symptoms have resolved
 - contacts have been tested and treated
 - test results have been given

- a STI check and HIV test are offered, if not done at initial visit
- consult MO/NP if symptoms have not resolved
- Follow up at 3 - 6 months of syphilis of less than 2 years duration (primary, secondary, early latent):
 - repeat RPR
 - a 2 titre or fourfold fall in RPR by 6 months indicates adequate response to treatment
 - if the RPR has not fallen by 2 titres within 6 months consult for advice, Public Health Nurse, Queensland Syphilis Surveillance Centre ☎ 1800 032 238 or email
 - Qld-syphilis-surveillance-centre@health.qld.gov.au
 - North-Qld-Syphilis-Surveillance-Centre@health.qld.gov.au
 - offer STI check including testing for chlamydia, gonorrhoea and HIV
 - see [How to perform a STI check, page 579](#) and [STI specimen collection, page 582](#)
- Follow up at 12 months:
 - repeat RPR
 - offer STI check

6. Referral/consultation

- Always consult an MO/NP
- Management of the babies of women needing treatment in pregnancy should be done in consultation with a specialist MO
- ☎ Syphilis requires notification upon pathological diagnosis to the local Public Health Unit, Queensland Syphilis Surveillance Centre ☎ 1800 032 238 or email
 - Qld-syphilis-surveillance-centre@health.qld.gov.au
 - North-qld-syphilis-surveillance-centre@health.qld.gov.au
- In Queensland - <http://disease-control.health.qld.gov.au/Condition/779/syphilis>



Genital warts - adult

Human papilloma virus (HPV)

Recommend

- The diagnosis of genital warts is clinical. Syphilis must be excluded

Background

- Some strains of HPV cause genital warts while others are associated with abnormal Pap smears
- HPV vaccination in Australia has resulted in a massive decrease in the incidence of genital warts and should also lead to a reduction in high grade squamous intraepithelial lesions and ultimately of cervical cancer

Related topics



[Genital sores/ulcers, page 603](#)

[Health check - women, page 482](#)

[How to perform a STI check, page 579](#)

[STI specimen collection, page 582](#)

[Contact tracing, page 583](#)

1. May present with

- Solid lumps on genital skin that may or not be painful. Warts may be papillomatous, pedunculated or sessile growths, with either a smooth or rough surface, are usually the same colour as surrounding

skin and do not cause ulceration or inflammation of the skin

- HPV changes detected on Pap smear

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history including whether partner has genital warts or other symptoms of a STI
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform an examination. See [How to perform a STI check, page 579](#)
 - examine the genital area for discharge, nodules, sores and ulcers and the groin for enlarged nodes
 - exclude normal anatomical variants and other causes of lumps before treating
- See [STI specimen collection, page 582](#)
- Test for:
 - urine pregnancy test for all women of childbearing age (12 - 52 years)
 - chlamydia, gonorrhoea, trichomonas, mycoplasma genitalium
 - also offer test for syphilis, HIV, hepatitis C, hepatitis B
 - a Pap smear should be taken, if due, in accordance with the NHMRC guidelines. More frequent screening is not necessary because of genital warts. See [Health check - women, page 482](#)

4. Management

- The diagnosis of genital warts is clinical. Syphilis must be excluded. See [Genital sores/ulcers, page 603](#)
- Consult with MO/NP or Sexual Health Nurse who may treat with:
 - podophyllotoxin
 - imiquimod
 - liquid nitrogen or nitrous oxide cryotherapy
 - excision or other therapies¹⁷
- Female partners of males with genital warts should have a Pap smear if due
- Provide education on genital warts and prevention. See [How to perform a STI check, page 579](#)
 - assure the patient that his/her confidentiality will be protected
 - give information about transmission, symptoms and complications
 - discuss safe sex practises and provide condoms

5. Follow up

- All women with genital warts or partners of men with genital warts should have regular Pap smears in accordance with NHMRC guidelines
- Women with HPV detected on Pap smear should be followed up according to NHMRC guidelines. See [Health check - women, page 482](#)
- Follow up is important to check:
 - warts respond to treatment
 - Pap smear is taken if due
 - test results have been given

- a STI check and HIV test are offered, if not done at initial visit
- regular partner(s) have had a STI check

6. Referral/consultation

- Consult MO/NP or specialist if lesions are atypical or do not respond to treatment

HIV infection - adult

Human immunodeficiency virus

Recommend

- **Any positive result** on a pathology test must be discussed with a specialist MO/NP before discussing with a patient
- For assistance: in Queensland contact the HIV Public Health Team: <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/sex-health/hiv-aids/default.asp> or phone ☎ 07 3328 9797
- Outside of Queensland contact your local Sexual Health Unit

Background

- HIV positive Aboriginal and Torres Strait Islander people more frequently report heterosexual transmission and include a higher proportion of women than non-Indigenous HIV positive Australians
- The presence of another STI significantly increases the risk of both acquiring and passing on HIV, if exposed
- HIV can be transmitted by: exchange of body fluids through unprotected anal, vaginal and very rarely through oral sex, sharing blood through unsafe injecting practises (injecting drug use, tattooing, body piercing) and from mother to baby during pregnancy, at delivery or through breastfeeding
- HIV post exposure prophylaxis (PEP) is available in selected cases in the event of occupational and non-occupational exposure to HIV. See under Management
- Antiviral medicine can improve the quality and length of life, as well as significantly reducing transmission to babies during pregnancy (from 30% to < 1%). Antiviral medicine also reduces the risk of sexual transmission

Related topics

 [Epididymo-orchitis, page 593](#)

 [Low abdominal pain in female, page 597](#)

 [Genital sores/ulcers, page 603](#)

 [Syphilis, page 610](#)

[STI specimen collection, page 582](#)

[Antenatal care, page 484](#)

[Health check - women, page 482](#)

1. May present with

- Asymptomatic infection
- Seroconversion illness - flu like illness can occur 2 - 6 weeks after infection and may present with any of the following: fever, headache, rashes, sore throat, mouth ulcers, muscle aches and pains, enlarged lymph nodes
- Any infection which looks unusual, is worse or lasts longer than usual, does not get better with usual treatment or keeps coming back e.g.:
 - shingles

- severe or unusual herpes or other skin infections
- chronic diarrhoea, chronic weight loss
- generalised enlarged lymph nodes
- severe recurrent candidiasis in women, oral candidiasis in adults
- AIDS defining illness e.g. opportunistic infections (chest infections and meningitis), some malignancies

2. Immediate management

- Consult MO/NP

3. Clinical assessment

- Obtain patient history. See [How to perform a STI check, page 579](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform an examination - STI check should be done when testing for HIV. See [STI specimen collection, page 582](#)
- A HIV test should be offered to anyone who:
 - has a STI or is a partner of someone with a STI
 - is pregnant
 - requests a STI check or HIV test
 - is at risk e.g. history of unsafe injecting practises, of unprotected male to male sex or unprotected heterosexual sex particularly with someone from an area where HIV is common e.g. PNG, SE Asia, or identifies as a 'sister girl' (transgender), or has been identified on contact tracing
 - presents with an illness that is typical of HIV, AIDS or of a suppressed immune system e.g. tuberculosis
- Support is available to the patient if the test is positive:
 - HIV testing is voluntary and only done after gaining the patient's informed verbal consent. It is important that the patient understands:
 - the test is specifically for HIV infection
 - what a negative and a positive result means. See [HIV test results, page 617](#)
 - privacy and confidentiality is assured - coding may help protect confidentiality (first two letters of surname followed by first two letters of first name, the date of birth and gender)
 - they will be given the result in person
 - when they should return to the clinic for their result
- The following information in varying degrees of detail is also important:
 - what HIV is, how it is transmitted and prevented (discuss condom use)
 - the HIV test result can take up to 2 weeks
 - the HIV window period is 6 weeks as the HIV test is now a fourth generation test which tests for HIV antibody and HIV antigen. The window period may be longer if infection has occurred but seroconversion is delayed, which sometimes occurs after post exposure prophylaxis treatment or if hepatitis C seroconversion is also taking place
 - anti retroviral treatment is recommended to keep patients well, to reduce transmission to babies during pregnancy and to reduce transmission to sexual partners
- HIV test results:
 - privacy and confidentiality must be maintained at all times. See coding example above to help protect patient confidentiality
 - a negative HIV result means:

- the patient has not been infected with HIV
- if they have put themselves at risk in the previous 6 weeks, the test should be repeated to cover the window period
- a negative test result does not prevent someone coming into contact with HIV in the future
- any positive (reactive) result needs to be discussed with a specialist MO/NP to assist interpretation before discussing the result with the patient, as false positive test or indeterminate results can occur
- a positive HIV result means:
 - the patient has been infected with HIV
 - always consult a specialist MO/NP **before** giving an HIV positive result to a patient
- In far north Queensland:
 - if the HIV test result is positive, the pathology service will notify the Director of Sexual Health and/or the Infectious Disease Physician (HIV specialist). The specialist will contact the MO/NP whose name appears on the pathology form. The MO/NP will make contact with the primary health care centre staff member who saw the patient for further information and to discuss the result
- Prior to seeing the patient, issues that need to be discussed with the specialist include:
 - how to give the result to the patient
 - initial and ongoing management and support for the patient
 - carrying out contact tracing

Note: very little information is likely to be taken in by the patient after first hearing of their positive HIV result. Early follow up visits and medical review will be important

- When giving someone a positive result:
 - ensure privacy and confidentiality
 - make sure the patient wishes to get the result at that time
 - explain the result simply - it means they have the HIV virus in their blood
 - discuss the patient's understanding of the result and correct any misinformation
 - give them time to ask questions
 - be positive - the outlook for HIV infection has improved vastly with new treatments
 - discuss who knows their result and whom they wish to tell
 - reassure them about the confidentiality of the result
 - explain what will happen next - further testing and early medical review
 - arrange follow up in the next day or two to see how they are
 - discuss sexual practises and stress the importance of safe sex practises to ensure that the patient does not pass HIV to his/her sexual partners
 - see *Guideline for the Management of People Living with HIV who Place Others at Risk of HIV*. Available at: <https://www.health.qld.gov.au/qhpolicy/docs/gdl/qh-gdl-367.pdf>
 - if an injecting drug user, discuss safe injecting including not sharing equipment, and how to access clean injecting equipment
 - at the next consultation, discuss prevention further and the need for contact tracing

4. Management - HIV post exposure prophylaxis (PEP)

- Contact the Director of Sexual Health or Infectious Diseases Physician, the local Sexual Health Team or an MO/NP, to discuss HIV PEP if a patient presents with:
 - needle stick injury from a known HIV positive source or a PNG national patient who is ill
 - sexual exposure, in particular sexual assault by multiple assailants of unknown HIV status or in the event of a sexual assault by a PNG national person, or receptive anal intercourse by MSM without a condom

- Very good treatments for HIV are now available that have minimal side effects. A course of medicine is given in the event of a likely exposure to HIV
- Seek expert advice early as PEP is most effective immediately following possible exposure. See *HIV post-exposure prophylaxis (PEP): guideline for assessment and management of non-occupational exposures* available at: <http://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/pep-guideline.pdf>

5. Follow up

- As outlined

6. Referral/consultation

- HIV positive people should be managed in consultation with a specialist MO
- For more information go to <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/sex-health/default.asp>

Resources

- HIV Foundation Queensland: <http://www.hivfoundation.org.au>
- Self Collected Specimen Chart: http://stipu.nsw.gov.au/wp-content/uploads/SELF_TESTING_CARD.pdf

Rape and sexual assault - adult/child

Recommend

- **Note:** Changes will be made to sexual assault protocol to prevent DNA cross contamination during the lifetime of this edition. Sexual assault kits will contain updated protocols. Contact Clinical Forensic Medicine Unit or see <http://www.health.qld.gov.au/qhcss/qhss/fss/clinical-forensic.asp>
- If outside Queensland contact your local police service, clinical forensic unit, or local resource for advice
- The role of Queensland Health is to provide medical care, forensic medical examinations, sexual health assistance, information and support. See *Response to sexual assault Queensland Government Interagency Guidelines for Responding to People who have Experienced Sexual Assault*. Available at: <https://publications.qld.gov.au/storage/f/2014-09-12To3%3A43%3A29.165Z/qld-govt-guidelines-for-responding-to-sexual-assault.pdf>
- The first priority is to ensure the safety and welfare of the person reporting
- Ideally if possible the clinician should be trained in genital and anal examination
- Always perform thorough examination, with consent, even if legal action is not pending as the patient may change their decision at a later date
- A general, non-forensic examination may be conducted with the aim to:
 - provide medical care including assessment, treatment and documentation of injuries
 - reassure patients about their physical welfare, including giving information on, and providing treatments to reduce the risks of pregnancy and sexually transmitted infections
 - provide advice and referral options for follow up medical care¹
- If evacuation is required for medical/surgical treatment, **forensic examination will be done after patient has been stabilised in the referral facility**
- For complainants under 14 years of age seek phone advice from a specialist Paediatrician before proceeding to an examination
- If there is no appropriate health professional to provide the service the patient should be evacuated to an appropriate facility
- The patient may prefer to remain in the community to gain support from family or may wish to leave for safety
- Documentation must be accurate, objective and specific. Clearly state the facts as reported by the client as notes may be subpoenaed if the client reports the assault to police. The use of diagrams can be useful to detail bruises, cuts, abrasions, bites etc.²
- Steps should be taken to make an accredited interpreter available in all situations where an interpreter is required

Background

- A Forensic Nurse Examiner (FNE) may be accepted by the court as an expert witness. This is decided on a case by case basis
- Queensland Police Service (QPS) have sexual assault investigation kits
- Wherever possible examination should be done after the involvement of QPS as secure storage for forensic specimens is required and these cannot be destroyed. If no QPS service in the community the following storage procedures are recommended after collection of forensic specimens.
 - an esky/envelope sealed with tape that has been signed and dated held in the pathology fridge or in a locked room e.g. pharmacy - according to the local circumstances
 - it is a requirement that the chain of custody of the forensic specimens is documented and that the specimens are hand delivered to QPS
 - QPS may travel to the community to collect specimens
 - if the patient is under 18 years of age there may be a mandatory reporting obligation. See [Child protection, page 740](#)

Related topics

-  [Emergency contraception, page 574](#)
-  [Trauma and injuries, page 118](#)
-  [Immunisation program, page 750](#)
-  [Tetanus immunisation, page 755](#)

[Sexually transmitted infections, page 578](#)

1. May present with**Adult**

- Reported sexual assault, domestic violence, physical assault
- Loss of consciousness/episode of amnesia/alcohol blackout
- Other minor complaint which does not correspond to patient's psychological state (distressed or reclusive)
- Self harm/attempted suicide/eating disorders
- Report from within community that an adult is being sexually assaulted. These need to be followed up with extreme care to ensure discretion and confidentiality
- Request for forensic evidence collection by Queensland Police Service

Child

- PV bleeding, abdominal pain, behavioural change
- Sleep disturbance, bed wetting
- Other non-accidental injury
- Report from within community that a child is being sexually assaulted. These need to be followed up with extreme care to ensure discretion and confidentiality
- Sexually transmitted infection in child needs to be followed up with extreme care and confidentiality. See Management: child victim/survivor

2. Immediate management

- Assess and attend to life threatening conditions
- See the patient in a private area to ensure confidentiality, dignity and safety
- If a preference for female or male clinician is expressed, all reasonable steps to accommodate this

preference should be taken and ideally there should be someone trained in relevant examinations

- Ensure patient has an opportunity to arrange a support person such as relative, friend or appropriate Police Officer
- **Child victim/survivor**
 - consult MO/NP who will arrange evacuation for examination by experienced MO/NP or Paediatrician
- **Adult victim/survivor**
 - consult MO/NP/FNE/Forensic Medical Officer (FMO) if available
- If drink spiking is suspected, or patient has no recollection of events, consider drug facilitation and collect unpreserved urine and blood in fluoride/oxalate tubes as soon as possible (at least 50 mL of urine is necessary for drug analysis)

3. Clinical assessment

- Ensure informed consent is obtained. The patient has a right to accept or decline a forensic examination and to change that decision and withdraw consent at any stage¹
- Adolescents 14 years and over may be able to consent to an examination without a parent, relative or guardian, if the examiner considers they have legal capacity
- Adolescents may be reluctant to provide a detailed history if a parent or relative is present. Ask them if they would like to have a parent/guardian/relative present while the history is provided.
- Speak with MO/NP/FNE/FMO prior to doing forensic examination
- Obtain sufficient patient history to allow you to perform an adequate examination and may include²:
 - sexual history one week before assault, time of last consensual intercourse, and with whom
 - ask specific questions relating to the assault including:
 - date, time and location of the alleged assault
 - circumstances of the assault, number of assailants
 - details of alleged sexual act, such as penile, digital or object penetration and route, such as vaginal, oral or anal intercourse, any ejaculation or urination by the offender
 - was a condom used, if so, where is it now?
 - was there any area on body which may have been licked or kissed e.g. breast area can be swabbed for offender DNA
 - any physical restraints used, such as weapon, drugs or alcohol
 - activities patient performed after the assault that may be relevant to evidence collection, such as change of clothing, bathing, douching, dental hygiene, urination or defecation, subsequent sexual activity and insertion of tampon. If clothes have been changed, find out the location of the original clothes and notify police

Non-forensic examination

- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - perform head to toe physical examination
 - document and/or record on body diagram or photograph (with consent) any physical injuries that have occurred as a result of being held, pushed, punched etc.
- Perform STI screening and blood tests for:
 - syphilis (as baseline)
 - hepatitis B to check immune status. This is urgent if offender is known IV drug user, or possible hep B carrier or is tattooed (higher risk profile for HBV)
 - HIV test (as baseline) with appropriate pre-test information and consent. See [HIV infection, page](#)

- urine pregnancy test on all women of childbearing age (12 - 52 years) who are not currently using adequate contraception

Forensic Examination

- Consult MO/NP plus FNE/FMO if possible before proceeding to collect forensic evidence, using sexual assault investigation kit or pathology specimens for STI and pregnancy tests
- To minimise any loss of evidence it is preferable for the patient not to change clothes, shower, bathe or douche. They are also asked not to urinate, defecate, or to eat, drink or clean teeth. However, the patient should not be made to experience extended discomfort whilst waiting for specimen collection
- Sexual assault kits are unisex. If no kit is available it may be possible to improvise. MO/NP/FNE/FMO will advise on specimens to collect
- If drink spiking is suspected collect unpreserved 50 mL urine and blood in fluoride/oxalate tubes as soon as possible
- Perform forensic examination and evidence collection with consent. Patient may withdraw consent at any time through examination. Pubic combing and nail clippings are rarely required, seek advice if unsure

Forensic Medical Examination

- The health professional conducting the forensic examination should discuss the case with police before the forensic examination takes place. This will ensure all necessary evidence is collected, a re-examination is prevented, and unusual evidence is not overlooked²
- The forensic medical examination is best performed as soon as possible for both patient comfort and for preservation of evidence. After 48 hours recent injuries may not look recent. Genital injuries are best examined within 24 hours of the alleged assault
- Semen may be found in the high vagina for up to 5 - 7 days but the viability of any specimen depends on lack of menstruation and not douching. A cervical swab may be better at a later stage
- A clear explanation of what a forensic medical examination entails is given to the patient
- Consent must be obtained for release of the forensic information
- The patient has the choice to have an appropriate support person present during the forensic examination. Although an appropriate police officer may act as a chaperone or support person during the examination it is not mandatory for a police officer to be present during the examination

Procedure

- Head to toe external examination carefully documenting and photographing with consent, any marks and injuries and noting patient's comments about their origin, when and how the marks and injuries were caused
- Pay particular attention where the history suggests there may be an injury. Document if no injuries seen. Document all observed injuries with details including: type, site (from a fixed body landmark), size, shape and the involvement of anatomical structures, and any indicators of age of the injury
- Take swabs as indicated by the history and your examination findings. If unsure ask for assistance from local or Brisbane Forensic MO/NP through police communications
- If the patient is still in clothes worn at time of the assault they are requested to undress on the drop sheet provided in the sexual assault kit, discuss with police what articles of clothing they want collected and bag each of these separately in brown paper bags
- Provide hospital gown or sheet for patient modesty
- If oral ejaculation suspected, collect oral swab for offender DNA in gutter behind lower dentition

under tongue

- If the patient has reported possible skin contact with bodily fluids of the alleged offender e.g. saliva or ejaculate then those areas of skin should be appropriately swabbed and documented
- Any blood stains or skin stains should be swabbed
- If the patient reported scratching the alleged offender, fingernail scrapings may be indicated

- **Genital examination is then conducted**

- Female
 - external genitalia is examined for signs of injuries, swabs are collected from the vulva and low vagina, speculum is introduced to collect swabs from high vagina and cervix if indicated, vagina and cervix are examined at this time for signs of injury or abnormality. The use of a speculum may not be appropriate in all cases. This needs to be considered on an individual basis
- Male
 - inspect penis and scrotum for signs of injury. Consider whether collection of swabs is indicated depending on history given

- **Specimens**

- blood can be collected for patient's DNA or police may collect buccal swab at later time
- if anal sexual assault is reported, collect 2 perianal and 2 rectal swabs. Use of a proctoscope maybe necessary.
- forensic specimens are handed directly to the police as per the sexual assault investigation kit. If this is not possible, refrigerate the samples in a secure place to ensure the chain of custody for samples is intact
- ensure swabs are appropriately labelled and swabs have been air dried. Label all specimens with name, date of birth, date and time of collection, and name of collector
- ensure bags of patient's clothes collected are appropriately labelled, and if wet, advise police that drying may be required
- blood specimens are not to be enclosed in the brown sexual assault kit, hand these separately to the police. Blood for DNA or toxicology to be sent to John Tonge Centre by QPS

4. Management

Adult victim/survivor

- Consult MO/NP/FNE/FMO
- Provide information on options and encourage the patient to make their own decision regarding legal action, giving them space and time. They may change their mind at a later date. Consider the role of telephone counselling to assist the patient in making these decisions
- 24 hour National Sexual Assault, Domestic and Family Violence Counselling Line
① 1800 Respect on 1800 737 732
- Ensure patient feels safe and supported - proceed at their pace. It is important that the patient is able to retain control of the process

Post rape/sexual assault prophylaxis

- Offer medicine for:
 - chlamydia, gonorrhoea.
See [Chlamydia/gonorrhoea/trichomonas/mycoplasma genitalium](#), page 586
 - syphilis. See [Syphilis](#), page 610
 - HIV post exposure prophylaxis (PEP) if indicated, MO/NP will advise
 - hepatitis B - if no demonstrated immunity then give hepatitis B immunoglobulin within 72 hours and commence vaccination within 7 days post assault

- tetanus vaccination if indicated
- Emergency contraception if at risk of pregnancy

Child victim/survivor

- The finding of a positive STI result by PCR in children is not straightforward and may indicate a false positive test
- In children < 12 years proven STI can usually be assumed to be as a result of abuse. However, this cannot always be assumed for older children, as many may be having consensual sex. See fact sheet at: <http://qheps.health.qld.gov.au/csu/Factsheets.htm>
- When there are reasonable grounds for suspecting abuse has occurred, an assessment should be made by practitioners experienced in this area e.g. Paediatrician, Psychologist and would include medical, social, behavioural and psychological assessments. See [Child protection, page 740](#)
- If a medical examination is required it should be conducted by an experienced MO/NP/FNE/FMO, or in consultation with one

5. Follow up

- Ensure the patient, if not evacuated, has a safe place to go after clinical examination and/or police contact
- Continue to provide comfort and support
- Contact your local/regional Sexual Assault Centre to arrange counselling and ongoing support if required. It is not uncommon that some people do not wish to access counselling immediately following sexual assault. The information can be used in the future
- Review next day if not evacuated
- Offer to provide pathology results to patient's normal health care provider
- See next MO/NP clinic as appropriate
- Review at:
 - 2 weeks post assault - with results of pathology tests taken or if no tests done, perform STI screening and pregnancy test (if indicated)
 - 1 month post assault - hepatitis B vaccination, pregnancy test (if indicated)
 - 3 months post assault - HbsAg, HIV, syphilis
 - 6 months post assault - hepatitis B vaccination
- Offer staff member counselling and de-briefing

6. Referral/consultation

- Consult MO/NP/FNE/FMO on all occasions of rape/sexual assault
- Paediatrician through MO/NP/FNE/FMO or Child Safety Officer
- Forensic Nurse for assistance and advice at nearest district/regional facility
- See *Response to sexual assault: Queensland Government Interagency Guidelines for Responding to People who have Experienced Sexual Assault*. Available at: <https://publications.qld.gov.au/storage/f/2014-09-12To3%3A43%3A29.165Z/qld-govt-guidelines-for-responding-to-sexual-assault.pdf>
- Queensland Police Service if indicated or requested
- Sexual assault service/counselling service/Social Worker as per availability
- National Sexual Assault, Domestic and Family Violence Counselling Line ☎ 1800Respect on 1800 737 732 (free and anonymous)
- For men and women (free and confidential) Queensland Sexual Assault Helpline ☎ 1800 010 120

- Child Safety (Queensland) After hours ☎ 07 3235 9999
- True Relationships & Reproductive health (previously known as Family Planning Queensland) available at: www.true.org.au ☎ 3250 0240
- If outside of Queensland contact local support services/resources

Section 6

Paediatrics



Contents

- Paediatric presentation, page 630
- Child with fever, page 639
- Child with cough, page 640
- Child with stridor, page 641
- Child with vomiting, page 642
- Child with abdominal pain, page 643
- Child with chronic diarrhoea, page 644
- Meningitis, page 644
- Respiratory problems - child, page 650
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- Ear problems, page 676
- Gastrointestinal problems, page 702
- Urinary tract infection - child, page 735
- Bone and joint problems, page 738
- Child protection, page 740

Paediatric presentation

History and physical examination - child

Recommend

- Use the Children's Early Warning Tool (CEWT) appropriate to the clinical setting and age of the child
 - in rural and remote facilities for unscheduled presentations use Rural and Remote Emergency Children's Early Warning Tool (CEWT) in four age ranges
 - in rural and remote facilities for in-patients use the Children's Early Warning Tool (CEWT) for Rural and Remote Facilities in four age ranges
 - in Primary Health Care Centres use Primary Health Care Children's Early Warning Tool (CEWT) in four age ranges
 - ordering available at: <http://qheps.health.qld.gov.au/psu/rrcd/docs/ewars-order.pdf>
 - in jurisdictions outside of Queensland Health the use of relevant early warning tools or detecting deteriorating patient observation sheets/strategies is strongly encouraged
- Consult MO/NP immediately about any baby under 3 months of age who is at risk or febrile
- Always check the immunisation status of children at every opportunity
- It is vital to pay careful attention to the child or parent/carer regardless of the time of day or night or the circumstances
- Make sure the patient and their parent/carer feels he or she has been listened to and has done the right thing in bringing the child regardless of the concern

Background

- Small children, especially young babies, get sick very quickly
- Risk signs in children are:
 - temperature $> 38^{\circ}\text{C}$ or $< 35.5^{\circ}\text{C}$
 - irritability
 - high pitched cry or weak cry
 - drowsiness, decreased activity
 - reduced feeding
 - breathing fast/noisy, respiratory distress, apnoea
 - persistent vomiting and/or lots of diarrhoea i.e. > 8 watery stools in 24 hours
 - dehydration (< 4 wet nappies in 24 hours)
 - sunken eyes
 - cold extremities
 - central capillary refill > 2 seconds
 - uses eyes, rather than their head, to follow you
 - abdominal distension
 - congenital or chronic disease e.g. cardiac, gastrointestinal, neurological
 - where social conditions are concerning and/or where parents may have difficulty managing at home
 - a history of repeated or prolonged separations from their primary caregiver(s)
 - psychosocial risk factors including family violence, poverty, homelessness, parents with intellectual disability or mental health problems

Related topics

-  Immunisation program, page 750
- Patient presentation and assessment, page 12
- DRS ABCD resuscitation/the collapsed patient, page 36
- Assessment and examination of skin, hair and nails, page 358
- Assessment of the eye, page 326
- Ear and hearing assessment, page 676
- Child protection, page 740
- Mental health presentation, history and assessment, page 428
- Medication history checklist, page 763
- Glasgow coma scale (GCS)/AVPU, page 766

Standard clinical observations and other vital signs as per Children's Early Warning Tools (CEWT)

Approximate normal physiological ranges for a child

Parameter		CEWT range			
		< 1 year	1 - 4 years	5 - 11 years	≥ 12 years
Standard clinical observations	Heart rate (beats per min)	≥ 100 to < 160	≥ 90 to < 140	≥ 80 to < 130	≥ 60 to < 120
	Respiration rate (breaths/min)	21 - 45	16 - 35	16 - 30	16 - 25
	Temperature	35.5°C - 37.9°C			
Other vital signs if indicated	Blood pressure (mmHg)	Systolic range 75 - 119	Systolic range 80 - 124	Systolic range 85 - 129	Systolic range 90 - 149
	Respiratory distress	Nil			
	O ₂ saturation (%)	> 93%			
	Central capillary refill time	≤ 2 secs			
	Level of consciousness	Glasgow coma scale 15 AVPU tool - alert			
	Blood glucose level	3 to 8 mmol/L (random capillary)			

1,2

Pain assessment in a child

- Rate pain level in children using numbers (1 - 10), the Faces pain scale and/or behavioural observations. Physiological changes e.g. altered HR, RR, BP are **not** good indicators to use in isolation of other clinical signs and features³. Non-verbal children are very vulnerable to having their pain under estimated³
- Use the age appropriate Children's Early Warning Tools (CEWT) for Rural and Remote facilities and for Primary Health Care Centres for pain assessment tools

Presentation

- When a child presents for health care the clinician is required to obtain an orderly collection of information to identify the patient's health status. The following is essential to achieve this:

- taking a patient history
- performing standard clinical observations and other vital signs
- perform physical examination
- using diagnostic and pathology services
- collaboration with other members of the team
- **Note:** not all children are at the same stage of development in areas of physical, cognitive and psychosocial development
- It is a requirement that all clinicians document their findings in a clear and concise way. This section is set out to assist. It is recommended the page number of HMP/CCG is referred to in the documentation

Types of history

There are four types of history taking to be used in different circumstances⁴. See [History and physical examination - adult, page 13](#)

History taking

- The purpose of a full history is to ascertain the cause of the child's illness. A careful history will make the cause clear in the vast majority of cases
- The first priority is to assess whether the child is:
 - seriously ill and needs immediate management or,
 - is a non-urgent presentation and there is time for a complete patient history and health education
- Obtaining a full history is done in conjunction with examining the patient
 - in a sick child this entails a full assessment of all systems
 - in a child who has a localised problem it is reasonable to examine the relevant system only. However, always be guided by the history and be prepared to examine other systems as necessary. This is particularly important when examining children who often present with generalised symptoms and signs
 - ask open ended questions
 - believe the carer

History of presenting concern

- Ask the child or carer what the problem is
- Ask about length of illness and exact details of symptoms and signs. For each symptom the following details are important⁵
 - Site** - where is the pain/symptom? does it go anywhere else?
 - Onset** - when did it start, gradual or sudden onset?
 - Character** e.g. sharp, dull or burning
 - Radiation** - does the pain radiate anywhere else?
 - Alleviating factors** - what makes it better e.g. sitting up, medicines?
 - Timing** - how long did it last, have they had it before?
 - Exacerbating factors** - what makes it worse?
 - Severity** - mild, moderate or severe pain. See Pain assessment on age appropriate CEWT form
- **Any associated symptoms** e.g. nausea, vomiting, photophobia, headache
 - always ask specifically about **fever, pain, shortness of breath/rapid breathing, diarrhoea and/or weight loss, rash**
 - beware of vomiting without diarrhoea (raised ICP, diabetes, pneumonia, bowel obstruction)
- **Behaviour and activity** during this illness

- is the child active/alert, sleepy or irritable, easy/difficult to wake?
- what is the child's muscle tone like? Is it normal or are they floppy?
- **Appetite and fluid intake/output** during this illness
 - try to be as precise as possible with quantities
 - how many drinks/breastfeeds
 - how alert during feeds
 - how long between intake and vomit/diarrhoea
 - how many wet nappies or times passed urine in preceding 24 hours
 - amount/type bowel movements
- **Treatment and/or medicine** given by carer during this illness
 - what, how much, when, how often, how effective

Past history	
Past medical and surgical history	• Was delivery normal and were there any immediate neonatal problems? • Any problems with growth and development? • Significant illnesses in the past? What and when? • Hospital admissions? Why and when? • Operations or injuries? What and when? • Mother's alcohol history during pregnancy?
Family and social history	• Health problems in the family - especially siblings and parents • Who looks after the child, what is the social situation? • Mental health problems in carers/child? • Household smokers? • Recent contacts or trips away • If medicines are given, will they be taken?
Medications	• Regular medicines (prescribed, herbal, bush medicines, over the counter) generic name(s), dose, frequency? • Are they taken correctly? • May need to ask about other medicine(s) in the home the child may have taken • See Medication reconciliation, page 762 and Medication history checklist, page 763 for more details
Allergies	• Adverse medicine reactions: – adverse reactions/allergies to medicines? – attach 'adverse medicine reaction' sticker to medication chart if required • Allergens e.g. bee stings, tapes, sticking plaster, nuts: – specific reaction e.g. skin reaction, bronchospasm – is an EpiPen[®]/medicine used to treat the allergy?
Immunisations	• Check if up to date • Documented evidence of immunisation status should be obtained, follow up with opportunistic immunisation. See Immunisation program, page 750

Standard clinical observations

All children
presenting for acute
care

- The full CEWT score =
 - respiratory rate
 - respiratory distress
 - O₂ flow rate
 - O₂ Saturation
 - temperature
 - heart rate
 - blood pressure
 - central capillary refill time
 - level of consciousness
 - When taking BP ensure correct sized cuff - must be wider than 2/3 the length of upper arm
 - Weigh all children - use naked weight in young children (< 2 years). The current weight should be compared against most recent weights
 - Blood glucose level (BGL) - indications include altered level of consciousness/seriously ill children
- See [Standard clinical observations and other vital signs - child, page 631](#)
 See [Glasgow coma scale \(GCS\)/AVPU, page 766](#)

Physical examination

- May be best done with the child on the carer's knee. If the child is irritable perform the examination opportunistically i.e. do what you can when you can. Leave the most disruptive parts until last e.g. ears and throat
- Examination is of some value, however a relevant history is generally more useful
- In any sick child a thorough and complete examination is required. All of the child's clothing will need to be removed at some stage during the complete examination
- In a child who is not sick, examine the relevant system first and proceed to further examination as guided by the history and your findings

Physical examination - child

General appearance	• Does the child look well or sick? • Alert or drowsy? Altered conscious state? See Glasgow coma scale (GCS)/AVPU, page 766 • Muscle tone - normal or is the child floppy? • Look/gaze - does the child fix the gaze on the face or is there a glassy eyed stare? • Interactive or disinterested in interacting/playing? • Increased work of breathing e.g. retractions, nasal flaring, grunting, gasping, fast breathing, wheeze? • Observe speech/cry - strong and vigorous or weak or hoarse? • Look at the conjunctiva and the nail beds - are they pale? • Look at the lips, tongue and fingers - are they blue? • Is the child well nourished? • Is there any neck stiffness - feel gently. Ask the older child to put their chin on their chest - if they can, they do not have neck stiffness • Is the child able to be consoled by the care giver?
Hydration	• Any weight loss? • Eyes - normal or sunken? Tears absent or present? • Mouth and tongue - wet or dry? • Skin turgor - pinch a loose piece of skin. Does it return to normal immediately or stay saggy? • Fontanelle - normal or depressed? If bulging consider meningitis • See Clinical assessment of hydration in child, page 704 for detailed assessment
Skin	• Always check the whole body, particularly in a sick child • Rash - non blanching, petechiae, purpura? • Colour - unusually pale, mottled or cyanotic? • Bruising, unexplained or unusual marks? • Signs of infection - redness, swelling or tenderness? • Inspect/palpate lymph nodes in the neck, axillae or groins for tenderness • See Assessment and examination of skin, hair and nails, page 358 for detailed assessment
Growth	• Height • Weigh all children - use naked weight in young children (< 2 years) • Head circumference if < 2 years • Plot on growth charts appropriate for age and gender
Cardiovascular system	• Skin colour - pink, white, grey mottling? Compare the trunk with the limbs • Skin temperature - hot, warm, cool, cold, sweating? Compare the trunk with the limbs • Palpate peripheral pulses - is rate fast, slow or normal - is the pulse volume weak or strong? • Central perfusion - blanch the skin over the sternum with your thumb for 5 seconds. Time how long it takes for the colour to return • Peripheral perfusion - 'blanch' the skin on a finger or toe for 5 seconds. Time how long it takes for the colour to return • Any evidence of oedema - particularly hands, feet and face? • If skilled, listen to heart sounds

Physical examination - child (continued)

Respiratory system	• Most information is gained through inspection • Inspect anterior/posterior chest: – equal chest movement – use of accessory muscles of respiration? Look for retraction, recession - mild, moderate or severe? Nasal flaring? Head bobbing? • Can child talk continuously or only in words or sentences or unable to talk at all? • Measure respiratory rate over one minute, observe rhythm, depth and effort of breathing • Listen for extra noises - cough, $\pm$ sputum, wheeze, stridor, grunt, snore, hoarse speech/cry • Auscultate air entry in both lung fields - equal? Adequate, decreased or absent? Are there wheezes or crackles? Do they occur on inspiration or expiration? Note that transmitted sounds from the upper respiratory tract are very common in children and may mask other signs • Will the child lie flat? • O₂ saturation
Gastro-intestinal and reproductive systems	• Look - are there any scars or abdominal distension/hernias • Auscultate bowel sounds - present or absent • Palpate abdomen – soft or firm – any obvious masses – tender to touch? Identify which abdominal quadrant and exact area – any guarding/rigidity - even when the child is relaxed – any rebound tenderness - press down and take your hand away very quickly - is the pain greater when you do this? • Question about change in bowel habits • Feel for a palpable bladder • Check the testes in boys - are they both in the scrotum? – any redness, swelling or tenderness?
Nervous system	• A detailed assessment of the nervous system in a child is both technically difficult and time consuming. A brief assessment is all that is needed. Assess: – conscious state. See Glasgow coma scale (GCS)/AVPU, page 766 – orientation to time, place and person if appropriate for the child's age. Ask the child their name, age, location. Ask them to tell you the time, date and year – pupils: size, equality, shape, reactivity to light • Look for inequality between one side of the body and the other. Compare the tone and power of each side of the face and the limbs • Test touch sensation using cotton wool • Test finger nose coordination. If possible, observe child walking, looking around and using hands
Musculo-skeletal system	• Full range of movement in limbs, joints and muscles? • Pain in limbs, joints or muscles? • Any redness, pain, swelling, heat over joint(s)? Observe gait • See Acute rheumatic fever, page 672 and Bone and joint infections, page 738

(continued)

Physical examination - child (continued)

Ears, nose and throat	• Ears – look at the pinna - redness, swelling? – any obvious swelling or redness of the ear canal, if there is, looking with an otoscope will be painful – looking inside with an otoscope - look at the ear canal - redness, swelling, discharge? – inspect eardrum - normal? or redness, dullness, bulging or retraction, fluid or air bubbles, perforations or discharge? • See Ear and hearing assessment, page 676 for detailed assessment • Nose – feel for facial swelling/inflammation – is there any discharge or obvious foreign body? • Throat – look at the lips, buccal mucosa, gums, palate, tongue, throat – redness/swelling/rash? – condition of teeth – inspect tonsils - redness, enlargement or pus?
Eyes	• Always test the visual acuity of each eye. Use age appropriate Snellen chart at 6 metres in good light • Look at the eyes and surrounding structures - any redness, discharge or swelling? • Look at the pupils - are they equal in size and regular in shape? Check pupillary reflex to light • Check eye movements - ask the child to follow the movement of your finger • See Assessment of the eye, page 326 for detailed assessment
Urinalysis	• Examine the urine of all sick children, all children with abdominal pain or urinary symptoms and all children with unexplained symptoms or signs • Look at the colour - is it normal, dark, blood stained? • Does it smell normal? • Perform urinalysis • βhCG test if child bearing age and appropriate to presentation (with parental consent if age appropriate)

5,6,7,8

- See decision making flowcharts to assist with clinical impression
 - [Child with fever, page 639](#), [Child with cough, page 640](#), [Child with stridor, page 641](#), [Child with vomiting, page 642](#), [Child with abdominal pain, page 643](#) and/or [Child with chronic diarrhoea, page 644](#)

Diagnostic and pathology services

- Point of care testing is available in some facilities, using for example iSTAT®
- Pathology request forms:
 - all pathology requests made by SM R&IP must be compliant with the specific Health Management Protocol

- if in the clinician's opinion other pathology is required this must be ordered by an MO/NP
- Pathology results/follow up:
 - if an SM R&IP has initiated pathology testing according to the Health Management Protocol they are responsible for the follow up of pathology results
 - MO/NP should be consulted if results are abnormal
- Refer to the Pathology Queensland Specimen Collection site available at: <http://qheps.health.qld.gov.au/hsq/pathology/testing/specimen-collection.htm>

Consulting the Medical Officer or Nurse Practitioner (MO/NP)

- If it is necessary to consult with an MO/NP, present your findings clearly and methodically
- It is often easier if you write your findings down first, time permitting
- Refer to ISOBAR tool see [ISOBAR, page 22](#)
- It is helpful to advise the MO/NP early that you have a child about whom you want some advice or alternately who you think may need evacuation. Consult MO/NP immediately about any baby under 3 months of age who is at risk or febrile
- Always begin with the name and age of the child, then start with the presenting concern and proceed through to the examination. Say what you think is wrong - your assessment is important - after all, you are actually with the child
- Always consult with the MO/NP if you are not sure. Discuss difficulties and problems with the MO/NP during routine visits. Take the opportunity to discuss general or specific cases or issues with the MO/NP at the next clinic visit
- See retrieval services - [Retrieval Services Queensland \(RSQ\) and Royal Flying Doctor Service \(RFDS\) \(Queensland Section\)](#), [page 20](#)

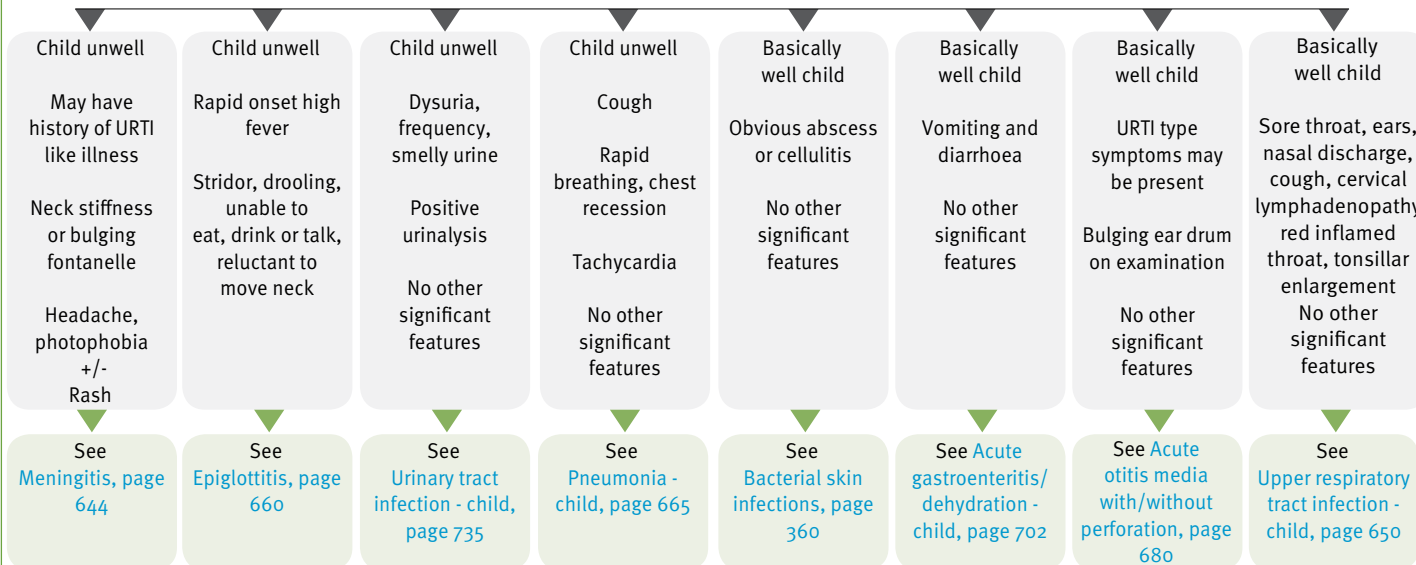
Child with fever

Fever is usually an indicator of infection. Two or more infections may co-exist, e.g. URTI plus meningitis
 Babies less than 3 months of age contact MO/NP immediately
 Consult MO/NP for the child with a fever with no obvious source of infection or a fever that is persistent despite measures taken

Clinical assessment performed

Significant features of assessment unclear or you are unsure of cause? ▶ Yes —▶ Consult MO/NP

No



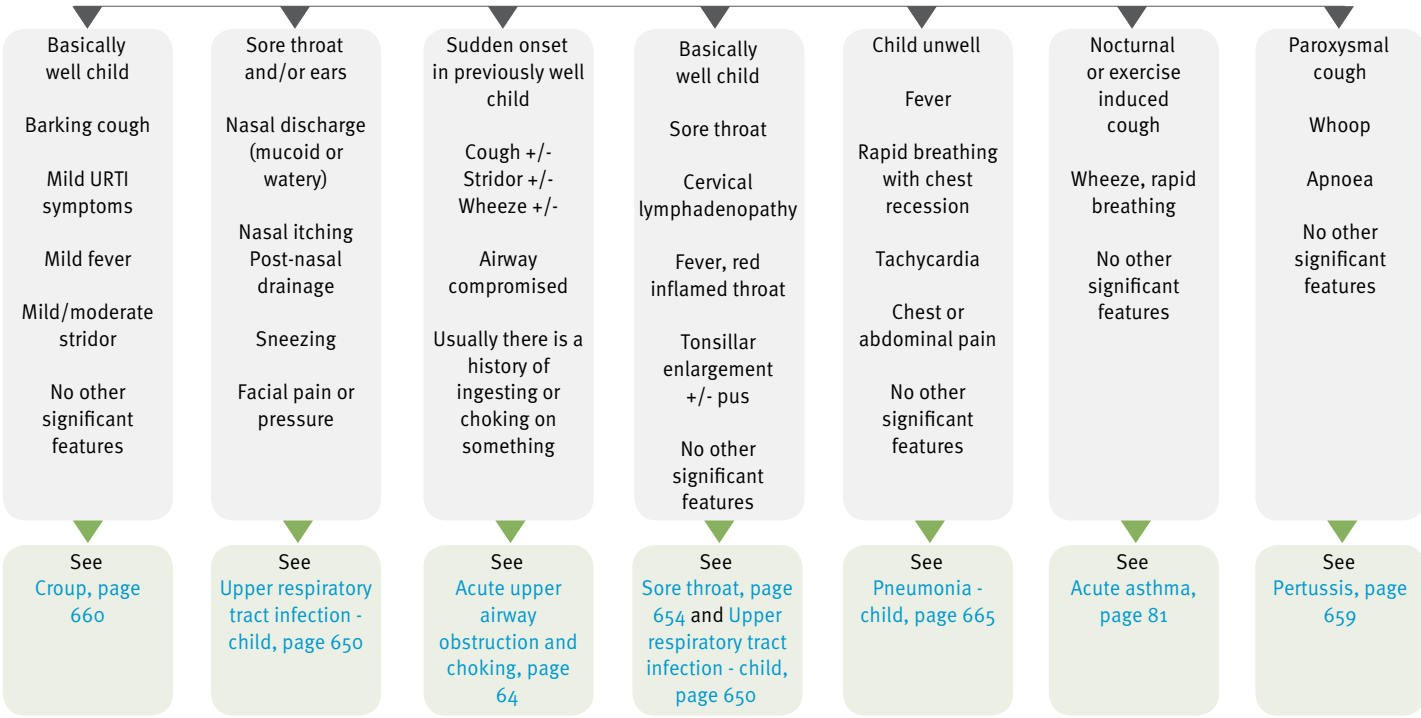
Child with cough

Child with cough

Clinical assessment performed. Babies less than 3 months of age contact MO/NP immediately

Significant features of assessment unclear or you are unsure of cause? **Yes** → Consult MO/NP

No



Child with stridor

Stridor is a harsh vibrating sound originating from the large upper airways and occurring on inspiration. It occurs due to upper airway obstruction. Consider the following causes: croup (common), inhaled foreign body, epiglottitis (rare but important), trauma, angioneurotic oedema, mass (tumour or abscess).

Babies < 3 months of age with acute stridor contact the most senior MO/NP immediately

Obtain full history, including Hib immunisation status. Limit examination. Do not examine mouth or throat

Significant features of assessment unclear or you are unsure of cause? ▶ Yes

Consult MO/NP
In the meantime, consider
epiglottitis

No

Rapid onset

Weak or no cough
Temp >38.5°C
Septicaemia
Drooling saliva
Unable to eat or drink
Doesn't talk
Any age
Reluctant to move neck
As the condition
deteriorates the stridor
may decrease

See

Epiglottitis, page
660

Slow onset

Croupy (barking) cough
Temp < 38.5°C
No systemic disturbance
Severe stridor less common
Able to swallow
Will usually drink
Normal voice
< 6 years
More prominent at night

See

Croup, page 660

Sudden onset in previously well child

Cough or wheeze may be present
Usually there is a history of
ingesting or choking on something
e.g. peanut

See

Acute upper airway
obstruction and
choking, page 64

Gradual swelling of face, neck and throat

Usually there is a history of
exposure to allergen: an injection
of a medicine or blood product,
ingestion of oral medicine/food or
bites/stings

See

Anaphylaxis and
severe allergic
reaction, page 67

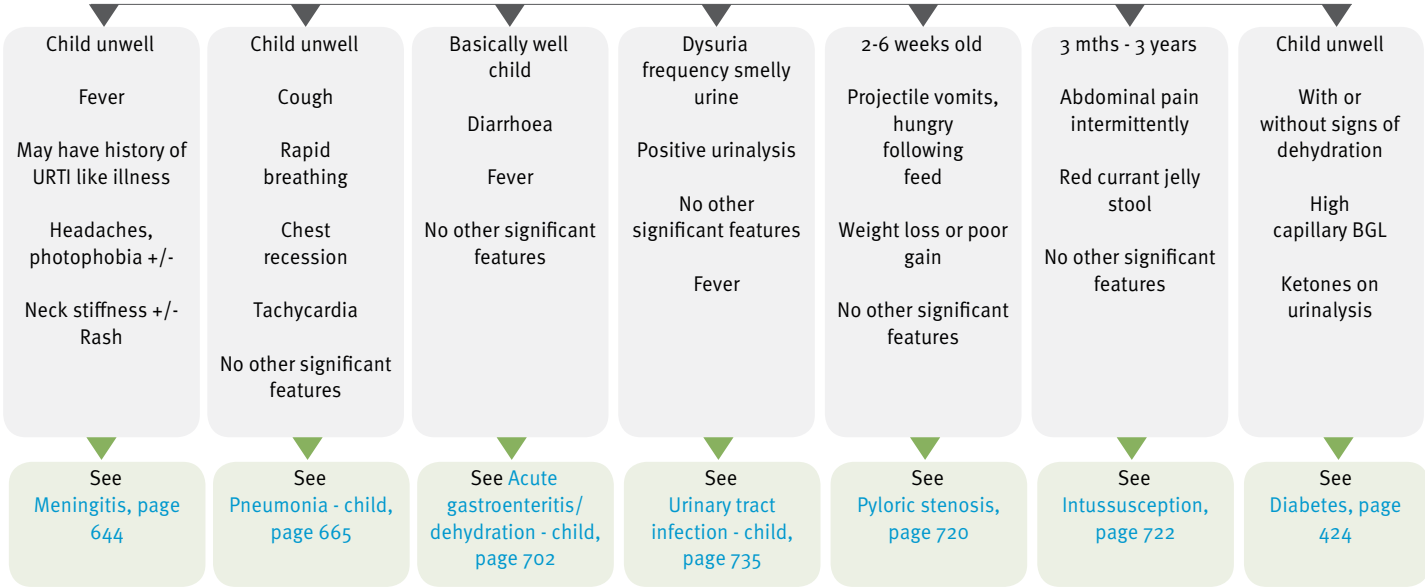
Child with vomiting

Babies less than 3 months of age contact MO immediately. Vomiting is a common and important symptom, which may indicate serious illness especially in a very young child. Beware vomiting without diarrhoea - consider the following causes: infection (pneumonia, UTI, meningitis, otitis media), bowel obstruction (pyloric stenosis, intussusception, appendicitis, hernia), reflux oesophagitis, raised intracranial pressure (trauma, abscess or tumour), metabolic (diabetic ketoacidosis, poisoning)

Clinical assessment performed

Significant features of assessment unclear or you are unsure of cause? **Yes** —> Consult MO/NP

No

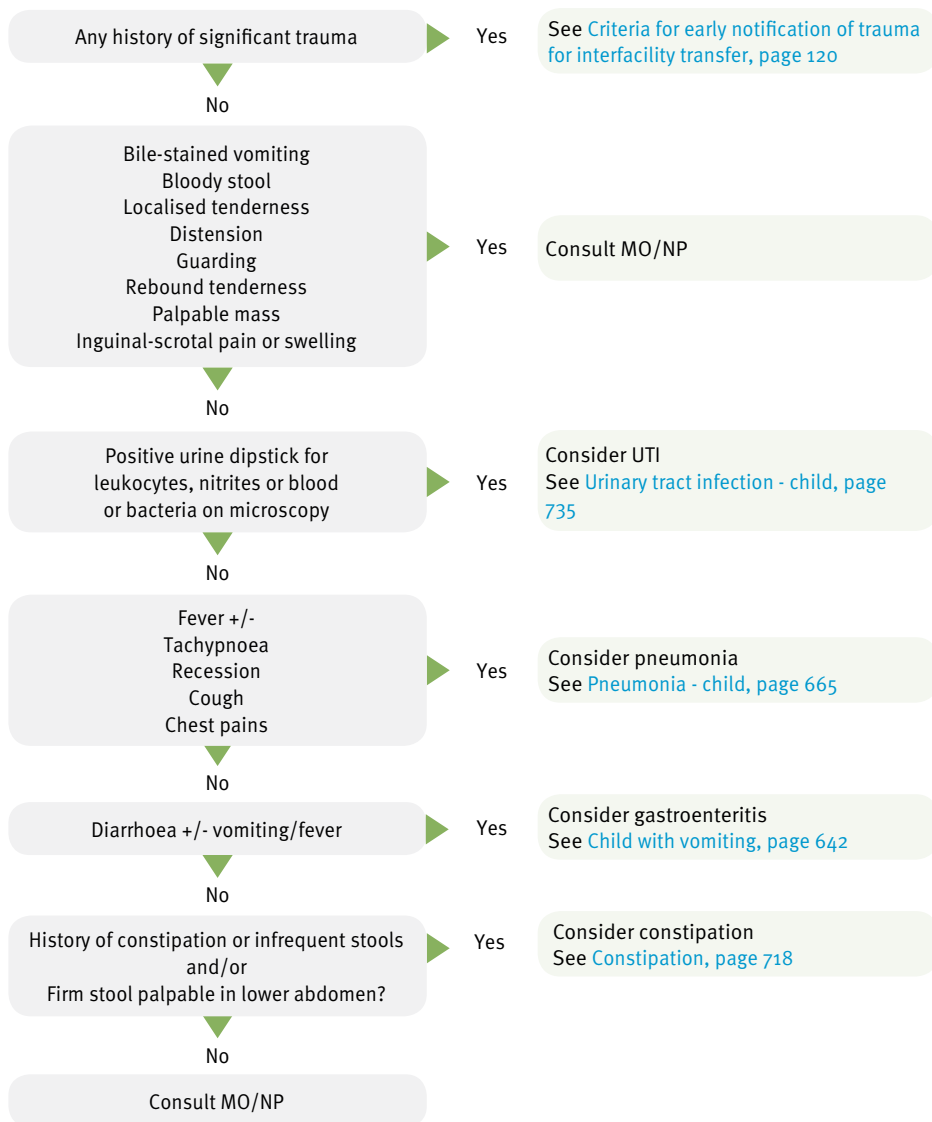


Child with vomiting

Child with abdominal pain

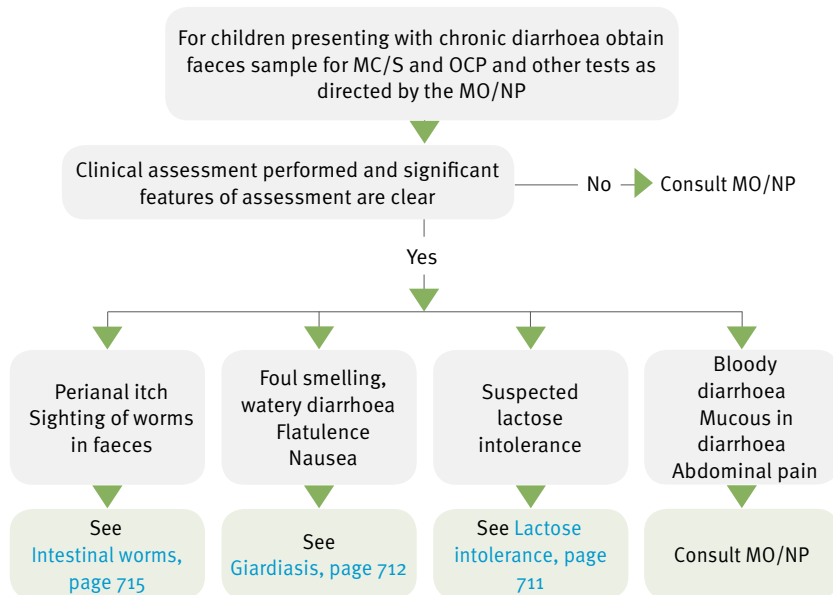
Contact MO/NP immediately for:

- babies < 3 months of age
- any child with significant pain < 3 years
- or any child with a CEWT score ≥ 4 (or other early warning and response tool trigger)



Child with chronic diarrhoea

Babies < 3 months of age contact MO/NP immediately. Diarrhoea every day for **at least** 10 days **or** recurrent episodes of loose stools over longer periods require investigation



Meningitis - adult/child

Recommend

- See [DRS ABCD resuscitation/the collapsed patient - adult/child/infant, page 36](#)
- Consult MO/NP immediately
- Use the *Acute Management of Suspected Meningococcal Disease Clinical Pathway*. The pathway can be found at: www.health.qld.gov.au/caru/pathways/docs/meningococcal-pathway.pdf
- If a sick looking child has no obvious source of infection which would explain their symptoms then have a high suspicion of a diagnosis of meningitis
- It is important to treat shock - consult MO/NP for initial fluid replacement. Careful management of fluid and electrolyte balance is important in the treatment of meningitis¹ and ongoing management should be discussed with Paediatrician as soon as possible
- Parents or carers may notice early, subtle changes in the child's conscious state. Their concerns should not be ignored

Background

- Meningitis involves inflammation of the meninges and spinal cord and can be caused by several types of infective organisms including bacteria and viruses
- Bacterial meningitis includes meningococcal meningitis and meningitis caused by other bacteria. Meningococcal disease is meningococcal meningitis and/or meningococcal septicaemia¹⁵
- Do not use hyponatraemic solutions (e.g. 4% glucose with 0.18% sodium chloride or 0.45% sodium chloride) which may worsen hyponatraemia and increase the risk of cerebral oedema¹

Related topics

-  [Fits/convulsions/seizures, page 72](#)
-  [Upper respiratory tract infection - child, page 650](#)
-  [Immunisation program, page 750](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Oxygen delivery systems, page 44](#)

1. May present with

- Fever
- Vomiting and/or nausea
- Lethargy or irritability
- Photophobia and/or headaches
- Anorexia
- Nuchal rigidity or neck stiffness or resistance to flexion of the neck (often not present especially in young children or infants who may present with exaggerated head lag)
- Positive Kernig's sign i.e. resistance to extension of the knee when hip is flexed to 90° or positive Brudzinski's sign i.e. reflex flexion of the hip and knee when the neck is passively flexed¹⁶
- Altered mental status
- Shock
- Seizures
- Focal neurological deficit
- Petechial rash
- If infant < 3 months of age look for:
 - bulging fontanelle
 - high pitched cry
 - poor feeding
 - apnoea
 - seizures¹⁷

2. Immediate management

- Urgent consultation with MO/NP who will arrange evacuation
- It is important to use the relevant CEWT (or other local Early Warning and Response tool) form
- If altered level of consciousness see [DRS ABCD resuscitation/the collapsed patient, page 36](#)
- If fitting see [Fits/convulsions/seizures, page 72](#)
- Give O₂ to maintain O₂ saturation > 95%. See [Oxygen delivery systems, page 44](#)
- Insert IV/IO cannula and take FBC, U/E, CRP, coagulation tests, LFT, glucose, blood cultures, Meningococcal PCR. Collect Meningococcal PCR in an EDTA tube - adult or paediatric version as applicable
- Children with meningitis may require fluid resuscitation as clinically indicated. Sodium chloride 0.9% should be administered in 20 mL/kg boluses to treat shock and repeated if necessary¹⁷

3. Clinical assessment

- Obtain as complete a patient history as possible according to the circumstances of the presentation. Of particular importance in a sick looking child is:
 - headache, irritability, fever, rash, neck stiffness
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and

Response Tools) +

- weight (if able)
- Perform physical examination:
 - inspect all skin surfaces for any skin rash especially at pressure points and under nappies and clothing. **Note:** petechiae and purpura do not fade on pressure. Rash may not appear until child is rehydrated
 - assess hydration status
 - inspect and palpate the ears, nose and throat
 - palpate the fontanelle in young baby - feeling for fullness
 - check for neck stiffness - with patient lying down, put hand behind head and gently raise
 - auscultate the chest for air entry and any added sounds (crackles or wheezes)
- Check vaccination status, especially Hib/meningococcal/pneumococcal

4. Management

- Consult MO/NP who will arrange/order:
 - IV antibiotics which should be commenced within 30 minutes and should not be delayed awaiting results of diagnostic tests or fluid resuscitation. Antibiotics can be given by IM route if unable to obtain IV access¹⁷
 - IV dexamethazone¹⁸
 - evacuation/hospitalisation
 - monitor clinical observations closely
- Blood samples for culture and PCR should be taken where possible but should not delay initial treatment
- Diagnosis of meningitis requires a lumbar puncture which can be done by a competent practitioner after commencement of antibiotics
- Give paracetamol for fever, pain or distress. See [Simple analgesia pull out](#)
- For neonates and infants < 2 months give ampicillin OR amoxycillin if no ampicillin available, plus cefotaxime if not allergic. If ampicillin or amoxycillin not available give benzylpenicillin plus cefotaxime
- For children ≥ 2 months and adults consult MO/NP who may order cefotaxime OR ceftriaxone plus dexamethasone

Schedule	4	Amoxycillin/Ampicillin		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	1 g	IV/IM/IO IV - dissolve in 10 - 20 mL of water for injection and inject slowly over 3 - 5 minutes	Neonates and infants ≤ 2 months 50 mg/kg/dose	Stat
Provide Consumer Medicine Information: may cause pain and inflammation at injection site, may cause nausea and diarrhoea				
Note: avoid rapid IV administration as this may result in seizures. Lignocaine can be used to reconstitute IM injections to reduce local pain. IM inject deep into large muscle				
Contraindication: in patients with severe hypersensitivity to penicillins, carbapenems, and cephalosporin antibiotics				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
3,4,17,19,20				

- Plus

Schedule	4	Cefotaxime		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	2 g	IV/IM/IO	50 mg/kg/dose to a max. of 2 g	Stat
Provide Consumer Medicine Information: may cause pain and inflammation at injection site. May cause nausea, diarrhoea, headache, and dizziness				
Note: inject over 3 - 5 minutes to avoid arrhythmias. Can be given IM but it is extremely painful				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
3,5,17,20				

- If amoxycillin/ampicillin not available the MO/NP may order benzylpenicillin

Schedule	4	Benzylpenicillin		DTP IHW/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP					
Form	Strength	Route of administration	Recommended dosage	Duration	
Vial	600 mg 1.2 g (If IV reconstitute with water for injection. dissolve 600 mg in 9.6 mL water; dissolve 1.2 gm in 19.2 mL of water)	IV/IM/IO Inject IV slowly over 5 - 10 minutes (no faster than 300 mg/minute)	Child < 2 mths 60 mg/kg up to 2.4 g	Stat	
Provide Consumer Medicine Information: may cause pain and inflammation at injection site. Gastrointestinal reactions may include abdominal pain, nausea, vomiting and diarrhoea					
Note: rapid IV injection may cause seizures. Lignocaine can be used to reconstitute IM injections to reduce local pain. IM inject deep into large muscle					
Contraindication: in patients with severe hypersensitivity to penicillins, carbapenems and cephalosporins					
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67					
3,6,13,17,20					

- For children ≥ 2 months and adults if not allergic

Schedule	4	Cefotaxime	DTP IHW/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	1 g 2 g	IV/IM/IO	Adult 2 g Child ≥ 2 months 50 mg/kg/dose to a max. of 2 g	Stat
Provide Consumer Medicine Information: may cause pain and inflammation at injection site. May cause nausea, diarrhoea, headache, and dizziness				
Note: inject over 3 - 5 minutes to avoid arrhythmias. Can be given IM but it is extremely painful				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
3,5,17,20				

- Or

Schedule	4	Ceftriaxone	DTP IHW/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	1 g	IV/IM/IO	Adult 2 g Child ≥ 2 months 50 mg/kg/dose to a max. of 2 g	Stat
Provide Consumer Medicine Information: may cause diarrhoea, nausea, vomiting, pain and inflammation at the injection site, headache, and dizziness				
Note: give slowly to avoid seizures. If giving IM - reconstitute with lignocaine 1% and give by deep injection into gluteal muscle				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
3,8,17,20				

Schedule	4	Dexamethasone		DTP IHW/IPAP
Authorised Indigenous Health Workers and Isolated Practice Area Paramedics must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	8 mg/2 mL	IV/IO dissolve in 0.9% sodium chloride and inject slowly over at least 3 minutes	Adult and children ≥ 12 years 10 mg 6 hourly	Stat
Ampoule	4 mg/mL		Child ≥ 2 months to < 12 years 0.15 mg/kg up to a max. of 10 mg 6 hourly	
Provide Consumer Medicine Information: advise patient it may cause transient itching or burning of the perineal area				
Note: give before or at the same time as the first dose of antibiotics. Psychiatric effects such as euphoria and disturbance of mood, cognition, sleep and behaviour may occur				
Contraindication: the vial formulation in patients with a known hypersensitivity to sulphites: do not give dexamethasone if serious concern of encephalitis				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
8,9,10,11,12,17,20				

5. Follow up

- All children with suspected meningitis should be managed in an appropriately equipped hospital
- Chemoprophylaxis will be required for close contacts of a patient with either meningococcal or Hib meningitis. Unvaccinated contacts of Hib meningitis < 5 years should be immunised as soon as possible. Public Health Unit will advise
- Arrange paediatric follow up, after discharge from hospital
- Perform hearing test 3 months after discharge

6. Referral/consultation

- Consult MO/NP immediately on all occasions if meningitis is suspected
- Most patients will require urgent treatment and evacuation/hospitalisation
- If possible MO/NP will arrange telehealth consult with regional paediatrician
- ① Meningitis and meningococcal disease requires notification by clinicians on clinical/provisional grounds while awaiting laboratory confirmation e.g. on the basis of clinical evidence, including clinical history, signs or symptoms. Requires immediate notification to the local Public Health Unit by telephone. Communicable disease control guidance available at: <http://disease-control.health.qld.gov.au/Condition/765/meningitis-all-types>

Respiratory problems - child

Upper respiratory tract infection (URTI) - child Acute rhinosinusitis/common cold

Recommend

- Remember the symptoms and signs of an upper respiratory tract infection (URTI) may be a precursor to more serious illnesses such as meningitis
- Consider nasal obstruction by a foreign body especially if symptoms are unilateral¹

Background

- Infections of the upper airway where neither sore throat nor cough are the predominant feature are typically diagnosed as URTI²
- The most common form of acute rhinosinusitis is viral (the common cold)¹
- Acute rhinosinusitis has a rapid onset of inflammation of the nose and paranasal sinuses, with two or more additional symptoms: either nasal blockage (congestion) or nasal discharge (anterior and/or posterior nasal drip), facial pain or pressure, or reduction or loss of sense of smell¹
- The vast majority of URTI are caused by viruses and do not require antibiotics¹⁰
- Bacterial rhinosinusitis complicates about 2% of cases and should be suspected when symptoms have lasted at least 7 days and include purulent nasal discharge and other localising features²
- A viral URTI can be complicated by secondary bacterial infection such as otitis media or pneumonia, requiring antibiotics
- Other complications include exacerbation of asthma
- Acute viral bronchiolitis affects both the upper and lower airways - it mostly affects infants < 6 months old³

Related topics

-  Acute asthma, page 81
-  Meningitis, page 644
-  Immunisation program, page 750
-  Pneumonia - child, page 665
-  Acute otitis media with/without perforation, page 680
-  Acute rheumatic fever, page 672
-  Acute post streptococcal glomerulonephritis, page 667
-  Croup/epiglottitis, page 660
-  Sore throat, page 654

- Pertussis, page 659
- Bronchiolitis, page 664
- Child with fever, page 639
- Child with cough, page 640
- Child with stridor, page 641

1. May present with

- Nasal discharge
 - generally clear and watery initially, then thicker and mucoid later
 - it is typical to have several days of purulent nasal discharge which resolves or becomes clear or mucoid
 - the characteristics of the nasal discharge does not differentiate viral from bacterial infection
- Nasal congestion
- Nasal itching
- Post-nasal drainage
- Watery eyes
- Sneezing
- Facial pain or pressure
- Decreased, or loss of, sense of smell
- Low-grade fever, headache, general malaise, slight body aches⁴

2. Immediate management Not applicable

3. Clinical assessment

- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Take patient history: be aware that rhinitis can be caused by viral, bacterial, allergic, and chemical causes⁴
- Perform physical examination including:
 - overall appearance e.g. smiling, agitated, lethargic
 - respiratory effort e.g. chest recession, nasal flaring, grunting (noisy breathing), abdominal breathing
 - inspect the ears, nose and throat
 - palpate the head and neck for enlarged lymph glands
 - auscultate the chest for air entry and any added sounds - crackles or wheezes
 - inspect all skin surfaces for any skin rash especially at pressure points and under nappies and clothing. **Note:** petechiae and purpura do not fade on pressure
- Check vaccination status. See [Immunisation program, page 750](#)
- If child has cough as the main feature, consider other diagnoses. See [Child with cough, page 640](#)
- If child has an increased respiratory rate or any chest findings consider other diagnoses. See [Pneumonia - child, page 665](#)
- If child has evidence of secondary ear infection see [Acute otitis media with/without perforation, page 680](#)

4. Management

- Consult MO/NP if:
 - < 3 months of age
 - < 1 year with respiratory rate more than 45 respirations per minute
 - 1 - 4 years more than 35 respirations per minute
 - 5 - 11 years more than 30 respirations per minute
 - ≥ 12 years more than 25 respirations per minute

- respiratory distress or apnoea
- if child looks sick, not alert or interactive
- if observations trigger a clinical review (as per Early Warning and Response System tools) see [Recognition and management of the deteriorating patient, page 13](#)
- if child has any rash
- if child has a cough productive of mucopurulent sputum, may need further investigations for possibility of chronic respiratory disease
- Antibiotics and antihistamines have no role for treating the common cold (viral rhinosinusitis)
 - educate patients and parents on appropriate use of antibiotics
- Advise patient and parents that the basis of treatment is rest and fluids
- Symptomatic treatment includes analgesia/antipyretics e.g. paracetamol or ibuprofen. Do not use aspirin in children. See [Simple analgesia pull out](#)
- Oral and topical decongestants have questionable efficacy and may cause adverse reactions e.g. palpitations, agitation, irritability, insomnia. Not to be used in children < 6 years age
- Saline (sodium chloride 0.9%) nose drops may be helpful
- Other symptomatic treatments such as nebulised sodium chloride 0.9%, and lemon and honey drinks may have some benefit
- Prevent spread of disease through respiratory and cough hygiene. Educate child and parent to:
 - cover the nose and mouth with disposable tissues when coughing, sneezing, wiping and blowing noses and then put used tissues in the bin
 - if no tissues available - cough or sneeze into the inner elbow rather than hand
 - keep child resting at home
 - wash hands and faces regularly and after contact with respiratory secretions
 - keep contaminated hands away from eyes and nose^{4,5,6}
- Consider antibiotic therapy for patients who have any of the following indicators of bacterial infection:
 - symptoms of rhinosinusitis lasting longer than 7 days, with purulent nasal discharge, sinus tenderness (particularly unilateral) or maxillary toothache
 - severe symptoms and high fever (39°C or higher) at the onset of illness and lasting longer than 3 days
 - worsening symptoms after initial improvement ('double sickening')¹
- Give amoxycillin if not allergic to penicillins and cephalosporins

Schedule	4	Amoxycillin		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Child < 12 years 15 mg/kg/dose tds up to a max. of 500 mg tds	5 days
Suspension	125 mg/5 mL 250 mg/5 mL			
Provide Consumer Medicine Information: take until course is completed unless advised by health professional to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the amoxycillin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops. If a rash develops tell health professional as it may indicate an underlying condition that requires follow up				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by amoxycillin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: if history of severe or immediate allergic reaction to a penicillin. Be aware of cross reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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1,7

5. Follow up

- Review next day
- If not improving consult MO/NP

6. Referral/consultation

- Consult MO/NP as above or if symptoms persist despite symptomatic treatment
- Urgent specialist referral is required for patients with
 - diplopia or impaired vision
 - mental status deterioration or periorbital oedema¹

Sore throat - child

Pharyngitis, tonsillitis, quinsy

Recommend

- Life-threatening sore throat requires rapid assessment and intervention. Features of airway compromise or impending airway compromise include:
 - airway patency: stridor, drooling, muffled or absent voice
 - toxic appearance: lethargy, poor perfusion, air hunger, altered mental status
 - posturing: fixed, upright, leaning forward, torticollis⁸
- Always be alert to the relationship between group A streptococcal sore throat and ARF/APSGN. These complications are common and serious but potentially avoidable in Aboriginal and/or Torres Strait Islander children
- Ten (10) days of oral antibiotics or one dose of benzathine penicillin IM is required to eradicate group A *Streptococcus*⁹

Background

- Most sore throats are viral in origin and do not require antibiotic treatment¹⁰
- Complications of throat infections due to *Streptococcus pyogenes* include acute post streptococcal glomerulonephritis (APSGN), acute rheumatic fever (ARF), rheumatic heart disease, streptococcal toxic shock syndrome, and pancreatitis¹¹
- With the exception of scarlet fever type rash there is no individual clinical feature to make a definitive diagnosis of streptococcal infection. Scoring the 4 signs and symptoms of the Centor criteria (tonsillar exudate, swollen tender anterior cervical nodes, lack of cough, and fever) to determine the likelihood of *Group A streptococcal* pharyngitis/tonsillitis is less valid for children
- Antibiotics are recommended to prevent the nonsuppurative complications of *S. pyogenes* infection in high risk patients, although antibiotics have not been proven to prevent APSGN
- Peritonsillar abscess (quinsy) presents with trismus (limited opening of mouth), severe unilateral throat pain, high fever, and/or change in voice. It usually requires aspiration or drainage in hospital
- There are a number of viral conditions that can mimic tonsillitis. Consider other causes such as Epstein-Barr virus (glandular fever) or Cytomegalovirus (CMV)^{8,9,10}

Related topics

-  [Acute asthma, page 81](#)
-  [Meningitis, page 644](#)
-  [Immunisation program, page 750](#)
-  [Pneumonia - child, page 665](#)
-  [Acute otitis media with/without perforation, page 680](#)
-  [Acute rheumatic fever, page 672](#)
-  [Acute post streptococcal glomerulonephritis, page 667](#)
-  [Croup/epiglottitis, page 660](#)

- [Upper respiratory tract infection - child, page 650](#)
- [Child with fever, page 639](#)
- [Child with cough, page 640](#)
- [Child with stridor, page 641](#)
- [Pertussis, page 659](#)
- [Bronchiolitis, page 664](#)

1. May present with

- Painful throat
- Bright red oropharynx ± swollen tonsils ± white or yellow exudate on tonsils. Large tonsils may not

imply tonsillitis. Lymphoid tissue in the pharynx is relatively more prominent at about 5 years of age

- Difficulty or pain on swallowing
- Enlarged tender anterior cervical (neck) lymph nodes
- Mouth breathing or voice change
- Fever $> 38^{\circ}\text{C}$
- Headache
- Malaise
- Abdominal pain
- Nausea and vomiting
- Halitosis
- Scarlet fever rash - is the only individual clinical feature to discriminate streptococcal infection^{8,10,12}

2. Immediate management

- Assess and maintain airway. See [DRS ABCD resuscitation/the collapsed patient, page 36](#)

3. Clinical assessment

- Take patient history including:
 - past episodes, complications such as ARF/APSGN
 - cough present or absent
 - history of fever
 - ask about joint pain - consider ARF
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - urinalysis - haematuria and/or proteinuria may indicate APSGN
- Collect throat swab for MC/S
- Perform physical examination including:
 - overall appearance e.g. smiling, agitated, lethargic
 - tonsillar swelling or exudate absent or present?
 - palpate the head and neck for enlarged or tender lymph glands
 - inspect the ears, nose and throat
 - auscultate the chest for air entry and any added sounds - crackles or wheezes
 - respiratory effort e.g. chest recession, nasal flaring, grunting, noisy breathing, abdominal breathing
 - inspect all skin surfaces for any skin rash especially at pressure points and under nappies and clothing. **Note:** petechiae and purpura do not fade on pressure
- Check vaccination status. See [Immunisation program, page 750](#)

4. Management

- Consult MO/NP if:
 - < 3 months of age
 - child looks sick, not alert or interactive and has temperature over 38°C
 - child still looks sick when temperature reduced
 - child has any rash
 - child has tonsillitis and is systemically unwell

- child has/or is suspected to have quinsy
- if observations trigger a clinical review (as per Early Warning and Response System tools) see [Recognition and management of the deteriorating patient, page 13](#)
- If child has cough as the main feature, consider other diagnoses see [Child with cough, page 640](#)
- If child has an increased respiratory rate or any chest findings consider other diagnoses see [Bronchiolitis, page 664](#), and [Pneumonia - child, page 665](#)
- If child has evidence of secondary ear infection. See [Acute otitis media with/without perforation, page 680](#)
- Provide symptomatic analgesic treatment. See [Simple analgesia pull out](#)
 - throat lozenges for older children but not for young children at risk of choking
 - soft bland foods, cold liquids, ice cream, milkshakes
- Routine use of antibiotics is no longer indicated¹⁰
- Antibiotic treatment is recommended to prevent nonsuppurative complications of *S. pyogenes* infection (e.g. ARF and APSGN) for high risk patients:
 - aged 2 to 25 years with sore throat in communities with a high incidence of acute rheumatic fever e.g. Indigenous communities in central and northern Australia, Maori and Pacific Islander people
 - with existing rheumatic heart disease
 - who have scarlet fever - a characteristic and striking red blanching rash and strawberry tongue due to streptococcal infection. Rash usually starts after the sore throat and lasts a week
- In addition to the above recommended indications it is reasonable to prescribe antibiotics for patients who are particularly unwell and/or patients with particularly severe clinical features suggestive of streptococcal infection
- If an alternative diagnosis to tonsillitis is being considered e.g. Epstein-Barr virus or CMV consult MO/NP prior to collection of blood specimens
- For the child with indicators present for antibiotic treatment and if not allergic, treat with oral penicillin

Schedule	4	Phenoxymethylpenicillin	DTP IHW/ SM R&IP/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet Capsule	250 mg 500 mg	Oral	Child < 12 years 15 mg/kg/dose bd to a max. of 500 mg bd	10 days
Suspension	30 mg/mL 50 mg/mL			
Provide Consumer Medicine Information: should be taken on an empty stomach ½ to 1 hour before meals or before bedtime. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the penicillin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillin. If the patient develops severe diarrhoea contact the MO/NP immediately. Prolonged use of penicillins may lead to the development of oral candidiasis				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

10,13

- If a lack of adherence with oral medicine is anticipated or those intolerant of oral therapy treat, with IM penicillin

Schedule	4	Benzathine penicillin (Bicillin LA®)				DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP						
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed						
Form	Strength	Route of administration	Recommended dosage			Duration
Pre-filled syringe	900 mg in 2.3 mL	IM	Weight	Dose	Volume	Stat
			3 to < 6 kg	225 mg	0.5 mL	
			6 to < 10 kg	337.5 mg	0.76 mL	
			10 to <15 kg	450 mg	1 mL	
			15 to <20 kg	675 mg	1.52 mL	
			≥ 20 kg	900 mg	2.3 mL	
Provide Consumer Medicine Information: patients should report development of diarrhoea immediately to health professional. Tell health professional if severe pain in the muscle where the injection was given						
Note: use a concentration of 442 mg/mL when measuring part doses - refer to product information. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillin. If the patient develops severe diarrhoea contact the MO/NP immediately. Prolonged use of penicillins may lead to the development of oral candidiasis						
Contraindication: in patients with a history of hypersensitivity to penicillin. Be aware of cross-reactivity in patients with allergy to carbapenems and/or cephalosporins						
Administration tips: see Administration tips for benzathine penicillin (Bicillin LA) and procaine penicillin, page 768						
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67						
2,6,7,8						

- If hypersensitive to penicillin (excluding immediate hypersensitivity) use cephalexin

Schedule	4	Cephalexin		DTP
IHW/SM R&IP/IPAP				
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Child 12 - 18 years 1g bd	10 days
Suspension	125 mg/5 mL 250 mg/5 mL		Child 25 mg/kg/dose bd to a max. of 1 g bd	
Provide Consumer Medicine Information: take until course completed unless advised by health professional to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the cephalosporins have been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware of cross-reactivity between penicillins, cephalosporins and carbapenems. Use with caution in patients with impaired renal function - consider reducing dose if CrCL < 20 ml/min. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by cephalosporins. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: if history of allergy to cephalosporins and penicillins, or if severe or immediate allergic reaction to penicillin				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
10,18,19				

- If immediate hypersensitivity to penicillin use azithromycin

Schedule	4	Azithromycin		DTP
IHW/SM R&IP/IPAP				
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	Child 12 mg/kg/dose daily to a max. of 500 mg daily	5 days
Suspension	200 mg/5 mL			
Provide Consumer Medicine Information: take until course completed unless advised by health professional to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the azithromycin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by azithromycin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
10,20				

5. Follow up

- Review next day, if not improving consult MO/NP
- If antibiotics have been given for sore throat:
 - review in 2 weeks
 - ask about sore joints, chest pain, breathlessness and check urinalysis
 - consult MO/NP if symptoms persist. See [Acute rheumatic fever, page 672](#) or if abnormal urinalysis, see [Acute post streptococcal glomerulonephritis, page 667](#)

6. Referral/consultation

- Consult MO/NP as above or if symptoms persist despite symptomatic treatment
- If recurrent tonsillitis > 6 episodes per year, MO/NP may consider prolonged course of prophylactic penicillin or referral to ENT specialist for consideration for tonsillectomy/adenoidectomy

Pertussis (whooping cough) - adult/child

Recommend

- If adults and teenagers present with pertussis ask about young babies at home as pertussis is a particularly severe disease in infants < 6 months of age
- It is important to explain that coughing may continue for 6 - 8 weeks after treatment and may recur with the next URTI. The recurrence will not last long

Background

- Pertussis (whooping cough) is still common
- Incubation period is on average 7 - 10 days
- Pertussis is a prolonged illness and can be complicated by apnoea in infants, pneumonia, hypoxic brain injury, seizures or lead to chronic lung disease^{21,22}

Related topics

 [Immunisation program, page 750](#)

 [Upper respiratory tract infection - child, page 650](#)

[Child with cough, page 640](#)

[Child with stridor, page 641](#)

1. May present with

- URTI symptoms
- Cough typically paroxysmal i.e. intermittent episodes of prolonged coughing followed by the characteristic inspiratory 'whoop' as the child catches his/her breath
- Vomiting, typically after an episode of coughing
- Cyanosis, typically during an episode of coughing
- Young babies usually do not have the characteristic whoop but are likely to be very distressed by coughing and vomiting. They can develop apnoea (stop breathing) and become cyanosed during a coughing bout
- Adults usually have a persistent troublesome cough only, without a whoop. A cough of several weeks duration, that is worse at night, in an adult, is pertussis until proven otherwise
- Children may present with a prolonged cough - consider investigation

2. Immediate management

- If severe consult MO/NP immediately

3. Clinical assessment

- See [Upper respiratory tract infection - child, page 650](#)
- The 'whoop' can be characteristic but may not always be present. The child may not be distressed in periods between paroxysms of coughing, with few clinical signs, however the overall impression is of a sick child
- Check vaccination status. See [Immunisation program, page 750](#)

4. Management

- Consult MO/NP who may advise:
 - evacuation/hospitalisation if young child < 6 months or if symptoms are significant
 - appropriate tests to confirm diagnosis
 - blood serum for IgA
 - dry nasopharyngeal swab or nasopharyngeal aspirate for Pertussis PCR Testing. Can use dry throat swab
 - gel swab for MC/S
 - antibiotics may shorten the length of the illness if given early and will also reduce infectivity to others. Patient can be considered no longer infectious after 5 days of treatment. It is important to explain that coughing will continue for 6 - 8 weeks and may recur with the next URTI. The recurrence will not last long
 - household and child care contacts may require prophylactic antibiotics to prevent further clinical cases of pertussis
 - advise to avoid contact with others, especially young children and infants until at least 5 days of antibiotics have been received²³
 - pertussis fact sheet available at: <http://disease-control.health.qld.gov.au/Condition/755/pertussis>

5. Follow up

- If not evacuated/hospitalised review daily, at least initially

6. Referral/consultation

- Consult MO/NP on all occasions whooping cough is suspected
- ① Pertussis requires immediate notification to the local Public Health Unit based on clinical evidence including clinical history, signs and symptoms and/or pathological diagnosis. Available at: <http://disease-control.health.qld.gov.au/Condition/755/pertussis>



Croup/epiglottitis - child

Recommend

- Keep the child as calm as possible
- Do not examine the mouth or throat and do not lie the child flat

Background

- Croup usually follows 3 or 4 days of a mild URTI when the infection spreads to affect the upper airways. It is usually mild and self-limiting
- Epiglottitis (cellulitis of the epiglottis) is caused by *Haemophilus influenza* type B infection and is fatal if untreated. It is rare since Hib vaccination was introduced²⁴

Related topics

 [Acute upper airway obstruction and choking, page 64](#)

[Child with cough, page 640](#)

[Child with stridor, page 641](#)

1. May present with

Acute epiglottitis	Croup
• Weak or no cough • Temperature $> 38.5^{\circ}\text{C}$ • Septicaemia • Looks sick • Drooling saliva • Unable to eat or drink • Doesn't talk • Any age • Reluctant to move neck	• Croupy (barking) cough • Temperature $< 38.5^{\circ}\text{C}$ (however viral croup often has a high temperature) • No systemic disturbance • Able to swallow • Will usually drink • Normal or hoarse voice

- If epiglottitis is suspected, examination of the airway can cause airway spasm/complete obstruction. If this occurs an emergency airway may be required therefore:
 - do not examine mouth or throat
 - do not lie the child flat

2. Immediate management

- Consult MO/NP as soon as circumstances allow
- A calm atmosphere is beneficial
- If severe respiratory distress, lethargic or cyanosed, give O_2 to maintain O_2 saturation $> 95\%$ and consult MO/NP immediately. If $> 95\%$ not maintained consult MO/NP see [Oxygen delivery systems, page 44](#)
- If not tolerated, it is best to interfere with the child as little as possible. Try holding the O_2 tubing/mask close to face

3. Clinical assessment

- Obtain patient history including onset and preceding URTI
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools). **Note** in particular, temperature and respiratory rate (when the child is quiet)
- Inspect for signs of respiratory distress - grunting (stridor), rib or sternal recession, nasal flaring
- Inspect for drooling in a sick looking child. This along with high fever is suggestive of epiglottitis

4. Management

- Consult MO/NP
- If epiglottitis:
 - have the parents/carer stay with child to comfort
 - handle the child as little as possible
 - MO/NP will organise evacuation by MO/NP skilled with paediatric airway management and IV insertion for IV ceftriaxone²⁴

- If croup:
 - symptomatic treatment as per URTI. See [Upper respiratory tract infection - child, page 650](#)
 - humidified air or steam inhalations are of no additional benefit²⁵
 - for mild to moderate cases MO/NP may advise:
 - budesonide 2 mg by inhalation via nebuliser stat
 - or
 - prednisolone 1 mg/kg orally stat with a second dose for the next evening
 - or
 - dexamethasone 0.15 mg/kg orally stat²⁵
 - for severe cases MO/NP may advise:
 - adrenaline 1:1,000 solution 5mL by inhalation via nebuliser plus either
 - budesonide 2mg by inhalation via nebuliser stat
 - or
 - prednisolone 1 mg/kg orally stat
 - or
 - dexamethasone 0.15 - 0.3 mg/kg (max. 12 mg) orally (or IM or IV if vomiting) stat²⁵
- MO/NP will consider evacuation/hospitalisation

Schedule	3	Adrenaline	DTP IHW/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Paramedic must consult MO/NP				
RN and SM R&P. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	1:1,000	Nebulised with oxygen (at least 6 L/min)	5 mL inhalation via nebuliser	Repeat after 30 minutes if no improvement
Provide Consumer Medicine Information: adrenaline may cause restlessness, anxiety, headache and palpitations in conscious patients				
Note: if a child has been given adrenaline they should be observed for a minimum of 4 hours				
Management of associated emergency: consult MO/NP				

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Schedule	4	Budesonide		DTP IHW/IPAP
Authorised Indigenous Health Workers and Isolated Practice Area Paramedics must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Nebule	0.5 mg/2 mL 1 mg/2 mL	Nebulised with oxygen (at least 6 L/min)	2 mg inhalation via nebuliser	Stat
Provide Consumer Medicine Information: rinse out mouth after using inhalation to prevent oral thrush				
Note: nebulised budesonide can cause facial skin irritation - cover eyes during nebulisation and wash face afterwards. If possible use a mouthpiece rather than a mask to reduce risk of facial irritation				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

25,27,28

25,27,28

Schedule	4	Prednisolone		DTP IHW/IPAP
Authorised Indigenous Health Workers and Isolated Practice Area Paramedics must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Oral liquid	5 mg/mL	Oral	Child > 1 month 1 mg/kg	Stat
Provide Consumer Medicine Information: can cause nervousness or restlessness, and insomnia				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

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Schedule	4	Dexamethasone		DTP IHW/IPAP
Authorised Indigenous Health Workers and Isolated Practice Area Paramedics must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	0.5 mg 4 mg	Oral	Child > 1 month 0.15 to 0.3 mg/kg max. 12 mg	Stat
Provide Consumer Medicine Information: may cause behavioural and sleep disturbances				
Note: tablets are scored and can be halved. Round down to the nearest full tablet if possible. Crush tablet as needed - not soluble in water				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

25,31,32,33

25,31,32,33

5. Follow up

- If child with croup is not evacuated/hospitalised, review next day and consult MO/NP if not improving

6. Referral/consultation

- Consult MO/NP on all presentations of stridor

Bronchiolitis - child

Recommend

- Consult MO/NP immediately if severe

Background

- In bronchiolitis, generally the child is distressed without looking sick or toxic
- A viral infection of the chest affecting infants < 12 months of age
- Can occur throughout the year in north Queensland. In southern Australia more common in winter - spring
- More significant in babies < 4 months of age and those with underlying heart or lung problems²

Related topics

 [Acute asthma, page 81](#)

 [Upper respiratory tract infection - child, page 650](#)

 [Pneumonia - child, page 665](#)

1. May present with

- Cough night and day, fever, nasal discharge is often profuse
- Rapid breathing, chest wheezes and crackles
- Nasal flaring, grunting respirations and sternal or intercostal recession
- Low O₂ saturation, cyanosis (severe), apnoea

2. Immediate management

- Consult MO/NP
- If severe give O₂ to maintain O₂ saturation > 95%. If > 95% not maintained consult MO/NP see [Oxygen delivery systems, page 44](#)

3. Clinical assessment

- Obtain complete patient history of particular importance is:
 - a history of URTI symptoms in a child that is basically well
 - history of chest conditions such as asthma, pneumonia
 - if wheeze is present
 - if child has stopped breathing (apnoea) for short periods of time
 - how well is the child/infant feeding
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - inspect for signs of respiratory distress e.g. grunting, nasal flaring, sternal and/or intercostal/subcostal recession
 - inspect middle ears
 - inspect for cyanosis of lips, tongue, extremities, present in severe cases

- auscultate chest for presence of wheezes/crackles

4. Management

- Consult MO/NP who will consider treating similar to:
 - acute asthma if wheeze is prominent, however in infants bronchodilators are unlikely to be effective
 - pneumonia if fever and rapid breathing is prominent
 - O₂ if SpO₂ < 95%
- If child/infant is not feeding well, fluids may be required by NGT or IV

5. Follow up

- Patients who are not evacuated/hospitalised should be reviewed daily
- Consult MO/NP if the patient is not improving

6. Referral/consultation

- Consult MO/NP on all occasions bronchiolitis is suspected



Pneumonia - child

Recommend

- If baby < 3 months of age contact MO/NP immediately
- Severe dehydration is unusual in pneumonia unless there are abnormal fluid losses from frequent diarrhoea or vomiting

Background

- Children with co-existent illnesses are more at risk. Examples are bronchiolitis and chronic lung disease e.g. due to prematurity

Related topics

- [Upper respiratory tract infection - child, page 650](#)
- [Immunisation program, page 750](#)

[Bronchiolitis, page 664](#)
[Child with abdominal pain, page 643](#)
[Child with cough, page 640](#)
[Child with fever, page 639](#)
[Child with vomiting, page 642](#)

1. May present with

- Cough - dry or with sputum, fever, tachycardia
- Rapid breathing, nasal flaring, grunting respirations and chest recession in infants, cyanosis, apnoea in infants
- Children may present with abdominal pain associated with right lower lobe pneumonia
- Chest pain

2. Immediate management

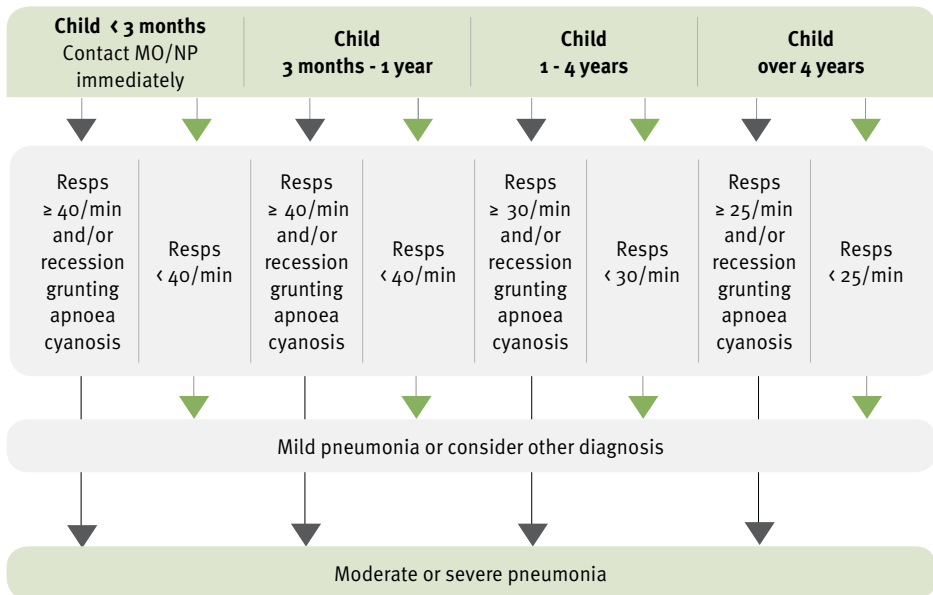
- If severe, administer O₂ to maintain O₂ saturation > 95%. If > 95% not maintained consult MO/NP. See [Oxygen delivery systems, page 44](#)
- Consult MO/NP

3. Clinical assessment

- Obtain patient history including:
 - past episodes or complications
 - length of time signs or symptoms have been present
 - any history of asthma, bronchiolitis, chronic lung disease
 - ask if child has stopped breathing (apnoea) for short periods of time
 - ask about feeding, fluid intake and output including wet nappies, passing urine, diarrhoea
 - medicines taken
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination including:
 - inspect the respiratory system for respiratory distress e.g. grunting, nasal flaring, sternal/intercostal/subcostal recession
 - auscultate the chest for air entry and any added sounds (crackles or wheezes)
 - inspect lips, tongue, extremities for cyanosis
 - inspect for signs of dehydration - moist tongue, skin elasticity. Severe dehydration is unusual
 - inspect skin surface for any skin rash
- Check vaccination status. See [Immunisation program, page 750](#)

4. Management

- Consult MO/NP using the following flowchart as a guide only, to be used in conjunction with the age appropriate ED CEWT for the clinical setting. See [Recognition and management of the deteriorating patient, page 13](#)



Mild pneumonia

- MO/NP may advise:
 - chest x-ray if available
 - oral or IM antibiotics
 - antibiotics may not be indicated if typical of viral infection or bronchiolitis
- Encourage rest and increase oral fluids
- Treat fever with regular paracetamol to make more comfortable

Moderate/severe pneumonia

- Give O₂ to maintain O₂ saturation > 95% (if not already in place). If > 95% not maintained consult MO/NP. See [Oxygen delivery systems, page 44](#)
- Give oral fluids as tolerated
- MO/NP may advise:
 - insert IV cannula - if possible take blood cultures prior to commencing antibiotics
 - IV fluids - it is usual to start with sodium chloride 0.9%. MO/NP will advise quantities and rate
 - to commence IV antibiotics
- Evacuation/hospitalisation
- Give analgesia. See [Simple analgesia pull out](#)

5. Follow up

- Patients with mild pneumonia who are not evacuated/hospitalised should be reviewed daily
- Consult MO/NP if the patient is not improving
- See next MO/NP clinic

6. Referral/consultation

- Consult MO/NP on all occasions pneumonia is suspected
- Some children with pneumonia will require a paediatric referral

Immune complications** Acute post streptococcal glomerulonephritis (APSGN) - child****Recommend**

- Early treatment and prevention of skin infections and treatment of pharyngitis is important to prevent acute post streptococcal glomerulonephritis (APSGN) as it is a possible complication of *Streptococcus pyogenes* infection

Background

- APSGN is common among Aboriginal and/or Torres Strait Islander children in northern Australia
- Inflammation of the kidneys occurs after Group A *Streptococcus* (GAS) infection due to an immune response which presents 7 - 10 days after the GAS infection¹

Related topics

 [Acute abdominal pain, page 200](#)
 [Acute rheumatic fever, page 672](#)

 [Bacterial skin infections, page 360](#)
 [Upper respiratory tract infection - child, page 650](#)

1. May present with

- Oedema (swelling) of face, feet and hands
- Rapid weight gain
- Haematuria - macroscopic (urine may be dark coloured) or microscopic (blood and protein in urine)
- Oliguria¹
- Rarely may present fitting secondary to acute hypertensive crisis
- Fever, headache, malaise, irritable

2. Immediate management

- If fitting see [Fits/convulsions/seizures, page 72](#)

3. Clinical assessment

- Take complete patient history in particular:
 - any history of sore throat and length of time since present. Pharyngitis may precede APSGN by 8 - 14 days³
 - any skin infections present and length of time since occurred
 - past history of APSGN, close contacts who may have similar signs or symptoms, any measures taken to treat presenting concern
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - ensuring BP cuff correct size
 - urinalysis for blood and protein
- Check weight: use naked weight in young children (< 2 years) and record against most recent recorded weight
- Perform physical examination including:
 - inspect face, hands and feet for oedema, inspect throat looking for signs of recent infection and palpate skin looking for signs of recent infection
 - inspect and palpate abdomen for tenderness or guarding
 - listen to chest for crackles or wheezes. Fluid retention can cause heart failure

Diagnostic features of APSGN

This illness usually features:

- Oedema of extremities and face and/or
- Hypertension. Systolic BP greater than the upper normal limit on the age appropriate CEWT forms

Age	< 1 year	1 - 4 years	5 - 11 years	> 12 years
Systolic blood pressure (mmHg)	> 120	> 125	> 130	> 150

- Other features include:
 - Haematuria - often macroscopic but can be microscopic
 - a urine dipstick reading of $\geq 2+$ red blood cells is adequate to define haematuria
 - microscopic haematuria is defined as $> 10 \times 10^6$ red blood cells on microscopy of fresh urine, red cells casts should also be seen
 - Proteinuria
 - Oliguria
 - Renal impairment
 - Reduced serum complement: $C_3 < 0.7$ g/L. Should return to normal within 3 months
 - Evidence of recent Group A *Streptococcus* infection serology. Either:
 - a positive skin or throat culture or,
 - baseline serum streptococcal antibody titre level above upper limit of normal for age or,
 - a rising titre when repeated after 14 - 28 days (2 fold increase)
- Complications which sometimes occur include - volume overload, congestive heart failure, pulmonary oedema, hypertensive encephalopathy³

4. Management

- Consult MO/NP who may:
 - arrange evacuation/hospitalisation for those children with hypertension and/or volume overload as these children should be fluid restricted
 - advise to treat streptococcal infection with IM benzathine penicillin² regardless of whether skin sores/sore throat are present at the time of presentation or not, or if allergic to penicillin a full 5 day course of azithromycin². This will not change the disease but reduce infectivity³
 - advise to treat hypertension and/or heart failure. Initial treatment is usually frusemide³

Schedule	4	Benzathine penicillin (Bicillin LA®)				DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP						
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed						
Form	Strength	Route of administration	Recommended dosage			Duration
Pre-filled syringe	900 mg in 2.3 mL	IM	Weight	Dose	Volume	Stat
			3 to < 6 kg	225 mg	0.5 mL	
			6 to < 10 kg	337.5 mg	0.76 mL	
			10 to <15 kg	450 mg	1 mL	
			15 to <20 kg	675 mg	1.52 mL	
			≥ 20 kg	900 mg	2.3 mL	
Provide Consumer Medicine Information: patients should report development of diarrhoea immediately to health professional. Tell health professional if severe pain in the muscle where the injection was given						
Note: use a concentration of 442 mg/mL when measuring part doses - refer to product information. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillin. If the patient develops severe diarrhoea contact the MO/NP immediately. Prolonged use of penicillins may lead to the development of oral candidiasis						
Contraindication: in patients with a history of hypersensitivity to penicillin. Be aware of cross-reactivity in patients with allergy to carbapenems and/or cephalosporins						
Administration tips: see Administration tips for benzathine penicillin (Bicillin LA) and procaine penicillin, page 768						
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67						
						2,6,7,8

- If allergic to or immediate hypersensitivity to penicillin, give oral azithromycin²

Schedule	4	Azithromycin	DTP IHW/SM R&IP/IPAP

Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP

Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	Child 12 mg/kg/dose daily to a max. of 500 mg daily	5 days
Suspension	200 mg/5 mL			

Provide Consumer Medicine Information: take until course completed unless advised by health professional to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the azithromycin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops

Note: be aware that severe colitis due to *Cl. difficile* can be caused by azithromycin. If the patient develops severe diarrhoea contact the MO/NP immediately

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction, page 67](#)

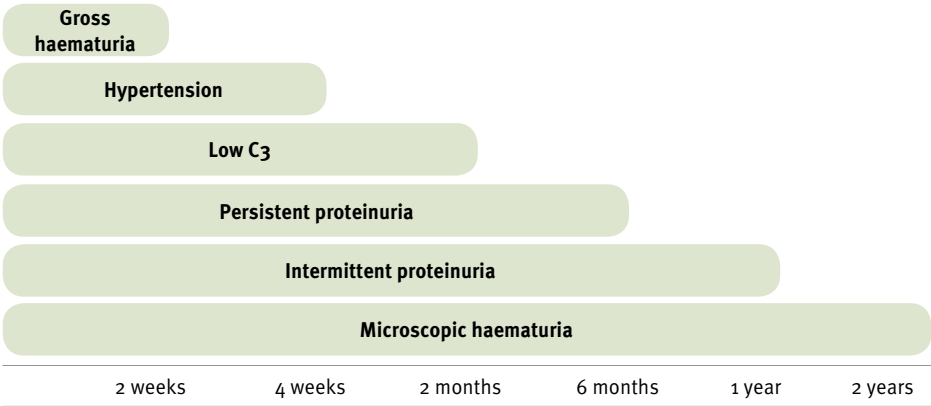
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- If treatment for hypertension and/or heart failure required, contact MO/NP immediately

5. Follow up

- Most children will require evacuation/hospitalisation
- If not evacuated/hospitalised the child requires close follow up with daily review including weight, BP and urinalysis. If there is any deterioration, consult MO/NP
- Refer to next MO/NP clinic
- Following discharge, most children will require close monitoring. If hypertensive take BP weekly. Expect hypertension to resolve by 4 - 6 weeks

Time course to resolution of APSGN³



- Isolated microscopic haematuria is not predictive of renal dysfunction but persistent microalbuminuria is. If urinalysis shows protein on follow up, collect urine for urine protein/

creatinine ratio. If persistent proteinuria refer to Paediatrician

- Blood should be tested to check the immune system complement factor (C3) level has returned to normal after three months

6. Referral/consultation

- Consult MO/NP on all occasions of suspected APSGN
- Most will need paediatric referral and follow up
- ① APSGN is a notifiable condition. Notify all suspected and confirmed cases of APSGN to the Public Health Unit. Case report form is available at: <http://disease-control.health.qld.gov.au/Condition/690/%20acute-post-streptococcal-glomerulonephritis>



Acute rheumatic fever (ARF) - adult/child

Recommend

- In Aboriginal and Torres Strait Islander communities where there are high rates of acute rheumatic fever (ARF) and rheumatic heart disease (RHD), treat sore throat and skin infections early
- Any case of arthritis or arthralgia with fever in a child should be considered as possible ARF or septic arthritis. Consult MO/NP to assist with differential diagnosis
- Strict long term benzathine penicillin prophylaxis is critical to prevent recurrences of ARF, which can lead to the development or worsening of RHD. **Never miss a jab**
- People diagnosed with ARF or with established RHD need on-going cardiac monitoring. Assign an individual management plan as per the Australian ARF and RHD guidelines
- The QLD RHD Program holds the Bicillin and Echocardiogram registers, and is available for clinical support and education. Contacts for QLD RHD Program are: ① 1300 135 854 or email: ArfRhdregister@health.qld.gov.au
- Resources including *Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease* (2nd edition) are available from <http://www.RHDAustralia.org.au>
- **Note:** *The Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease* (2nd edition) 2012 refers to benzathine penicillin as benzathine penicillin G (BPG). These are the same⁶

Background

- ARF is an auto-immune response to bacterial infection with Group A *Streptococcus* (GAS) in the throat, and possibly the skin. ARF affects the heart, joints, skin, and the nervous system⁶
- Aboriginal and Torres Strait Islander people living in remote areas of Australia are known to be at high risk. Potentially at high risk are non-Aboriginal and non-Torres Strait Islander children living in northern Australia and Aboriginal and/or Torres Strait Islander people living in urban settings, Pacific Islanders, and migrants from high prevalence countries
- ARF can occur at any stage of life however is most common in children aged between 5 and 14 years although recurrent episodes may continue well into the fourth decade of life⁶
- RHD is a chronic condition resulting from scarring and deformity of the heart valves. Each recurrent episode of ARF will lead to further damage to the heart valves - hence the requirement for Bicillin LA[®]
- For further information and education modules on ARF/RHD go to RHDAustralia's website at <http://www.RHDAustralia.org.au>

Related topics

 Upper respiratory tract infection - child, page 650

Acute abdominal pain, page 200

 Bacterial skin infections, page 360

 Bone and joint infections, page 738

 Secondary prophylaxis for acute rheumatic fever, page 412

 Acute post streptococcal glomerulonephritis, page 667

1. May present with**Fever and/or arthritis and/or carditis**

- Painful tender inflamed joints. Symptoms often progress from one joint to another (migratory polyarthritis) however only one joint may be affected (aseptic monoarthritis). Any joint can be involved but most commonly affects the large joints of the limbs - knees, ankles, elbows
- May present with migratory polyarthralgia where the joints are painful but not swollen
- Inability to weight-bear or walk unaided
- A heart murmur indicates possible carditis
- Rarely seen -
 - subcutaneous nodules - painless, occur in crops of up to 12, appear 1 - 2 weeks after onset of other symptoms, 0.5 cm - 2 cm in diameter, round, firm, and freely mobile
 - erythema marginatum - non-itchy, non-painful, bright pink macules or papules that blanch, usually on trunk and proximal extremities, almost never on face
- May be a history of a sore throat or skin infection within the previous 2 - 3 weeks. Most children do not have a history of sore throat

Movement and mood disorder (Sydenham's Chorea)

- Mood swings often with unexplained crying. They may become fidgety or have uncontrollable jerky movements of the face, tongue, trunk and/or limbs that disappear when asleep. Relatives and teachers may describe them as 'jumpy kids'
- Very common in Aboriginal children (28% of presentations). Predominantly in females, but also affects many males. Can occur weeks to months after and episode of ARF. Chorea is highly indicative of ARF and if a child presents with chorea the diagnosis of ARF will be confirmed without requiring the presence of the other manifestations

2. Immediate management Not applicable**3. Clinical assessment**

- Obtain complete history including:
 - past episodes of ARF or previous symptoms suggesting ARF
 - history of penicillin injections for ARF/RHD: have any injections been missed? If unsure contact RHD QLD to assist. Available at: <https://www.rhdaustralia.org.au/queensland>
 - recent history of sore throat, painful joint or skin infections and whether treated
 - measures taken to treat presenting symptoms
 - current medicines
 - history from a relative or teacher - ask about mood swings, strange movements or physical agitation
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +

- ECG
- careful recording of temperatures and thorough documentation of the history of the fever
- Perform physical examination:
 - inspect skin for old or infected sores
 - inspect throat for inflammation
 - inspect and palpate joints for swelling, tenderness and mobility - typically the pain seems out of proportion to the joint signs
 - auscultate the heart - listen for a murmur
 - look for indications of heart failure - increased or irregular HR, increased respiratory rate, basal crackles in chest
 - withdrawn child - look for jerky movements of the face, tongue, trunk and limbs

4. Management

- Consult MO/NP who will likely advise:
 - evacuation/hospitalisation - confirmation and management of ARF should occur in hospital. An incorrect diagnosis, either positive or negative, will have serious consequences
 - blood for FBC, ESR, C-reactive protein (CRP), ASOT, anti-DNase B and streptococcal serology
 - swab throat and any skin sores
- Take blood cultures if temperature $\geq 38^{\circ}\text{C}$
- Provide pain relief as required. Use paracetamol for pain and fever. Do not give aspirin or non-steroidal anti-inflammatory drugs (NSAID) until the diagnosis is confirmed - these may cause joint symptoms to disappear and complicate the diagnosis
- Record ECG if not already done
- Do baseline echocardiogram within 3 months of presentation
- Administer benzathine penicillin on MO/NP instruction. If reliably documented allergy to penicillin consult MO/NP
- See [Simple analgesia pull out](#)

Schedule	4	Benzathine penicillin (Bicillin LA®)		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Pre-filled syringe	900 mg in 2.3 mL	IM	< 20 kg 450 mg ≥ 20 kg 900 mg	Stat
Provide Consumer Medicine Information: patients should report development of diarrhoea immediately to health professional. Tell health professional if severe pain in the muscle where the injection was given				
Note: use a concentration of 442 mg/mL when measuring part doses - refer to product information. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillin. If the patient develops severe diarrhoea contact the MO/NP immediately. Prolonged use of penicillins may lead to the development of oral candidiasis				
Contraindication: in patients with a history of hypersensitivity penicillin. Be aware of cross-reactivity in patients with allergy to carbapenems and/or cephalosporins				
Administration tips: see Administration tips for benzathine penicillin (Bicillin LA) and procaine penicillin, page 768				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

6,7,8

6,7,8

5. Follow up

- Repeat streptococcal antibodies at 14 days if patient has returned to community
- Assign an individualised management plan as per guidelines. The frequency of follow up will vary according to the severity of the disease
- Regular dental checks are an important aspect of ongoing care
- Place patient on a facility based ARF/RHD secondary prophylaxis program and recall system
- For ongoing assistance with secondary prophylaxis, clinical support, upskilling and education contact the RHD Register and Control Program at ArfRhdRegister@health.qld.gov.au or ☎ 1300 135 854
- Recommended duration of secondary prophylaxis:
 - an injection of benzathine penicillin every 21 - 28 days is currently the treatment of choice, except in 'high risk' patients for whom three-weekly administration is recommended. High risk are those with:
 - moderate or severe carditis, or a history of valve surgery, who have demonstrated good adherence to less frequent injections
 - a confirmed breakthrough ARF despite full adherence to 4-weekly benzathine penicillin⁶
- See [Secondary prophylaxis for acute rheumatic fever, page 412](#)
- See the current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available at: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>
- Provide education and support to patient and family using resources including *Strong Heart Strong Body* book and injection reminder cards from Queensland RHD Register and Control Program
- Give influenza and pneumococcal vaccines according to the current edition of *The Australian Immunisation Handbook*. See [Immunisation program, page 750](#)

6. Referral/consultation

- Consult MO/NP on all occasions of suspected ARF
- Consult MO/NP for anticoagulation therapy/INR range
- ① ARF requires immediate notification to the local Public Health Unit based on clinical evidence including clinical history, signs and symptoms available at: <http://disease-control.health.qld.gov.au/Condition/804/rheumatic-fever-acute>
- Refer to Paediatrician within 3 months of diagnosis in children
- Refer to Physician within 3 months of diagnosis in adults

Ear problems

Ear and hearing assessment - adult/child

- Obtain a complete patient history
 - see [History and physical examination - adult, page 13](#)
 - see [History and physical examination - child, page 630](#)

This presentation ask about

- Ear symptoms
 - pain, fever, discharge, itchy
 - a young child may not localise pain, but parent may notice that they are unsettled or pulling on their ears
 - when did it start, severity
- Treatment and/or medicine given - what, how much, when, how often, effect
- Risk factors e.g. history of recent URTI, exposure to passive smoking/smoker, swimming, especially in dirty dam or creek, dusty environment, overcrowding/close proximity to other children, poor diet; family history of OM and hearing loss

Past history of ear problems

- First episode or previous episodes: acute otitis media with or without perforation; chronic ear discharge; operations; when; treatment
- Hearing loss/any hearing tests, problems with speech and language, learning
- Under care of Ear Nose and Throat (ENT) Specialist/Audiologist

Hearing screening and assessment

- Hearing screening and assessment commences from birth across the life span. Refer to current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual> for procedures in performing:
 - otoscopy to examine the ear canal and ear drum from 2 months of age
 - tympanometry to test middle ear function from 6 months of age
 - audiometry to assess hearing level from over 3 years of age
- If a patient is under the care of an Ear Nose and Throat Specialist or Audiologist ensure they are up to date with appointments/care

Examination

- Examine ear at eye level
- Position infant/toddler on parent/carer's knee. Older children can stand and adult sit

- Often very painful - approach gently



Examples of positioning of children for examination of throat and ears

Outer ear

- Inspect - any inflammation
- Palpate
 - ear - warm to touch, pain on moving pinna, tender
 - mastoid bone - swollen, hot, tender
 - occiput, around ears, both sides or neck for lymph glands

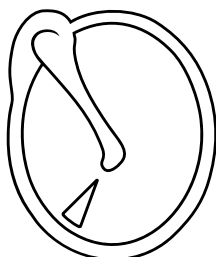
Ear canal

- Inspect for any obvious discharge, redness/swelling
- If pain levels allow look inside with otoscope - inspect canal for - swelling, redness, fungus, debris, lumps or bony growths, foreign body, extruding grommets, wax, lesions

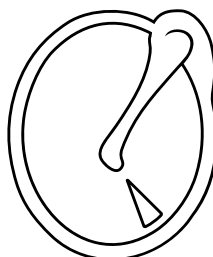
Tympanic membrane (TM) (eardrum)

- Normal TM is shiny, translucent, pearl/grey colour, cone of light visible - right ear at 5 o'clock, left ear at 7 o'clock
- Sections of handle of malleus visible through translucent drum - right ear 1 o'clock, left ear 11 o'clock

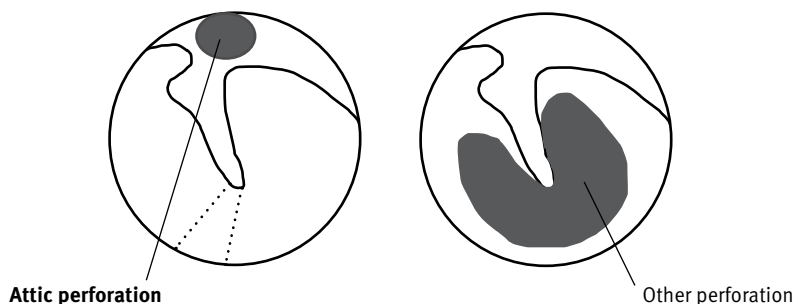
Left



Right



- Inspect TM (eardrum)
 - intact, normal colour, red, dull, bulging, retracted
 - air/fluid or bubbles behind the eardrum
 - perforations or discharge - clean the ear using tissue spears until all pus has been removed and the drum can be seen - document the size and position of perforation on a diagram in the case notes
 - **Consult MO/NP for any case of discharge or perforation. If any perforation in the attic region is found or suspected, an urgent referral to an ENT specialist is required**



Related systems

Nose and throat

- Examine the nose and throat - is there any discharge from nose - describe

Chest

- Auscultate the chest for air entry and any added sounds (crackles or wheezes)
- Note other injuries if present e.g. cause of traumatic rupture of the eardrum

Ear infections - adult/child

Recommend

- Both regular and opportunistic ear assessments for Aboriginal and/or Torres Strait Islander children at routine health checks, immunisations and all other consultations. Also ask about speech and language because ear disease and hearing impairment can have a significant impact on critical aspect of a child's development. Hearing impairment at an early age can have life long impacts

Prevention of otitis media and hearing loss¹ in Aboriginal and/or Torres Strait Islander children:

- **tell all expectant mothers** about importance of prevention, early detection and treatment of otitis media (OM) for prevention of OM associated hearing loss. The potential effects on language and education should be emphasised
- **encourage early interventions**
 - ensure that information about OM and effective communication strategies for people with hearing loss are available throughout the community
 - engage with the families/caregivers that onset of OM in Aboriginal and/or Torres Strait Islander infants may occur within the first months of life

- children are at increased risk of acute otitis media (AOM) during other upper respiratory infections
- encourage early presentation to the health centre whenever a child develops ear pain or discharge, particularly if the child is young
- some features of OM, such as ear pain, may be absent and regular health centre attendance for ear examination is recommended
- all forms of OM can be associated with some degree of hearing loss
- hearing loss can affect the development of speech and language skills
- (if applicable) certain babies are at high risk of development of OM - those with cleft palate, fetal alcohol syndrome, fragile X syndrome, Down's syndrome
- **breastfeeding** - encourage mothers to continue to breastfeed
- **personal hygiene** - the health practitioner should engage with families/caregivers that nasal discharge carries germs (viruses and bacteria) which are responsible for OM. Children's faces and hands should be kept clean of nasal discharge. Children should blow their noses regularly, especially if nasal discharge is present. Children also need to wash and dry their hands after blowing their noses or coughing. Frequent hand washing is also recommended
- **vaccination** - age appropriate vaccinations as per current edition of *The Australian Immunisation Handbook*
 - **dummy** - engage with the families/caregivers that the use of a dummy after 6 months of age can increase the risk of OM
 - **smoking** is strongly discouraged around children
 - **bottle feeding** - engage with the families/caregivers that if the child is bottle fed, the upright position is recommended - never lying down
- **Note:** These guidelines reflect specific recommendations for high risk populations e.g. Aboriginal and/or Torres Strait Islander populations
- In some rural and remote Aboriginal communities complications of ear disease are much more common. They include hearing loss, tympanic membrane perforations, chronic suppurative otitis media (CSOM), otitis media with effusion (OME) and mastoiditis. This is the reason that higher dose and longer duration antibiotics are recommended in these children, while in low risk populations (non Aboriginal and/or Torres Strait Islander populations) the advantage of antibiotics is small unless systemic features are present^{1,2}
- Dosing in this area is complex, for more detail see Australian Government and Menzies School of Health Research (2011) *Recommendations for Clinical Care Guidelines on the Management of OTITIS MEDIA in Aboriginal and/or Torres Strait Islander Populations* available at: <http://www.health.gov.au/internet/main/publishing.nsf/Content/indigenous-otitismedia-clinical-care-guidelines>
- Engagement with Aboriginal and Torres Strait Islander families is essential, with support and resources available from the national 'Care for Kids Ears' campaign at <http://www.careforkidsears.health.gov.au>

Ear conditions differential diagnosis table - definitions¹

Acute otitis media (AOM) without perforation	Presence of fluid behind the eardrum plus at least one of the following: bulging eardrum, red eardrum, fever, ear pain or irritability
Acute otitis media with acute perforation (AOM with perforation within the last six weeks)	Discharge of pus through a perforation (hole) in the eardrum within the last six weeks
Recurrent acute otitis media (rAOM)	The occurrence of three or more episodes of AOM in a six month period or occurrence of four or more episodes in the last twelve months
Otitis media with effusion (OME, glue ear)	Presence of fluid behind the eardrum without any symptoms or signs of acute otitis media. OME may be episodic or persistent
Chronic suppurative otitis media (CSOM)	Persistent discharge of pus through a perforation (hole) in the eardrum $\geq$ two weeks. Importantly the diagnosis of CSOM is only appropriate if the eardrum perforation is seen and if it is large enough to allow the discharge to flow out of the middle ear space
Dry perforation	Presence of a perforation (hole) in the eardrum without any signs of discharge or fluid behind the eardrum
Otitis externa	Inflammation of the ear canal associated with pain, swelling and discharge. Other terms have also been used to describe otitis externa - 'swimmer's ear' and 'tropical ear'

Acute otitis media (AOM) with/without perforation - adult/child

Recommend

- Consult MO/NP immediately if child is < 3 months of age, is sick, febrile or meets any of the other criteria outlined at beginning of paediatric section
- Health clinics have targeted hearing health programs to focus on 0 - 5 year old children where intervention may prevent ear disease and hearing loss
- Personal hygiene in children - regular nose blowing and washing hands and face is important
- Consider higher dose and/or longer course of antibiotics if persistent or recurrent perforation. Refer Australian Government and Menzies School of Health Research (2011) *Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations* available at: <http://www.health.gov.au/internet/main/publishing.nsf/Content/indigenous-otitismedia-clinical-care-guidelines>
- In cases of acute perforation always follow up to ensure perforation has healed
- If discharge continues through an established perforation after 14 days of treatment see [Chronic suppurative otitis media, page 690](#)
- You may need to clean the discharge from the ear before you can see the drum. You can usually do this by gently cleaning with a tissue spear. See [Cleaning techniques for ears with chronic discharge, page 692](#)

Background

- **High risk populations** (Aboriginal and/or Torres Strait Islander populations). In some rural and remote Aboriginal communities complications of otitis media are much more common. They include hearing loss, tympanic membrane perforations, CSOM, OME and mastoiditis. This is the reason that a different antibiotic regime is recommended in these children. In low risk populations (non-Aboriginal and/or Torres Strait Islander populations) the advantage of antibiotics is small unless systemic features are present^{1,2}
- Infection behind the eardrum may cause the drum to rupture
- AOM with perforation occurs mainly in the first 18 months of life and effective treatment will dramatically reduce the incidence of chronic suppurative otitis media (CSOM)¹
- Ciprofloxacin drops are restricted on the Pharmaceutical Benefits Scheme (PBS) to the treatment of chronic suppurative otitis media:
 - in an Aboriginal and/or a Torres Strait Islander patient aged ≥ 1 month
 - in a patient < 18 years of age with perforation of the tympanic membrane
 - in a patient < 18 years of age with a grommet insitu³

Related topics

- 📖 [Upper respiratory tract infection - child, page 650](#)
- 📖 [Pneumonia - child, page 665](#)
- 📖 [Acute asthma, page 81](#)
- 📖 [Chronic suppurative otitis media, page 690](#)

- [Bronchiolitis, page 664](#)
- [Ear and hearing assessment, page 676](#)
- [Cleaning techniques for ears with chronic discharge, page 692](#)

1. May present with

- Irritability
- Fever
- Ear ache
- Fluid behind the eardrum, a red and/or bulging eardrum
- Onset of ear discharge within the last 6 weeks

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. See [Ear and hearing assessment, page 676](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination. See [Ear and hearing assessment, page 676](#)
 - for otoscopic examination - you may need to clean the discharge from the ear before you can see the drum, you can usually do this by gently cleaning with a tissue spear. See [Cleaning techniques for ears with chronic discharge, page 692](#)
 - look for a red and/or bulging eardrum
 - if perforation seen document the size and position of perforation on a diagram in the case notes
- Document length of time perforation has been present

4. Management

- Provide adequate and regular analgesia

- See [Simple analgesia pull out](#)
- Consult MO/NP if child:
 - < 3 months of age
 - temperature over 38°C or below 35.5°C
 - any rash, increased respiratory rate or respiratory distress or meets any of the other criteria as outlined at the beginning of the paediatric section - this child needs to be managed as a septic infant. See [History and physical examination - child, page 630](#); [Sepsis, page 57](#) and [Recognition and management of the deteriorating patient, page 13](#)
- Antibiotics are only indicated initially for:
 - all those with systemic features
 - Aboriginal and/or Torres Strait Islander children < 2 years of age
 - non-Aboriginal and/or Torres Strait Islander children less than 6 months, with bilateral disease and those with a history of AOM with ear discharge^{1,2}
- See [Management of acute otitis media, page 683](#)
- If unilateral disease and no systemic features treat symptomatically and consult MO/NP if concerned
- If the discharge has been present for > 14 days the MO/NP may order ciprofloxacin ear drops
- If the discharge has been present for 14 days the condition is chronic suppurative otitis media (CSOM). See [Chronic suppurative otitis media, page 690](#)
- Engage with the family about the need to complete the full course of antibiotics and to return at 4 - 7 days for the ear to be checked
 - give or help to give the first dose in the clinic and ensure the family know the right dose to give. If family do not have a fridge at home they may have to return to the health service for medicine each day

Management of acute otitis media (with and without perforation)

Give regular and adequate analgesia

Systemically unwell e.g. fever, vomiting, lethargy

No

Yes

Aboriginal and/or Torres Strait Islander < 2 years, OR non-Aboriginal and/or Torres Strait Islander < 6 months with bilateral AOM or Hx of AOM with discharge

No

Antibiotics are not initially required
Watch and wait

- ≤ 6 months of age review in 24 hrs
 - > 6 months of age review in 48 hrs
- Treat as per systemically unwell if nil improvement at time of review or if symptoms worsen at any time

Aboriginal and/or Torres Strait Islander

Non-Aboriginal and/or Torres Strait Islander

Not allergic to penicillin

Allergic to penicillin

Not allergic to penicillin

Allergic to penicillin

If NO perforation

Recent antibiotic use or failure to respond to standard treatment within 1 week or in regions with known penicillin resistance give high dose amoxycillin for 7 days **OR if no complicating factors** give standard dose amoxycillin 7 days

Standard dose amoxycillin:

Adult and child ≥ 12 years

500 mg tds

Child < 12 years

50 mg/kg/dose bd up to a max. of 1 g bd

If perforation

give high dose amoxycillin for 14 days

High dose amoxycillin:

Adult and child ≥ 12 years

500 mg tds

Child < 12 years

90 mg/kg/dose bd up to a max. of 1 g bd

Child ≥ 6 months

Give azithromycin 30 mg/kg to a max. of 500 mg stat

Adult

give trimethoprim/sulfamethoxazole 160/800 mg bd for 5 days

Give amoxycillin

Adult and child ≥ 12 years

500 mg tds for 5 days

Child < 12 years

30 mg/kg /dose bd to a max. of 1 g bd for 5 days

Give trimethoprim/sulfamethoxazole

Adult

160/800 mg dose bd for 5 days

Child ≥ 1 month

4 mg/20 mg dose/kg/ dose to a max. of 160/800 mg dose bd for 5 days

In rural and remote Aboriginal and/or Torres Strait Islander populations

- Give amoxycillin if not allergic to penicillin

Schedule	4	Amoxycillin		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Non-Aboriginal and/or Torres Strait Islander Adult and child ≥ 12 years 500 mg tds	5 days
			Child < 12 years 30 mg/kg/dose bd up to a max. of 1 g bd	
Suspension	125 mg/5 mL 250 mg/5 mL		Aboriginal and/or Torres Strait Islander STANDARD DOSE Adult and child ≥ 12 years 500 mg tds	7 days
			Child < 12 years 50 mg/kg/dose bd up to a max. of 1 g bd	
			Aboriginal and/or Torres Strait Islander HIGH DOSE Adult and child ≥ 12 years 500 mg tds	7 days (if perforation give for 14 days)
			Child < 12 years 90 mg/kg/dose bd up to a max. of 1 g bd	
Provide Consumer Medicine Information: take until course completed unless advised by health professional to stop. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the amoxycillin has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops. If a rash develops advise health professional as it may indicate an underlying condition that may need follow up				
Note: be aware of cross-reactivity between penicillins, cephalosporins and carbapenems. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by penicillins. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: if history of severe or immediate allergic reaction to a penicillin				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

1,2,4,5

1,2,4,5

- For non-Aboriginal and non-Torres Strait Islander children, and all adults (Aboriginal, Torres Strait Islander and non-Aboriginal/Torres Strait Islander) who are allergic to penicillins, give trimethoprim/

sulfamethoxazole. If child < 6 months consult MO/NP

Schedule	4	Trimethoprim/Sulfamethoxazole	DTP IHW/SM R&IP/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	80 mg/400 mg 160 mg/800 mg	Oral	Adult 160 mg/800 mg dose bd	5 days
Suspension	8 mg/40 mg per mL		Child ≥ 1 month 4 mg/20 mg/kg/dose bd up to a max. of 160 mg/800 mg dose bd	
Provide Consumer Medicine Information: drink lots of water daily (adults 2 - 3 L) while taking this medicine. Take with food to reduce stomach upset. To reduce risk of rash from the sun avoid sun exposure, wear protective clothing and use sunscreen. Take until course completed. Contact health professional if any sore throat, fever, rash, cough, difficulty breathing, joint pain, dark urine or pale stools. Patients should report development of diarrhoea immediately to health professional even if it occurs several weeks after the trimethoprim has been stopped. Tell health professional if a sore white mouth, tongue or vagina develops				
Note: avoid use in the elderly due to increased risk of severe adverse effects; reduce dose in those with renal impairment and CrCl > 15 mL/min; may worsen systemic lupus erythematosus; may increase risk of hyperkalaemia in patients taking medication that cause potassium retention eg. ACE inhibitors. Be aware that severe colitis due to <i>Cl. difficile</i> can be caused by trimethoprim. If the patient develops severe diarrhoea contact the MO/NP immediately				
Contraindication: in patients with: serious allergic reaction to sulphonamides; renal impairment with CrCl < 15 mL/min; severe impairment of liver function, and G6PD deficiency				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

1,2,8

1,2,8

- If Aboriginal and/or Torres Strait Islander children with immediate hypersensitivity to penicillins use azithromycin. If child < 6 months consult MO/NP

Schedule	4	Azithromycin		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	Child ≥ 6 months	Stat
Suspension	200 mg/5 mL		30 mg/kg/dose to a max. of 500 mg	
Provide Consumer Medicine Information: take until course completed unless advised by health professional to stop. Patients should report development of diarrhoea immediately to health professional. Tell health professional if a sore white mouth or tongue develops				
Note: be aware that severe colitis due to <i>Cl. difficile</i> can be caused by azithromycin. If the patient develops severe diarrhoea contact the MO/NP immediately				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				
				1,6,7

- If discharge present for longer than 14 days and meets PBS restrictions MO/NP may add ciprofloxacin ear drops

Schedule	4	Ciprofloxacin ear drops		DTP IHW/IPAP
MO/NP note PBS restrictions				
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Ear drops	0.3%	Topical to ear	Adult and child > 1 month Instil 5 drops in affected ear bd	Until the ear has been dry for at least 3 days To be reviewed weekly to assess effectiveness of treatment
Provide Consumer Medicine Information: warm in hands for 1 - 2 minutes. If not drying in 2 weeks check with family on ability to clean and instil drops. Complete course of drops				
Administration tips:				
• clean the ear first with tissue spear • the patient should be sitting or lying down with the affected ear upwards • once the drops have been instilled maintain position for 30 - 60 seconds and undertake tragal pumping				
Management of associated emergency: consult MO/NP				
				1,2,13

5. Follow up

- Review the patient in 4 - 7 days or earlier if indicated
- If red or bulging eardrum persists after seven days increase dose of amoxycillin to 90 mg/kg/day¹
- Review at next MO/NP visit. For weekly review until the signs of AOM and/or perforation have

resolved

- Review after completion of treatment at the 1 week mark
- If failing to resolve discuss with parents/carer - explore if the child is being given antibiotics. Is the child spitting it out or vomiting afterwards?
- If discharge continues after 2 weeks of treatment check with family on ability to clean the ear and instil drops. See [Chronic suppurative otitis media, page 690](#)
- If perforation heals review in 6 weeks:
 - inspect eardrum with an otoscope
 - perform hearing assessment - tympanometry from 6 months of age, and then audiometry from around 3 years of age
- Ask family about child's hearing, speech development, behaviour, school progress. If there are concerns about any of these refer for formal hearing assessment if not done recently
- To prevent recurrent OM and transmission of bacteria to other children encourage personal hygiene in children - regular nose blowing and washing of hands and face
- Use the national 'Care for Kids Ears' website and resources to support families, health professionals and early educators: <http://www.careforkidsears.health.gov.au>
- Review at 3 months to identify those with chronic disease¹

6. Referral/consultation

- Consult MO/NP as above
- If otitis media is recurrent the MO/NP may consider antibiotics for prophylaxis¹
- Where prolonged medical therapy fails i.e. > 6 weeks, or frequent painful AOM, the MO/NP may refer to ENT Specialist
- Any patient with an attic perforation requires urgent referral to ENT Specialist
- Refer for audiology if concerns about hearing, speech, language development, learning difficulties or the child has had recurrent AOM
- If hearing is impaired in school children make sure the school is informed, with parental consent, as teacher can use measures to assist child e.g. sound field amplification systems and student placement

Otitis media with effusion (OME) - adult/child

Painless non-discharging ears, glue ear

Recommend

- Review children with bilateral OME at 3 monthly intervals and refer if required
- Health clinics have targeted hearing health programs to focus on 0 - 5 year old children where intervention may prevent ear damage and hearing loss. Personal hygiene in children - regular nose blowing, washing hands and face and keeping face clear of nasal discharge is most effective
- If OME persists check hearing. If hearing or language impaired refer to ENT Specialist, Audiologist, Speech Pathologist

Background

- OME is diagnosed if thick fluid persists in the middle ear usually after AOM
- OME results in thick glue-like material filling the middle ear which may take many months to resolve. It is important because children with OME will have impaired hearing. If hearing is impaired for a significant length of time especially at the critical age of language learning in the first 5 years it may result in significant long term disability
- Population at high risk of persistent (chronic) OME. Children living with recognised OM risk factors. The most important risk factors are strong family history for OM, attending child care, frequent exposure to other children and being of Aboriginal and/or Torres Strait Islander descent¹
- Decongestants and antihistamines are not recommended¹
- Steroids are not recommended¹ but inhaled steroids may be trialed in children where significant nasal obstruction, sneezing etc. suggests allergic rhinitis

Related topics

 [Acute otitis media with/without perforation, page 680](#)

[Ear and hearing assessment, page 676](#)

 [Immunisation program, page 750](#)

1. May present with

- Usually is asymptomatic
- Parents may be concerned about the child's hearing
- Diagnosis may also be suspected at routine ear examination, in a child being followed up after AOM, or in a child referred for medical assessment because of hearing impairment on testing
- Child may have:
 - past history of recurrent otitis media
 - concerns about speech or language development
- Reported decrease in hearing
- Reported poor hearing leading to learning difficulties

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. See [Ear and hearing assessment, page 676](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)

- Perform physical examination. See [Ear and hearing assessment, page 676](#)
- The following may be noted on examination:
 - air/fluid level, bubbles behind the eardrum
 - retraction of eardrum
 - limited or absent movement of the eardrum. Diagnosis is confirmed by tympanometry which shows a type B (stiff eardrum) pattern

4. Management

- Antibiotics are not routinely recommended for OME. However, long term antibiotics (e.g. amoxycillin 25 - 50 mg/kg 1 - 2 times daily for 3 - 6 months) are an option for infants who are at high risk of developing CSOM¹
- Arrange for audiology if there are concerns about hearing, speech, learning difficulties or OME is persistent for > 3 months
- Refer to ENT Specialist:
 - if hearing test shows impairment in both ears for more than 3 months
 - if there is speech delay and effusion persists more than 3 months
 - if there is more severe hearing impairment or concerns about the appearance of the drum
- Encourage personal hygiene in children - regular nose blowing, keeping face clear of nasal discharge and washing hands and face
- Use the national 'Care for Kids Ears' website and resources to support families, health professionals and early educators: <http://www.careforkidsears.health.gov.au>
- Check immunisation status particularly pneumococcal vaccination and perform catch up immunisation if required

5. Follow up

- 3 monthly
- If OME persists for > 3 months arrange tympanometry from 6 months of age and audiometry from 3 years of age
- See the current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>

6. Referral/consultation

- Next MO/NP visit
- Refer to ENT Specialist if:
 - any concerns about hearing or speech
 - problem remains longer than 3 months
 - antibiotic therapy has failed
 - has severe retracted eardrum
- If there is speech delay refer to Speech Pathologist
- If hearing is impaired in school children make sure the school is informed, with parental consent, as the teacher can use measures to assist child e.g. sound fields amplification system and student placement

Chronic suppurative otitis media (CSOM) - adult/child **Ear has been discharging for $\geq$ 2 weeks**

Recommend

- Consult MO/NP immediately if unsafe perforation of the eardrum found (in the attic region). See [Ear and hearing assessment, page 676](#)
- Clean pus adequately from ear and then instill antibiotic ear drops¹ using tragal pumping
- Document the duration of ear discharge and size and position of perforation¹
- Treat discharging ears actively

Background

- CSOM is diagnosed in people who have discharging ears for more than 2 weeks¹
- Aminoglycoside-based ear drops (Sofradex) have previously been used for CSOM; however, due to concerns about their safety, in particular the risk of ototoxicity, quinolone ear drops are now preferred

Related topics

 [Acute otitis media with/without perforation, page 680](#)

[Cholesteatoma, page 694](#)
[Cleaning techniques for ears with chronic discharge, page 692](#)
[Ear and hearing assessment, page 676](#)
[Dry perforation, page 693](#)

1. May present with

- Ear discharge for more than 2 weeks

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. Always ask about hearing, speech and language
- See [Ear and hearing assessment, page 676](#)
- Document length of time discharge has been present
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination. See [Ear and hearing assessment, page 676](#)
 - clean the ear until all pus has been removed and the drum and perforation can be seen
 - document the size and position of perforation on a diagram in the case notes

4. Management

- Consult MO/NP for ciprofloxacin order
- For removal of pus and debris from ear canal. See [Cleaning techniques for ears with chronic discharge, page 692](#)
- Dry mopping twice daily until tissue is dry, followed by ciprofloxacin ear drops two to four times per day
 - Ciprofloxacin ear drops (if meets PBS restrictions)

- In young children it may be difficult for family members to adequately clean the ears and instil the drops - clinic staff are advised to do this daily for 7 days
- Encourage personal hygiene in children - regular nose blowing and washing of hands and face, and teacher review of the national 'Care for Kids Ears' resources:
<http://www.careforkidsears.health.gov.au>
- Avoid swimming unless ears can be kept dry
- **Consult MO/NP if perforation found in attic region of the eardrum (unsafe perforation)**
- Administer and supply ciprofloxacin ear drops on MO/NP order

Schedule	4	Ciprofloxacin ear drops		DTP IHW/IPAP
MO/NP note PBS restrictions				
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Ear drops	0.3%	Topical to ear	Adult and child > 1 month Instil 5 drops in affected ear bd	Until the ear has been dry for at least 3 days To be reviewed weekly to assess effectiveness of treatment
Provide Consumer Medicine Information: warm in hands for 1 - 2 minutes. If not drying in 2 weeks check with family on ability to clean and instil drops. Complete course of drops				
Administration tips:				
• clean the ear first with tissue spear • the patient should be sitting or lying down with the affected ear upwards • once the drops have been instilled maintain position for 30 - 60 seconds and undertake tragal pumping				
Management of associated emergency: consult MO/NP				

1,2,13

- Or non-Aboriginal and/or Torres Strait Islander

5. Follow up

- Children < 5 years of age, review and treat daily for 7 days. If not drying in older children consider daily treatment in the clinic. Suction under direct vision is very useful to clear the ear if clinics have the equipment and staff have experience and training
- If not improving consult MO/NP. See next MO/NP clinic
- Teach patient/carer cleaning technique and instillation of drops. Encourage parents/carers to return to a clinic early if discharge becomes worse or an ear that is dry starts discharging again
- Review weekly thereafter until ear is dry
- If the ear is still discharging, consult MO/NP
- When the ear dries review at 3 months
- To prevent recurrent otitis media encourage personal hygiene in children - regular nose blowing and washing of hands and face and review of the national 'Care for Kids Ears' website and resources:
<http://www.careforkidsears.health.gov.au>

6. Referral/consultation

- For hearing assessment - tympanometry from around 6 months of age and audiometry from around 3 years of age when ear dry
- With education staff, Speech Pathologist if indicated
- Consult MO/NP when patient presents with perforation in the upper drum (attic)
- **Note: unsafe perforation, attic retraction or suspicion of cholesteatoma will need urgent referral to ENT Specialist**
- Refer to ENT Specialist:
 - microsuction
 - if ear continues to discharge
 - consider admission for IV antibiotics
 - unsafe perforation e.g. attic perforation

Cleaning techniques for ears with chronic discharge

Tissue spear method - dry mopping

- This can be done safely by a child on their own or by the parent. It should be done whenever the ear discharges. The tissue paper actively absorbs the moisture
- In the management of chronic suppurative otitis media, the tissue spear method should be used

Technique

- Make a spear by twisting corner of tissue paper
- Insert into ear gently, twisting slowly
- Leave in place for 30 seconds then remove and repeat with a fresh tissue until tissue tip is dry
- Perform at least twice per day until the ear is dry

Suction

- Suction under direct vision is the most effective technique but this requires special equipment and training. Significant damage can occur if untrained staff perform suctioning¹¹

Topical antibiotics and other ear drops with dry mopping

- The patient should be sitting or lying down with the affected ear upwards
- Clean and dry the ear canal as per dropper method and tissue spears
- Instil the ear drops
- Apply tragal pressure by pressing several times on the flap of skin in front of ear canal after the drops have been instilled to assist the drops through the perforation^{1,11}
- Keep the patient in position for several minutes
- Use of cotton wool as a 'plug' is not advised as it just soaks up the medicine. Let excess run out

Ear discharge in the presence of grommets - child

1. May present with

- History of insertion of grommet in one or both ears
- Discharge of pus from a grommet, fever, URTI related to water immersion

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. See [Ear and hearing assessment, page 676](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination. See [Ear and hearing assessment, page 676](#) plus:
 - clean the ear using tissue spears until all pus has been removed and the drum and grommet can be seen
 - document the size and position of grommet on a diagram in the case notes

4. Management

- Treat as per acute otitis media
- To consult MO/NP as per AOM if not responding to treatment. See [Acute otitis media with/without perforation, page 680](#)

5. Follow up

- As per MO/NP instructions
- Advise no swimming. If this is not possible in a hot tropical climate, ear plugs with a swimming cap for swimming are recommended for children with grommets. Effective ear plugs can be custom built or made from silicon putty, cotton wool with Vaseline® or 'Blu-Tack®'
- Use the national 'Care for Kids Ears' website and resources to support families, health professionals and early educators: <http://www.careforkidsears.health.gov.au>

6. Referral/consultation

- Consult MO/NP as above
- If otitis media is recurrent the MO/NP may consider antibiotics for prophylaxis¹
- Where prolonged medical therapy fails i.e. > 6 weeks, or frequent painful AOM, the MO/NP may refer to ENT Specialist
- Any patient with an attic perforation (unsafe perforation) refer to ENT Specialist
- Refer for audiology if concerns about hearing, speech, language development, learning difficulties or the child has had recurrent AOM
- If hearing is impaired in school children make sure the school is informed, with parental consent, as teacher can use measures to assist child e.g. sound field amplification systems and student placement

Dry perforation - adult/child¹

1. May present with

- Perforated eardrum (hole) without any discharge

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. Always ask about speech and language. See [Ear and hearing assessment, page 676](#)
 - document length of time perforation has been present
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)

- Perform physical examination
 - note site of perforation in particular if perforation found in attic region. This is an unsafe perforation of the eardrum and requires urgent referral to the ENT specialist
 - document the size and position of perforation on a diagram in the case notes

4. Management

- Consult MO/NP if perforation in attic region of the eardrum. This is an unsafe perforation of the eardrum and requires urgent referral to the ENT specialist
- Engage with parent/carer/patient to keep ears dry, especially when bathing, by keeping head out of water or by using water proof ear plugs
- Ensure ongoing audiological and educational support

5. Follow up

- Advise patients with dry perforations to attend the clinic for oral and topical antibiotics as soon as any new episodes of discharge occur
- Follow up as per Audiologist/ENT Specialist care plan

6. Referral/consultation

- Refer all perforations to MO/NP. Any perforations in the attic region of the eardrum are unsafe perforations and should be referred urgently to an ENT specialist
- Refer for full audiology assessment - otoscopy, tympanometry and audiometry to determine level of hearing
- Speech Therapist for all patients with language or behavioural problems for speech therapy
- If hearing is impaired in school children make sure the school is informed, with parental consent, as the teacher can use measures to assist child e.g. sound field amplification systems and student placement
- ENT Specialist
 - all children > 6 years with a dry perforation persisting for > 6 months
 - those with significant conductive hearing loss (> 20 dB) or recurrent infections
 - perforation in attic region (unsafe perforation)
 - surgical treatment (myringoplasty) if eligible

Cholesteatoma - adult/child

Recommend

- Be aware of cholesteatoma when performing all otoscopic examinations
- Cholesteatoma is treated surgically and success is highly dependent on early recognition and the extent of the lesion

Background

- Most patients who acquire cholesteatomas have a history of recurrent acute otitis media and/or chronic middle-ear perforation and may have a history of eustachian tube dysfunction with retraction of the eardrum, which may result in subsequent perforation with discharge. The retraction pocket usually starts in the attic region

Related topics

 [Acute otitis media with/without perforation, page 680](#)

[Ear and hearing assessment, page 676](#)

1. May present with

- If diagnosed early may have no symptoms. Otherwise may present with¹⁴:
 - white mass in attic or behind eardrum on otoscopic examination
 - foul odour from the ear
 - history of chronic perforation of the eardrum
 - new onset of hearing loss in a previously operated ear
 - dizziness, ache behind the ear especially at night
 - muscle weakness of the face - requires urgent management

2. Immediate management

- Consult MO/NP for referral to Paediatrician or ENT Specialist

3. Clinical assessment

- Obtain a complete patient history. See [Ear and hearing assessment, page 676](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination. See [Ear and hearing assessment, page 676](#)
 - on otoscopic examination:
 - white mass behind an intact eardrum
 - a deep retraction pocket with or without granulation and skin debris
 - focal granulation on the surface of the drum, especially at the periphery
 - perforation in the attic region (unsafe perforation)

4. Management

- If suspected refer to ENT Specialist

5. Follow up

- If confirmed, surgical treatment is required

6. Referral/consultation

- Refer to ENT Specialist. Paediatrician may assist in getting early ENT appointment

Acute mastoiditis - adult/child**Recommend**

- Urgent referral to hospital with Paediatrician and ENT Specialist for management

Background

- Mastoiditis is inflammation in the mastoid air cells and typically occurs after acute otitis media

1. May present with

- See [Acute otitis media with/without perforation, page 680](#)

- In addition:
 - may have systemic features - with fever and rigors
 - pain, swelling and tenderness above and behind the ear over the mastoid (bony prominence behind the ear)
 - the ear may be pushed away from the head by swelling of the mastoid area
 - dizziness or tinnitus (ringing in the ears) may be present

2. Immediate management

- Consult MO/NP immediately

3. Clinical assessment

- Obtain a complete patient history. See [Ear and hearing assessment, page 676](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination. See [Ear and hearing assessment, page 676](#) plus:
 - palpate behind the ear. Palpate the mastoid tip noting any tenderness
 - is the mastoid bone swollen and/or hot - describe
 - palpate the occiput, around the ears and both sides of the neck for lymph glands

4. Management

- Consult MO/NP who will arrange:
 - urgent referral to hospital with Paediatrician and ENT Specialist for management
 - discuss antibiotic regime with Infectious Disease Specialist
- Staff may be required to give first dose of antibiotics prior to evacuation

5. Follow up

- As per discharge orders

6. Referral/consultation

- Urgent referral to Paediatrician and ENT Specialist



Otitis externa - adult/child Swimmer's ear or tropical ear

Recommend

- In the acute phase with inflammation the canal should not be syringed. However in established otitis externa aural toilet may be indicated to remove debris. Consult MO/NP

Related topics

[Ear wick technique for otitis externa, page 699](#)

[Ear and hearing assessment, page 676](#)

1. May present with

- Infection of the skin of the ear canal which may be acute or chronic
- Varying degrees of canal redness and peeling, debris collects in the canal, ear pain (sometimes

severe) or itch

- Tender, swollen outer ear and ear canal which is very painful if outer ear manipulated, discharge not always present
- Ear blockage, deafness or fullness, a foreign body may be present

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. See [Ear and hearing assessment, page 676](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination. See [Ear and hearing assessment, page 676](#)
 - often very painful on movement of the pinna - approach gently

4. Management

- Consult MO/NP if fever, cellulitis or enlarged pre/post auricular lymph nodes
- Give analgesia. See [Simple analgesia pull out](#)
- Gentle cleaning with dry mopping to keep the ear canal dry, then instillation of drops or in severe cases, a wick soaked with Sofradex® ear drops or corticosteroid plus antibiotic ointment to remove pus and debris. The ear should be kept dry for at least two weeks after treatment¹⁰. Advise not to swim until healed

Schedule	4	Dexamethasone 0.5 mg/framycetin sulphate 5 mg/gramicidin 0.05 mg/mL (Sofradex®)		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ear drops	See above	Topical to ear	3 drops tds	Until the middle ear has been free of discharge for at least 3 days
		Topical - ear wick	Soaked gauze	Do not administer longer than 7 days The wick is left in the canal for 2 days then review
Administration tips				
• clean the ear first with tissue spear • the patient should be sitting or lying down with the affected ear upwards • once the drops have been instilled maintain position for 30 - 60 seconds • apply tragal pressure (pressing several times on the flap of skin in front of ear canal) after the drops have been instilled				
Management of associated emergency: consult MO/NP				

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- Or

Schedule	4	Flumethasone 0.02%/clioquinol 1% Locacorten Vioform®		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ear drops	As above	Topical to ear	3 drops bd	3 - 7 days
		Topical - ear wick	Soaked gauze	The wick is left in the canal for 2 days then review
Ear drops administration tips				
• clean the ear first with tissue spear • the patient should be sitting or lying down with the affected ear upwards • once the drops have been instilled maintain position for 30 - 60 seconds • apply tragal pressure (pressing several times on the flap of skin in front of ear canal) after the drops have been instilled				
Ear wick administration tip				
• remove the wick using forceps. Inspect and clean the ear. Reinsert new ear wick if required				
Management of associated emergency: consult MO/NP				

10

- Or

Schedule	4	Triamcinolone compound (Kenacomb Otic®)		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ear Ointment	Triamcinolone 0.1% Neomycin 0.25% Gramicidin 0.025% Nystatin 100,000 units/g	Topical - ear wick	Soaked gauze	The wick is left in the canal for 2 days then review
Ear wick administration tip				
• remove the wick using forceps. Inspect and clean the ear. Reinsert new ear wick if required				
Management of associated emergency: consult MO/NP				

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5. Follow up

- Review in 2 days and in 1 week
- Advise not to swim and keep ears dry until healed
- Next MO/NP visit if ear canal not back to normal at 1 week or if recurrent

6. Referral/consultation

- Otitis externa can become chronic or recurrent, especially in hot humid climates

- General prevention involves keeping the ear canal dry and protected by a lining of wax. Using drying ear drops e.g. Aquaear®/Vosol®, after swimming and showering will help prevent recurrence. Do not use if grommets or perforation
- Advise patient to keep foreign objects such as cotton buds out of their ears. If necessary remove built-up wax with e.g. Waxsol®
- Patients with recurrent infections often have a chronic fungal infection present. This infection may be seen with fungal hyphae looking like wet blotting paper or dry like cotton wool or the infection may be suspected even if the canal looks clean and normal but is itchy
- Suction, ear toilet, followed by Sofradex® ear drops/ear wick or flumethasone 0.02% + clioquinol 1% ear drops/wick (Locacorten Vioform®) or Kenacomb® ointment ear wick to prevent further acute bacterial infection

Ear wick technique for otitis externa

Materials

- Flumethasone 0.02% + clioquinol 1% ear drops (Locacorten Vioform®) or Kenacomb® ear ointment
- Ribbon gauze approximately 10 cm in length for an adult or commercial ear wick
- Non-toothed forceps e.g. nasal packing forceps

Technique

- The ribbon gauze is laid along a wooden tongue depressor and is impregnated with drops or ointment along its length
- The end of the impregnated strip is grasped with the forceps and is gently fed into the ear canal, 1 cm at a time. For adults, the ear canal is straightened by gently pulling the ear backwards and upwards. The ear canal is 2.5 cm long in an adult. For children, the ear canal is straightened by gently pulling the ear backwards
- If there is too much ribbon, the excess is trimmed with scissors. Once in place, the patient should be comfortable. If the patient has increased pain, the wick should be removed OR
- If using commercial ear wick follow manufacturer's instructions

Traumatic rupture of the eardrum - adult/child

Related topics

 [Trauma to teeth, page 307](#)

[Head injuries, page 131](#)

[Assessment of the eye, page 326](#)

[Fractured mandible/jaw, page 150](#)

[Glasgow coma scale \(GCS\)/AVPU, page 766](#)

1. May present with

- A history of the injury e.g.:
 - a blow to the side of the head or an explosion e.g. a pressure wave
 - penetrating injury e.g. a sharp stick
 - water forced into ear e.g. a fall from a height into water
- Pain in the ear, reduced hearing and/or bleeding from the ear
- Dizziness and nausea

2. Immediate management

- Management of life threatening injuries

3. Clinical assessment

- Obtain a complete patient history:
 - ask about the circumstances and mechanism of injury
 - time, date of occurrence and when first noticed
 - does the patient have decreased hearing?
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination. See [Ear and hearing assessment, page 676](#)
 - note other injuries if present

4. Management

- Consult MO/NP who will advise antibiotic ear drops if water penetrated the perforation e.g. fall into water. The ear should be kept dry until healed. Antibiotic ear drops are not necessary if hole was caused by dry trauma (blow to head)

5. Follow up

- Review in 2 days and then weekly
- If perforation not healed in 2 weeks, consult MO/NP

6. Referral/consultation

- Consult MO/NP on presentation and if perforation not healed in 2 weeks

Foreign body/insect - adult/child

Recommend

- The main danger of a foreign body in the ear lies in its careless removal¹²

Related topics

 [Otitis externa, page 696](#)

1. May present with

- Foreign body or insect in ear canal

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a full history including circumstances: accidental, purposeful, incidental finding
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine the ears. See [Ear and hearing assessment, page 676](#)

4. Management

- Consult MO/NP unless small object and seen to be near external ear opening and easily removable using e.g. nasal packing forceps
- Larger foreign bodies and those further down the canal require special equipment and training for removal and may even require a general anaesthetic. Send to hospital with ENT facilities
- Live insects in the ear canal should be immobilised by first instilling 2% lignocaine 2 - 3 drops¹² or cooking oil introduced by the blunt end of a syringe or via a cut-off 'butterfly' needle, or other plastic tubing is also effective. Then syringe with warm water
- If ear canal is traumatised consider Sofradex[®] ear drops¹²

Schedule	4	Dexamethasone 0.5 mg/framycetin sulphate 5 mg/gramicidin 0.05 mg/mL (Sofradex®)		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ear drops	See above	Topical to ear	3 drops tds	Until the middle ear has been free of discharge for at least 3 days Do not administer longer than 7 days
Provide Consumer Medicine Information				
Administration tips:				
• Clean the ear first with tissue spear • The patient should be sitting or lying down with the affected ear upwards • Once the drops have been instilled maintain position for 30 - 60 seconds • Apply tragal pressure (pressing several times on the flap of skin in front of ear canal) after the drops have been instilled to assist in distribution in the external ear canal				
Management of associated emergency: consult MO/NP				

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5. Follow up

- If foreign body or insect easily removed, review in 2 days
- Review. See [Otitis externa, page 696](#) if secondary infection occurs after removal

6. Referral/consultation

- Consult MO/NP. See [Otitis externa, page 696](#) if secondary infection occurs after removal

Gastrointestinal problems

Acute gastroenteritis/dehydration - child **Vomiting and diarrhoea**

Recommend

- Always contact MO/NP immediately if baby is < 3 months or the child has any of the following:
 - if child looks sick
 - observations trigger a clinical review as per Early Warning and Response System tools. See [Recognition and management of the deteriorating patient, page 13](#)
 - irritable
 - high pitched or weak cry
 - sleepy
 - not feeding well
 - increased respiratory rate:
 - < 1 year with > 45 respirations per minute
 - 1 - 4 years with > 35 respirations per minute
 - 5 - 11 years with > 30 respirations per minute
 - ≥ 12 years with > 25 respirations per minute
 - respiratory distress
 - apnoea
 - dehydration
 - abdominal distension
 - persistent/bilious vomiting and no diarrhoea - consider other diagnoses
- Other high risk children include:
 - excessive diarrhoea with > 8 watery stools in 24 hours
 - those with congenital or chronic disease e.g. cardiac, gastrointestinal or neurological
 - where social conditions are concerning and/or where the parents may have difficulty managing at home
- Always consider other infections. Any infection can cause diarrhoea or vomiting
- Hypoglycaemia occurs in approximately 9% of cases of gastroenteritis in children. Always check BGL^{1,2}

Related topics

 [Intraosseous infusion, page 49](#)

[DRS ABCD resuscitation/the collapsed patient, page 36](#)
[Shock, page 55](#)
[Glasgow coma scale \(GCS\)/AVPU, page 766](#)

1. May present with

- Vomiting
- Diarrhoea
- Cramping abdominal pain
- Irritability in the young child

- Fever
- Dehydration
- Lethargy, floppy, unresponsive

2. Immediate management

- Consult MO/NP immediately if any risk factors present or moderate/severe dehydration
- Commence rehydration according to MO/NP advice

3. Clinical assessment

- Obtain a complete history including:
 - diarrhoea - how much and for how long, is it watery or semiformed, is there blood or mucous
 - vomiting - how much and for how long, is there bile
 - fluid intake - how much and what type
 - diet - how much food has the child eaten and what
 - urine output if known, number of wet nappies
 - has any home treatment/medicine been given
 - past history of diarrhoea or other illnesses or infections
 - abdominal pain
 - epidemiological clues e.g. similar illness in other household members or social contacts, recent eating of shellfish, etc
- Did the child receive rotavirus vaccine
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weigh - use naked weight in young children (< 2 years) and record against most recent recorded weight
 - BGL²
- Collect a faeces specimen for MC/S and ova, cysts and parasites (OCP) and viral studies if:
 - history of blood in the stool, severe diarrhoea or prolonged (> 7 days)
 - history suggestive of food poisoning e.g. cluster presentation
 - recent travel overseas
- Perform physical examination:
 - degree of dehydration
 - abdominal distension, guarding, rigidity

Clinical assessment of hydration in child^{3,4}

To assess the child for dehydration	No signs Mild < 4%	Some signs Moderate 4 - 6%	Definite signs Severe ≥ 7%
Eyes	normal	mildly sunken	deeply sunken
Mouth and tongue	moist	dry	parched
Mental state	alert	normal to irritable	Irritable, lethargic, or decreased level of consciousness
Skin turgor	normal	recoil < 2 seconds	recoil > 2 seconds
Thirst	drinks normally, may be thirsty, may refuse fluids	thirsty	drinks poorly
Respiratory rate	normal	increased	abnormal e.g. fast/deep
Pulse	normal	fast	fast, weak
Capillary return	normal (≤ 2 seconds)	delayed (> 2 seconds)	very delayed (> 3 seconds)
Management	Can usually be treated at home or with close monitoring by PHC/rural facility	Consult MO/NP Require urgent rehydration usually nasogastric/IV	Consult MO/NP Requires resuscitation

4. Management

- Consult MO/NP immediately - for those children with risk factors or moderate/severe dehydration and children < 3 months
- Children and babies with watery diarrhoea lasting 2 - 3 days should have bloods taken for electrolytes. Take bloods earlier if indicated
- Consider ondansetron if vomiting is hindering oral rehydration
- Do not use:
 - anti-diarrhoeal agents
 - metoclopramide or prochlorperazine in children
 - antibiotics (rarely indicated)

Schedule	4	Ondansetron	DTP SM R&IP/IHW/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Oral Disintegrating tablet (ODT) or Wafer	4 mg	Oral	Child > 6 months - 18 years 8 kg to < 15 kg give 2 mg 15 kg to 30 kg give 4 mg > 30 kg give up to 8 mg	Stat
Ampoule	4 mg/2 mL 8 mg/4 mL	IV Give slowly over 5 minutes	Child > 6 months - 18 years 0.1 mg/kg up to a max. of 4 mg	Further doses on MO/NP order
Provide Consumer Medicine Information: ondansetron may worsen diarrhoea or cause constipation				
Note: for wafer or ODT place on top of the tongue to dissolve, then swallow				
Contraindication: in patients with congenital prolonged QT interval				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

5,6,7

5,6,7

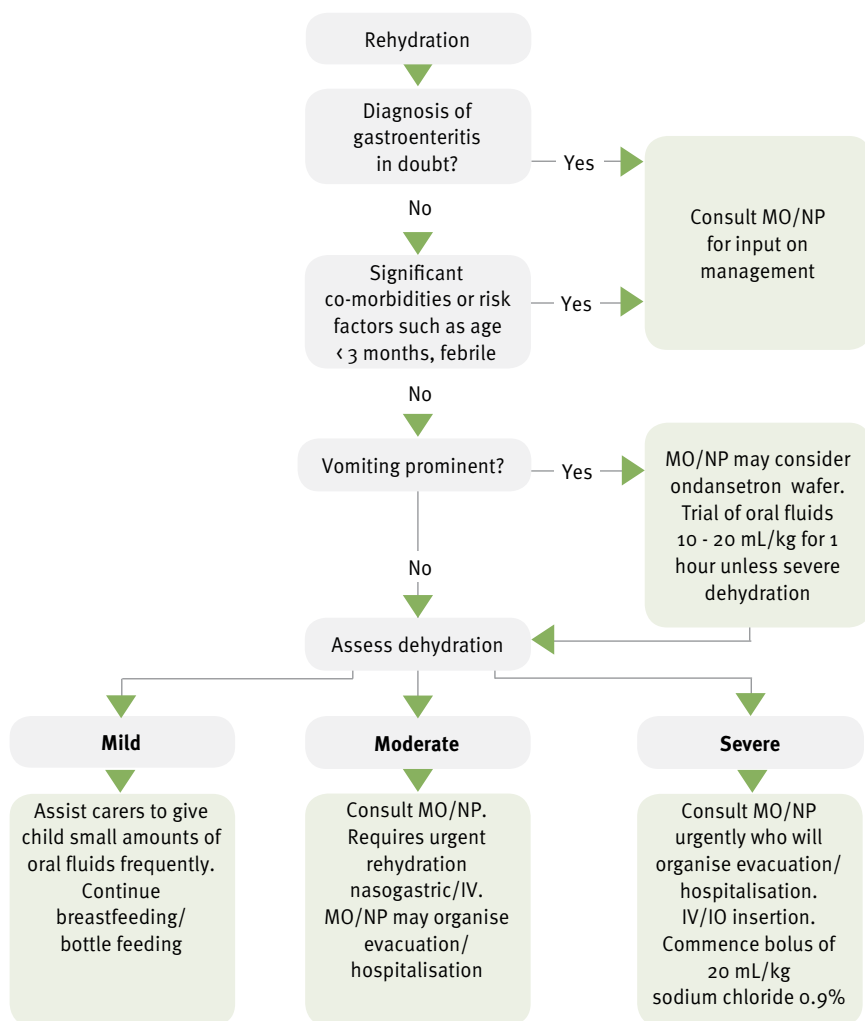
How to prepare suitable fluid for rehydration⁸

Do not use low-joule or diet carbonated beverages, energy drinks, sports drinks, Lucozade®, or undiluted lemonade, cordials or fruit juices

Fluid	Dilution	Example
Oral rehydration fluid e.g. Gastrolyte®	As per instructions on pack	Mix with water only
Oral rehydration fluid e.g. Hydralyte®	Pre-prepared as fluid or iceblock	Do not mix with other fluids
Cordial concentrate (not low calorie/low joule)	1 part cordial in 20 parts water	5 mL (1 teaspoon) plus 100 mL water
Soft drink or Juice (35%) (not low calorie/low joule)	1 part soft drink/juice in 5 parts water	20 mL (1 tablespoon) plus 80 mL water

How much to give - fluids⁸

- give small amounts of clear fluid often
- aim for at least 5 mL fluid per kg body weight each hour for example:
 - for a 6 kg infant offer 30 mL every hour or 60 mL every 2 hours
 - for a 12 kg toddler offer 60 mL every hour or 120 mL every 2 hours
 - give older children one cup (150 - 200 mL) of fluid for every big vomit or episode of diarrhoea

Management of dehydration in children flowchart⁹**Mild dehydration (< 4% loss of body weight)**

- The main treatment is to keep child drinking small amounts of fluids often. Give enough fluids to cover normal requirements and to replace what is lost through vomiting and diarrhoea⁸
 - oral rehydration fluids e.g. Gastrolyte®, Hydralyte®, Pedialyte®
 - continue breastfeeding/bottle feeding
 - dilute commercial cordials, fruit juice drinks and lemonade if oral rehydration fluids not available
- It is important for the fluids to be taken even if the diarrhoea seems to get worse
- Children with mild/no dehydration can be looked after at home or with close monitoring by facility, however significant ongoing vomiting and/or diarrhoea minimise the chance of success at home
- Consider early nasogastric rehydration in these children⁹ if oral replacement is not successful
- Maintain a record of fluid intake and output - by staff and family

- **Breastfed infant⁸**
 - continue breastfeeding on demand or at least every 2 hours
 - in between breastfeeds, water or oral rehydration solution may be offered
 - do not give solids if the child is vomiting
 - give solids when the vomiting has stopped or after 24 hours
- If the baby is on solids introduce simple foods such as rice cereal, potato or pumpkin - even if the diarrhoea is still present
- **Bottle fed infant and older child⁸**
 - while the infant or child is still vomiting replace formula or usual drinks with oral rehydration fluid or other clear fluid
 - See How to prepare suitable fluid for rehydration (previous page)
 - aim to be back to usual formula/diet within 24 hours - do not dilute
 - offer age appropriate foods at meal times even if diarrhoea is still present
 - occasionally children will develop lactose intolerance and the diarrhoea will continue. See Nutrition after gastroenteritis and [Lactose intolerance, page 711](#)

Moderate dehydration (4 - 6% loss of body weight)

- Consult MO/NP
- Commence rehydration therapy according to MO/NP instructions, usually oral/nasogastric. Examples of rehydration volumes given below
 - must be managed in appropriately equipped and staffed facility
 - MO/NP will arrange evacuation if required
- Commence a fluid balance sheet immediately
- As well as oral/NGT rehydration, continue breastfeeds/formula and diet as per mild dehydration
- Monitor child's observations closely
- Discuss with MO/NP for further decision making after 4 hours

Example: Oral/NGT fluid replacement using slower regime for moderate dehydration 4 - 6%⁹

Weight kg	0 - 6 hours Oral/NGT fluid replacement mL/hour	7 - 24 hours Oral/NGT fluid replacement (following previous column doses) mL/hour
3	30	20
4	40	30
5	50	35
6	60	40
7	70	45
8	80	50
9	90	55
10	100	60
12	120	65
15	150	70
20	200	85
30	300	90

Severe dehydration ($\geq 7\%$ loss of body weight) - See [Shock, page 55](#)

- Consult MO/NP
 - commence rehydration therapy according to MO/NP instructions
 - must be managed in appropriately equipped and staffed facility
 - MO/NP will arrange evacuation
- Monitor conscious state closely and consult MO/NP immediately if altered
- Commence a fluid balance sheet immediately
- Insert IV cannula. If this is unsuccessful after 2 attempts insert intraosseous cannula and commence infusion using the regime below. MO/NP may take/request bloods for electrolytes, glucose, acid base whilst inserting IV/IO
- See [Intraosseous infusion, page 49](#)
- If hypoglycaemia give glucose 10% IV. See [Hypoglycaemia, page 78](#)

Fluid resuscitation regime for severe dehydration is based on $\geq 7\%$ dehydration**Initial treatment**

- 20 mL/kg
- Reassess
- Give second bolus of 20 mL/kg if still shocked
- Ongoing fluids as discussed with MO/NP
- Re-hydrate/resuscitate severely dehydrated child with sodium chloride 0.9%
- Contact MO/NP for ongoing fluid orders
- Common IV fluids used in children for ongoing maintenance or replacement include sodium chloride 0.9% or sodium chloride 0.9% + 5% glucose⁹

Arrangements should be made to transfer child to a paediatric centre. Ongoing fluid input should be managed in consultation with a Paediatrician

5. Follow up

- Evacuation/hospitalisation of children with moderate (if indicated) or severe dehydration
- Children with mild dehydration i.e. $< 4\%$ and no clinical signs, review in 24 hours or earlier if parent/carer is concerned that child is worse
- Inform the carer that bowel actions may not return to normal for 2 weeks but a child with continuing watery diarrhoea should be reviewed by an MO/NP
- Children with watery diarrhoea lasting longer than 2 - 3 days should have bloods taken for electrolytes. Babies may require this earlier
- Reassurance, education and advice concerning hand washing, personal hygiene, avoiding food preparation and public swimming pools until diarrhoea has settled
- Place child on care plan with individualised review and weighs according to severity and family situation
- If diarrhoea continues beyond 10 days, see [Child with chronic diarrhoea, page 644](#)
- Alert other parents of young children in the community of current gastrointestinal illness and the need to present early to clinic if their child displays any gastro-intestinal symptoms

Advise parent/carer(s)⁹

- Use methods to help children drink e.g. cup, iceblock, bottle, syringe
- Do not give medicines to reduce vomiting and diarrhoea. They do not work and may be harmful
- Your baby or child is infectious so wash your hands well with soap and warm water, particularly before feeding and after changing nappies
- Keep your child away from other children as much as possible until the diarrhoea has stopped
- Return to clinic if:
 - child is not drinking and still has vomiting and diarrhoea
 - child is vomiting frequently and seems unable to keep any fluids down
 - child is dehydrated e.g. not passing urine or reduced urine output, is pale and has lost weight, sunken eyes, cold hands and feet or is hard to wake up
 - if your child has a bad stomach pain
 - if there is any blood in the faeces
 - if there is any green vomit or you are worried for any other reason
- Engage with parent regarding hand hygiene practices to prevent the spread of disease
- Advise parents to keep the child away from child care and/or school until they are feeling well and

have not had any symptoms for at least 24 hrs¹⁰

Nutrition during gastroenteritis

- Poor appetite is normal during the acute phase of the illness - during this time, ensure fluid intake is sufficient
- Babies and young children who are breastfeeding will want to feed more often when they are sick - this is normal. Support mother to breastfeed more frequently
- Acute gastroenteritis can result in transient lactose intolerance. Formula fed babies may need lactose free formulas until the baby's gut recovers sufficiently to digest and absorb lactose
- It is particularly important to ensure that formula fed babies get sufficient fluids
- Breastfeeding should be maintained during the acute phase and through any subsequent lactose intolerance. Breastfed babies are fed more frequently than formula fed babies and are usually able to tolerate the lactose in the breast milk
- If the child has an appetite, eating should be encouraged but avoid fatty food or high sugar foods and drinks

Nutrition after gastroenteritis

- Encourage continued breastfeeding as well as healthy food if the child is six months or older
- If the child is under one year of age and not breastfed, he/she will need infant formula, not cows milk. The type of formula will depend on whether the child can tolerate lactose
- An episode of acute gastroenteritis may result in weight loss
- For children > 6 months of age, once the child's appetite returns, encourage carer to provide healthy food with one extra meal each day until lost weight is regained
- Healthy food is important for replacing lean body tissue lost during the illness - encourage lean meat, fish, eggs, fruit and vegetables, peanut paste, baked beans, cheese and yoghurt and wholegrain cereals like Weet-Bix®
- Children over one year of age can have cows milk provided there is no lactose intolerance
- Monitor weekly to ensure healthy growth is resumed
- Refer to MO/NP if healthy growth is not resumed within four weeks - repeated or chronic infections can result in poor appetite and growth failure

6. Referral/consultation

- Children with chronic diarrhoea. See [Child with chronic diarrhoea, page 644](#)
- Children with weight loss or poor weight gain who are not acutely unwell - refer to child health nurse or next MO/NP clinic
- Refer to Poor growth in children in the latest edition *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>
- ① Consider notification to your Public Health Unit. Refer to the Communicable Diseases website: <http://disease-control.health.qld.gov.au/Condition/704/gastroenteritis>

Lactose intolerance - child

Recommend

- Continue breastfeeding. Lactase supplements can be tried. For formula fed infants use low lactose formula
- Consider other causes of chronic diarrhoea

Background

- Lactose intolerance commonly follows acute diarrhoea in Aboriginal and/or Torres Strait Islander children

Related topics

[Acute gastroenteritis/dehydration - child, page 702](#)
[Poor growth in children, page 723](#)

[Nappy rash, page 392](#)
[Child with chronic diarrhoea, page 644](#)

1. May present with

- Chronic diarrhoea, bloating, vomiting, irritability
- Stool may be 'frothy'
- Perianal area may be scalded

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weigh all children - use naked weight in young children (< 2 years) and record against most recent recorded weight
- Collect a faeces specimen for MC/S, ova, cysts and parasites (OCP) and reducing substances
- Perform physical examination: See [Clinical assessment of hydration in child, page 704](#)
 - palpate abdomen for tenderness or guarding
 - inspect the perianal area for signs of irritation

4. Management

- Consult MO/NP if suspect lactose intolerance and refer to next MO/NP clinic
- Never restrict breastfeeding
- Encourage extra fluids while the child continues to have diarrhoea
- Trial 2 week lactose free diet
- Avoid lactose based formulas and cows milk products:
 - lactase/tilactase (Lacteeze®) can be used in breastfed infants before, during and after a breastfeed, but is not very effective because the enzyme takes about 30 minutes to breakdown the breast milk lactose, so there may not be enough contact time in the stomach
 - an infant usually fed on lactose based formula or cows milk should be prescribed a low lactose formula as an alternative: De-Lact® or O-Lac®

- Do not use soy formulas
- Reintroduce normal formula after 2 - 4 weeks starting with 1/3 normal to 2/3 lactose free and increasing the proportion of normal formula over 3 - 4 days
- If symptoms recur, revert to lactose free formula and try again in 2 - 4 weeks

5. Follow up

- Review 1 - 2 days after starting on low lactose formula
- Consult MO/NP if diarrhoea persists
- See next child health nurse or MO/NP clinic

6. Referral/consultation

- Consult MO/NP on all occasions lactose intolerance suspected
- Dietitian if available

Giardiasis - adult/child

Recommend

- If treatment with tinidazole or metronidazole fails a longer course may be required or reconsider the diagnosis

Related topics

 [Anaemia, page 727](#)

[Acute gastroenteritis/dehydration - child, page 702](#)
[Poor growth in children, page 723](#)

1. May present with

- Foul smelling watery diarrhoea
- Chronic diarrhoea, frequent loose and pale greasy stool
- Abdominal cramps
- Abdominal distension, flatulence
- Nausea, poor appetite
- Anaemia
- Weight loss/poor growth
- May be asymptomatic

2. Immediate management Not applicable

3. Clinical assessment

- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weigh all children - use naked weight in young children (< 2 years) and record against most recent recorded weight
- Collect a faeces specimen for MC/S and ova, cysts and parasites (OCP) x 2
- Perform physical examination:

- assess for dehydration. See [Clinical assessment of hydration in child, page 704](#)
- palpate the abdomen for tenderness or guarding
- inspect the perianal area for signs of irritation

4. Management

- Encourage oral fluids
- Treat all patients with laboratory confirmation of passage of cysts, whether symptomatic or not, with tinidazole or metronidazole, as the disease is communicable for as long as the infected patient excretes cysts. Failure to treat may place pregnant women and immunocompromised people at risk

Schedule	4	Tinidazole		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	Adult and child ≥ 40 kg 2 g	Stat
Provide Consumer Medicine Information: take with food. Avoid alcohol while taking and for 72 hours after taking dose				
Note: be aware of interaction with warfarin - monitor INR				
Use in pregnancy: Catagory B3. Consult MO/NP before proceeding				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

11,12

11,12

- Or

Schedule	4	Metronidazole		DTP
IHW/SM R&IP/IPAP				
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg 400 mg	Oral	Adult 2 g daily	3 days
Suspension	200 mg/5mL		Child 30 mg/kg/daily up to a max of 2 g	
Provide Consumer Medicine Information: avoid alcohol while taking and for 24 hours after taking this medicine. Take tablets with food or immediately after food to reduce stomach upset, the suspension is best absorbed if taken 1 hour before food. Take until course completed unless advised by health professional to stop. Tell health professional if a sore white mouth, tongue or vagina develops. Can cause dizziness and confusion. Those affected should not drive or operate machinery. Patients should report development of diarrhoea immediately to their health professional even if it occurs several weeks after the metronidazole has been stopped				
Note: be aware that metronidazole interacts with warfarin - monitor INR. Patient must be warned of possible dizziness or confusion and the dangers of operating machinery. be aware that severe colitis due to <i>Cl. difficile</i> can be caused by metronidazole. If the patient develops severe diarrhoea contact the MO/NP immediately				
Use in pregnancy: Category B2. Consult MO/NP for advice				
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

11,13

11,13

- If the above treatment fails a longer course of metronidazole is sometimes required or diagnosis should be reconsidered

5. Follow up

- Review next day
- Consult MO/NP if diarrhoea not settling
- Provide education and advice concerning handwashing before handling food, eating and after toilet and avoid food preparation and public swimming pools until diarrhoea has settled

6. Referral/consultation

- Consult MO/NP as above

Intestinal worms - adult/child

Recommend

- Perform de-worming in three situations:
 - as part of a community eradication program
 - symptomatic children
 - on the basis of faeces specimen result, sent as part of investigation for anaemia or weight loss/poor growth

Related topics

[Anaemia, page 727](#)

[Poor growth in children, page 723](#)

1. May present with

- Perianal/perineal itch - pinworm (thread worm). Small threadlike worm may be seen. Doesn't cause diarrhoea or poor growth
- Anaemia - hookworm
- Acute diarrhoea - strongyloides
- Poor growth - strongyloides can contribute

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history:
 - past episodes
 - previous weights
 - length of time signs and symptoms have been present
 - do any other members of the family or close contact have signs or symptoms
 - is the child on medication
 - have they been previously treated for worms, if so when and with what
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weigh all children - use naked weight in young children (< 2 years) and record against most recent recorded weight
 - check Hb on haemoglobinometer e.g. HemoCue®
 - collect a faeces specimen for MC/S and ova, cysts and parasites (OCP). This will be repeated as part of follow up
- Perform physical examination:
 - palpate the abdomen for tenderness or guarding
 - inspect the perianal/perineal area for signs of irritation (if indicated)

4. Management

- Consult MO/NP if abdominal pain present. See [Acute abdominal pain, page 200](#)
- Reassurance, education and advice regarding handwashing and personal hygiene

- If treating worms without laboratory confirmation use albendazole or mebendazole
- If part of a worm eradication program, use albendazole as a single dose every 4 to 6 months
- Treat household contacts and carers at the same time to reduce risk of relapse¹⁴
- Pyrantel is preferred in children < 6 months and in pregnant women¹⁵
- Albendazole and mebendazole should not be used in children < 6 months or in pregnant women¹⁵

Schedule	2	Pyrantel		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may proceed RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	125 mg 250 mg	Oral	10 mg/kg/dose to a max. of 1 g daily	Roundworm Stat Repeat after 7 days if heavy infestation
Suspension	50 mg/ mL			Threadworm Stat Repeat after 14 days if heavy infestation
				Hookworm 3 days
Provide Consumer Medicine Information: can be used in children < 6 months of age and pregnant women. Take until course completed. Can cause nausea, vomiting, diarrhoea, abdominal cramp, and headache. Advise that house and clothing should be cleaned well to destroy the ova and prevent reinfection				
Contraindication: in acute liver disease				
Management of associated emergency: consult MO/NP				

14,16,17

Schedule	4	Albendazole		DTP IHW/SM R&IP/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Chewable tablet	200 mg 400 mg	Oral	Threadworm (pinworm), hookworm, roundworm Adult and child > 6 months and > 10 kg 400 mg Child > 6 months ≤ 10 kg 200 mg	Stat May repeat after 2 weeks for threadworm
			Strongyloides Adult and child > 6 months and > 10 kg 400 mg bd Child > 6 months ≤ 10 kg 200 mg bd	3 days Then repeat after 7 - 14 days
			Whipworm Adult and child > 6 months and > 10 kg 400 mg daily Child > 6 months ≤ 10 kg 200 mg daily	3 days
Provide Consumer Medicine Information: women should use effective contraception during, and for one month after, treatment. To increase absorption for systemic indications e.g. strongyloides, take medicine with fatty meal. For other indications take on an empty stomach. Take until course completed. Advise that house and clothing should be cleaned well to destroy the ova and prevent reinfection				
Note: use a stat dose initially for unconfirmed infestations; if the patients represents with nil improvement then supply with 3 days of treatment. May repeat dose after 2 weeks for threadworm				
Use in pregnancy: Category D. Not safe for use in pregnancy: perform pregnancy test for women of childbearing age before supplying				
Management of associated emergency: consult MO/NP				

14,18

14,18

- Or

Schedule	2	Mebendazole		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic may proceed				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	100 mg	Oral	Threadworm (pinworm) Adult and child > 6 months and > 10 kg 100 mg Child > 6 months ≤ 10 kg 50 mg	Stat Consider repeat dose after 2 weeks
Suspension	100 mg/5 mL		Whipworm, hookworm, roundworm Adult and child > 6 months and > 10 kg 100 mg bd Child > 6 months ≤ 10 kg 50 mg bd	3 days Repeat course after 3 weeks if treatment unsuccessful
Provide Consumer Medicine Information: tablets may be crushed, chewed or swallowed whole. Take until course completed. Can cause nausea, vomiting, diarrhoea, and abdominal cramp. Advise that house and clothing should be cleaned well to destroy the ova and prevent reinfection				
Note: can cause nausea, vomiting, diarrhoea, and abdominal cramp				
Use in pregnancy: Catagory B3. Avoid during first trimester of pregnancy. Seek advice from MO/NP				
Management of associated emergency: consult MO/NP				

14,19,20

14,19,20

5. Follow up

- See at next MO/NP clinic if anaemia or weight loss/poor growth
- Collect a faeces specimen for MC/S and ova, cysts and parasites (OCP) as appropriate

6. Referral/consultation

- Consult MO/NP as above

Constipation - child

Recommend

- Maintenance programs consisting of medicine, toileting program, dietary advice and follow up to prevent recurrence

Background

- Constipation is the difficult passage of infrequent dry, hard stools that often cause pain and discomfort. The most common cause is functional - no underlying cause²¹
- Constipation starts a cycle - passing a hard stool is painful, the child avoids straining, the constipation gets worse. Part of the battle is forming a habit for the child to go to the toilet daily
- Straining is normal in babies

1. May present with

- Hard stool - often small pellets
- Excessive straining at stool
- Soiling (also known as encopresis)

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history including:
 - medical history
 - past episodes
 - current diet including food allergies²²
 - fluid intake - are they breastfeeding or on formula, how is the formula made up? Over concentrated formula can lead to constipation. Are they given water as well?
 - what/how much physical activity
 - family routine. The constipated child usually has poor nutrition, poor fluid intake and is inactive
 - usual bowel pattern. Is there a history of constipation or infrequent stools?
 - parental expectations of 'normal' stool pattern
 - length of time since last passed a stool/defecated
 - describe stool, colour, consistency, frequency of defecation
 - ask carer if any change in child's behaviour
 - what is their urinary output history, are they bedwetting, daytime wetting?
 - is the child on any medicines
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weigh all children - use naked weight in young children < 2 years and record against most recent recorded weight
 - plot growth and height/length
- Perform physical examination:
 - inspect mouth, look for mouth ulcer(s) and state of teeth/gums
 - inspect and palpate abdomen - for masses
 - inspect the anus and perianal area - position of the anus, pressure of stool around anus, perineal sensation, skin tags, anal fissures
- Consider possible organic problem and refer for further work up if:
 - child has constipation from birth
 - child has vomiting and abdominal distension
 - there is any bile vomiting
 - the child is not growing well
 - there is more than just a streak of blood on the stool
 - constipation does not improve with simple measures

4. Management

- Dietary interventions:
 - encourage a healthy diet with fruit and vegetables and wholegrain cereals

- encourage drinking plenty of water
- pears (fresh or pureed) or prunes will stimulate the gut gently and soften stools
- excessive dietary intake can cause constipation in children
- Encourage physical activity
- Toileting programs:
 - take advantage of the gastrocolic reflex. Most people, especially children have the urge to pass a motion after eating a meal, especially breakfast
 - advise that the child should sit on the toilet after each meal and attempt to pass a motion without straining
 - positively reinforce good behaviour. A reward for sitting on the toilet and passing a motion is often beneficial
- Disimpaction:
 - oral laxatives
 - liquid paraffin, chocolate flavoured liquid paraffin e.g. Parachoc[®]. Avoid in infants under 12 months of age
 - lactulose, senna, Movicol[®], Osmolax[®], Clearlax[®]
- Enemas, only if oral laxative has failed
 - micro-enemas such as Microlax[®]
- Most constipation in children will resolve with these measures. If it persists, refer to the next child health nurse or MO/NP clinic or Continence Advisor²¹

5. Follow up

- Children with constipation should be reviewed regularly to assess progress. Once the problem settles remember to continue with dietary improvement and increased water intake to prevent recurrence
- Advise parent/carer to use appropriate gentle fibre or laxative (prune/pear juice/psyllium) for at least 3 months to regulate peristalsis

6. Referral/consultation

- Consult MO/NP if constipation is severe or the child is unwell in any other way
- Child Health Nurse
- Continence Advisor if available
- MO/NP may consider referral to a Paediatrician
- Children with chronic constipation require long term management with multiple laxatives to keep their stool soft and prevent recurrence of painful anal fissures. It is important to ensure observance with laxative regimes

Pyloric stenosis - child

Recommend

- Consult MO/NP immediately
- May need rehydration
- Evacuate for investigation. Will need surgical treatment if diagnosis confirmed

Background

- Most common in babies between 2 and 6 weeks of age. Rarely occurs after 12 weeks of age

Related topics

 [Acute gastroenteritis/dehydration - child, page 702](#)

1. May present with

- Vomiting which progressively gets worse, projectile, after feeds
- Baby is not putting on weight well or may be losing weight
- Dehydration

2. Immediate management

- Consult MO/NP if child dehydrated

3. Clinical assessment

- Obtain a complete patient history:
 - of particular importance progressive increase of projectile vomiting after feeds in a baby that is usually well and eager to feed following the vomiting episode
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weigh all children - use naked weight in young children < 2 years and record against most recent recorded weight
- Perform physical examination:
 - inspect and palpate abdomen
- Visible peristalsis over the abdomen or an olive-sized and shaped mass may be felt in the right upper quadrant
- Assess degree of dehydration. See [Acute gastroenteritis/dehydration - child, page 702](#)

4. Management

- Consult MO/NP who may advise:
 - checking electrolytes (U/E)
 - evacuation/hospitalisation
 - IV fluids
 - abdominal ultrasound examination

5. Follow up

- All babies with suspected pyloric stenosis must be managed in hospital. Diagnosis is usually confirmed by ultrasound. If confirmed the baby will require surgery, which is very successful

6. Referral/consultation

- Consult MO/NP on all occasions of suspected pyloric stenosis. These infants may present with severe acid base/metabolic imbalance such as hypokalaemia

Intussusception - child

Background

- Suspect in a young child who looks unwell and has intermittent severe abdominal pain
- In 15% of cases the classic triad of abdominal pain, palpable sausage shaped abdominal masses and red currant jelly stool is present. The small bowel telescopes into itself, as if it were swallowing itself
- Most common cause of obstruction in children 6 - 36 months of age (60% < 12 months of age)

1. May present with

- Intermittent severe abdominal pain. Pain may settle and child appear well between bouts of pain 10 - 20 minutes apart
- Intermittent inconsolable crying
- Poor feeding
- Vomiting
- Blood per rectum. Classically red currant jelly but is often a late sign
- Child may look pale and unwell

2. Immediate management

- Consult MO/NP

3. Clinical assessment

- Obtain a complete patient history:
 - length of time condition present
 - describe stools passed - frequency, colour, formation
 - describe vomiting - is bile present
 - recent rotavirus vaccination
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - fever may be a late sign
 - weigh all children- use naked weight in young children < 2 years and record against most recent recorded weight
- Perform physical examination:
 - inspect and palpate abdomen
 - palpable sausage shape mass. Absence does not exclude intussusception
 - guarding and tenderness
 - inspect stool

4. Management

- Consult MO/NP who will advise evacuation/hospitalisation
- All children with suspected intussusception should be managed in hospital
- Most will be treated in radiology department with air or contrast enema which will reduce the intussusception

5. Follow up

- Monitor child on return to community

6. Referral/consultation

- Consult MO/NP on all occasions of suspected intussusception

Poor growth in children

Recommend

- Refer to 'Poor growth in children' in the latest edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia*. Available at: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>
- Weight for age is used for screening for poor growth in children. If poor growth suspected a complete examination is performed by the MO/NP/Dietitian using weight for length (or BMI if ≥ 2 years of age), and length/height for age, according to the child's gender
- Measure length for children < 2 years i.e. lying down, and height for children ≥ 2 years i.e. standing up
- Provide nutritional supplements for management of poor growth depending on severity
- It is important in an underweight child to differentiate wasting from stunting
 - stunting (shortness) is gaining insufficient height relative to age and implies longterm malnutrition and poor health
 - wasting (thinness) is gaining insufficient weight relative to height, or losing weight, and implies recent or continuing weight loss
- Often both are present and can be assessed on anthropometric* measurements¹
- A concern of unhealthy growth is formed by a rise or fall of 1 - 2 percentile lines on the growth chart and requires further investigation. Be aware that the WHO and CDC growth charts mark different major percentile lines. The WHO charts are to be used for children < 2 years of age and a rise or fall in weight or height across one (1) percentile line would trigger a specialist referral. The CDC charts are to be used for children 2 - 18 years and a rise or fall in weight or height across two (2) percentile lines would trigger a specialist referral
- Any child whose weight or length for age, or weight for length (or BMI for children ≥ 2 years), is below the 2nd percentile should be considered for specialist review of possible wasting and/or stunting

* Anthropometric - the measurement of the human body as to height, weight and size to compare the relative proportions under normal and abnormal conditions

Background

- Healthy children grow fast in early life, increasing in weight and length/height. Growth is fastest in the first six months, especially for breastfed babies, and healthy children continue to grow fast until about two years of age. From then children grow steadily until the growth spurt around puberty. Growth rates in little children can fluctuate but a period of slow growth should be followed by more rapid growth to catch-up. Healthy catch-up growth includes growth in length/height as well as weight. It is not normal for a child to grow too slowly for month after month - slow growth needs to be investigated. Growth charts show the usual patterns of growth - they are used to compare growth trends for an individual child to assess if he/she is growing as expected, or more slowly or more rapidly
- Poor growth is an outcome of malnutrition which is an imbalance between nutrient requirement and intake, resulting in cumulative deficits of energy, protein or micronutrients that may negatively affect growth, development, and other relevant outcomes²
- As well as poor growth, childhood overweight and obesity is an increasing problem – growth in weight should be in proportion to growth in length/height. Children whose mothers were diabetic, overweight and/or smoked in pregnancy are at higher risk of early onset overweight and obesity. Children who were low birth weight and/or had poor growth in early life and then showed excessive growth rates, are also at risk of becoming overweight or obese
- Also/previously known as Failure to Thrive (FTT)
- Suite of Growing Strong resources available at: <https://www.health.qld.gov.au/nutrition/pregnancy-indigenous.asp> also Nutrition Education Materials Online (NEMO) Paediatric resources available at: https://www.health.qld.gov.au/nutrition/nemo_paeds.asp
- Children with genetic short stature, intrauterine growth retardation or prematurity, who have appropriate proportional weight for length and normal growth velocity, are not regarded as poor growth

Related topics

-  [Anaemia, page 727](#)
-  [Giardiasis, page 712](#)
-  [Intestinal worms, page 715](#)

[Lactose intolerance, page 711](#)
[Urinary tract infection, page 355](#)

1. May present with

- Any condition
- A child whose weight has crossed down 1 or more major centile lines on the WHO growth charts for < 2 years, or 2 or more major centile lines in the CDC growth charts for 2 - 18 years, and who is not overweight or obese³. Growth charts are available from: http://www.rch.org.au/childgrowth/Growth_Charts
- Weight for length if < 2 years, or BMI in 2 - 18 years, below the 5th percentile
- Weight percentile greater than 2 percentiles below height/length percentile
- Growth that is persistently below the 3rd percentile, not explained by parental stature or genetic potential

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history including:

- family and social history - spend time assessing the social situation:
 - who is the main carer? which other family members contribute to looking after the child, household and buying food?
 - amount of support the carer has? extended family? friends?
 - have other children in the family had problems with growth faltering?
 - ask about food security, financial security?
- cultural history
- medical history - past or current illnesses
- birth history - low birth weight, preterm or intrauterine growth restriction (IUGR)
- mother's antenatal history - particularly alcohol and smoking intake
- nutrition intake - if breastfed, frequency of feeding during night and day, if formula fed when did the formula start? How is it prepared? What is the frequency of formula feeds? Other milks or drinks?
- solids, type - when were solids introduced? frequency of feeding?
- eating pattern
- urine output and number of stools per day
- Perform standard clinical observations (full CEWT score or other local Early Warning and Response Tools) +
 - urinalysis
 - check haemoglobin on haemoglobinometer (HemoCue®)
 - collect stool specimen for lactose intolerance testing
- Perform a complete physical examination:
 - head to toe assessment of current state of health, looking for evidence of undetected illness
 - weight, length/height and head circumference - use naked weight in young children (< 2 years). Plot all measurements on growth chart
- It is important in an underweight child to identify wasting and/or stunting. Often both are present
- A child with stunting may look healthy. It is important to measure and assess the child's growth on a growth chart to identify stunting

4. Management

- MO/NP perform examination and calculate degree of poor growth - mild, moderate or severe
- Depending on severity of poor growth commencement of:
 - nutritional supplements such as Pediasure®
 - food prescription
- Consider need for multivitamins
- MO/NP may advise collection of :
 - blood for FBC
 - urine MC/S. See [Urinary tract infection - child, page 735](#) for method of collection
 - faeces specimen for MC/S and OCP and lactose intolerance testing
 - chest x-ray if no other cause apparent
- If faeces specimen results:
 - positive - intestinal worms or giardia, treat accordingly
 - negative - treat for giardia in any case
 - other positive result - consult MO/NP
- Refer to Child Health Nurse/Child Health - Health Worker or next MO/NP clinic if no adverse findings

from clinical assessment and the child with weight loss or poor weight gain is not acutely unwell

- If no organic cause found for poor growth, management will revolve around education on nutrition, support of the carer and regular monitoring of the child's growth (use Growing Strong brochures/resources)
- Refer to Dietitian for detailed diet history, feeding history and nutrition advice
- Check if immunisations are up to date. Documented evidence of immunisation status should be obtained. Follow up with opportunistic immunisation. See [Immunisation program, page 750](#)
- Healthy food is needed for healthy weight gain and growth in all children:
 - exclusive breast milk to around 6 months of age if possible
 - breast milk or infant formula up to 12 months
 - breast milk or cows milk over 12 months
 - iron rich foods from around 4 - 6 months also provide zinc and other nutrients:
 - red meat, beef/lamb liver or kidneys, bush meat, chicken, fish
 - egg yolks, iron fortified baby cereal
 - green vegetables, fruit (not fruit juice) and vegetables (to help iron absorption)
 - no turtle or dugong liver, kidneys or intestines - as concern about cadmium content
 - no cows milk - liquid or powdered before 1 year old
 - limit intake of nutritionally poor foods such as take away/junk food, sugary food, tea or soft drinks - these spoil appetite for healthy food
- Children need small frequent meals (5 times a day if possible)
- Rapid catch up growth may cause iron deficiency - monitor haemoglobin

Food prescription – continuing daily until target weight/length achieved

Drinks

- Nutritional supplement - usually Pediasure® at least one 237 mL can or one cup per day
- Water, breast milk, infant formula, cows milk if over 12 months

Food

- Meals - breakfast, lunch, dinner, snacks containing fruit, vegetables

5. Follow up

- Place child on individualised care plan, setting out actions, targets and who is responsible to closely provide:
 - social support
 - set actions/targets for weight gain. See *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* <https://publications.qld.gov.au/dataset/chronic-conditions-manual>
 - regular monitoring of growth with child's carer
- Appropriate nutritional needs for child as recommended by Dietitian, MO/NP or Child Health Nurse/Child Health - Health Worker. Often children with poor growth lose their appetite and are unable to meet their nutritional requirements without additional strategies in place. Advice needs to be given to carers beyond just what healthy foods are. Carers need to know which foods are appropriate to address poor growth and also how often, the amount of food and how to fortify breast milk/foods/drinks. Nutritional supplement can help restore appetite

6. Referral/consultation

- Consult MO/NP. Child may need hospitalisation
- Child development unit for developmental screening of gross and fine motor, language and social milestones

- Dietitian to conduct thorough diet history, feeding history and nutrition advice
- May need referral to a community based specialised nutrition program
- See current edition of *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* <https://publications.qld.gov.au/dataset/chronic-conditions-manual>



Anaemia - child

Recommend

- Aim to achieve haemoglobin (Hb) level within normal range – see table below
- A large proportion of childhood anaemia is due to iron deficiency therefore a diet high in iron rich foods is recommended.
 - resources for encouraging iron rich foods available at: https://www.health.qld.gov.au/nutrition/resources/pregnancy-atsih/iron_rich_foods.pdf
 - suite of Growing Strong resources, especially iron rich food available at: <https://www.health.qld.gov.au/nutrition/pregnancy-indigenous.asp>
- Accurate point-of-care testing should be maintained by regular calibration of haemoglobinometer e.g. HemoCue®

Background

- Anaemia is common in Aboriginal and Torres Strait Islander children particularly in the 6 to 48 months age group, and is usually asymptomatic
- Nutrient requirements, especially iron, are very high in young children between the ages of 6 months and 24 months, and is often difficult to meet these requirements
- Iron deficiency is the most common nutritional deficiency in children
- Anaemia is a late indicator of iron deficiency and many children have iron deficiency without anaemia
- Iron deficiency with or without anaemia is detrimental to child development and can cause irreversible consequences
- Dietary deficiency of iron is a common cause of iron deficiency anaemia
- Excessive consumption of cow's milk is also a common cause of iron deficiency anaemia. This can damage the gut mucosa and reduce the absorption of iron, as well as causing ongoing losses
- Other causes of anaemia which must be considered include intestinal worms, cow's milk protein intolerance, blood loss and hereditary causes.
- Growth parameters are not necessarily related to anaemia, and anaemic children may be of normal weight, be underweight or overweight
- Antenatal risk factors for the development of childhood anaemia include maternal iron deficiency and anaemia during pregnancy, diabetes during pregnancy, small for gestational age, and prematurity

Normal Values of Haemoglobin (Hb)⁴

Age	Normal range of Hb (g / L)
Birth	140 - 220
2 months	> 90
2 - 6 months	> 95
6 - 12 months	> 105
12 months - 11 years	> 110
Adult male	135 - 170
Adult female	115 - 150

Related topics
[Giardiasis, page 712](#)
[Poor growth in children, page 723](#)

[Intestinal worms, page 715](#)
1. May present with

- Almost always asymptomatic
- Low haemoglobin detected on haemoglobinometer. Re-check if any doubt
- Tiredness, lethargy
- Irritability
- Poor feeding
- Pallor
- Heart murmur
- Tachycardia
- Recurrent infections
- Pica (eating non-food substances such as sand, chalk, paper and dirt)
- Angular cheilitis (inflammation of corner of mouth), glossitis (inflammation of tongue), koilonychia (spoon nails), hairloss
- Signs and symptoms of intestinal worms

2. Immediate management Not applicable**3. Clinical assessment**

- Obtain a complete patient history including:
 - past medical history
 - current medical issues and past medical conditions
 - explore history of infections
 - systems review
 - blood loss including epistaxis, urinary losses and stool losses
 - eating pattern
 - stool pattern including blood and mucous in stool
 - urine output
 - specifically ask about above mentioned symptoms
 - antenatal history

- including maternal iron deficiency or anaemia, IUGR, birth weight, gestational age at birth, maternal diabetes
- medications
 - past and current medications including supplements
- Dietary history
 - explore what types of solid foods are consumed and when they were introduced
 - explore what type and how much milk is consumed and when they were introduced
- Social history
 - explore who is responsible for caring for child and feeding child, and who buys the food in the household and how much support carers have
- Family history
 - including other family members with anaemia as well as all other conditions
- Ethnic history
 - consider populations where thalassaemia may be more common
- Perform standard clinical observations (full CEWT score or other local Early Warning and Response Tools) +
 - urinalysis
 - check haemoglobin at point of care e.g. use I-stat or haemoglobinometer such as Hemocue® if not already done
 - weigh all children - use naked weight in young children (< 2 years) and record against most recent recorded weight
 - check length/height and do head circumference for children (< 2 years) and plot against growth chart
- Perform a complete physical examination of all systems

4. Management

- Refer to 'Anaemia Management Table'
- Consult MO/NP immediately for:
 - all babies < 6 months of age with Hb below normal range
 - all children with a Hb of < 80 g/L
- All children under < 6 months, and all those with a Hb < 80 g/L should be investigated and treated in collaboration with MO/NP on an individual basis
- For all children ≥ 6 months and a Hb ≥ 80 g/L iron deficiency is the most common cause of anaemia
 - oral iron supplements are recommended in the first instance once anaemia is diagnosed via haemoglobinometer
 - if anaemia is diagnosed on full blood count sample processed in the laboratory consult MO/NP to confirm the results are consistent with iron deficiency
 - if anaemia is < 90 g/L, or if administering regular oral iron therapy is problematic, the MO/NP may consider intramuscular (IM) iron
 - if severe iron deficiency or if > 3 doses of IM iron are required the MO/NP may consider specialist consult around giving an IV iron preparation
- As children are often asymptomatic, ensuring supplementation is given regularly can be difficult. If there are concerns that a daily dose of iron will be difficult for the family or that the medication cannot be stored safely consider a twice weekly supervised dose, if local resources can support this
 - recheck Hb level after 1 month of oral iron supplements, or one month post IM or IV iron treatment. If there is no response to therapy consider other causes and further investigations

- If Hb < 90g/L or anaemia not responsive to iron therapy additional pathology tests should include:
 - FBC, reticulocyte count and film review. A hypochromic, microcytic blood film with an elevated red cell distribution width (RDW) is very suggestive of iron deficiency
 - iron studies, folate, vitamin B12 levels and coeliac serology
 - faecal specimen for M/CS and OCP
 - mid stream urine for M/CS
 - consider Hb electrophoresis if not responsive to iron supplements or if history suggests possibility of haemoglobinopathies such as thalassaemia
 - consider serum eLFTs, copper level, zinc level, aluminium level, lead level, CRP for refractory anaemia or based on clinical scenario
- Give nutritional advice regarding a diet high in iron rich foods and reduced in substances which will inhibit absorption. Use Growing Strong resources - breastfeeding, iron rich foods, healthy food and drinks and many more available at: <https://www.health.qld.gov.au/nutrition/pregnancy-indigenous.asp>
- Specifically encourage:
 - breastfeeding exclusively to around 6 months if possible
 - red meat, beef/lamb liver or kidneys, bush meat
 - chicken, fish, egg yolks
 - iron fortified baby cereal
 - green vegetables
 - fruit and vegetables to help iron absorption
 - breast milk or infant formula. NOT normal cow or goat milk unless child over 1 year of age
 - no turtle or dugong liver or kidneys or intestines, due to concern about cadmium content
 - no cow's milk before 1 year old - liquid or powdered
 - no tea or coffee
 - no soft drink, juice or cordial
- Practice Points
 - iron is best absorbed on an empty stomach
 - iron often causes gastrointestinal upset including constipation or in some cases diarrhoea. Warn patients and carers about this prior to commencement
 - oral absorption of iron is enhanced by Vitamin C. Give iron supplements with orange juice or provide a Vitamin C or multivitamin supplement e.g. Penta-Vite®
 - treat all children > 6 months of age with suspected iron deficiency anaemia with one dose of albendazole. See [Intestinal worms, page 715](#)
 - if faecal sample is positive for intestinal parasites, treat accordingly. See [Intestinal worms, page 715](#)
 - give folic acid supplementation if red cell folate or serum folate is low
- **Note: An iron overdose can be fatal. Parents to be advised about the risk of ingestion by children and to emphasise safe storage away from reach of children. If any concerns regarding safe storage consider option of supplying small quantities or twice weekly supervised dosing**

Anaemia management

Age group	Hb (g/L)	Management
0 to < 6 months	All cases below normal range	• Consult MO/NP immediately • Initial investigations include FBC/film • Further investigations guided by clinical scenario and pathology results
6 to 12 months	< 80	• Consult MO/NP immediately • Initial investigations as per (1) • Further investigations guided by results and clinical scenario • Recheck Hb in 1 month
	80 to < 90	• Commence iron supplements • Investigate further as per (2) • Give a single dose of albendazole. See Intestinal worms, page 715 • Ensure child seen at next MO/NP visit • Recheck Hb in 1 month
	90 to 105	• Commence iron supplements • Give a single dose of albendazole. See Intestinal worms, page 715 • Ensure seen at next MO/NP visit • Recheck Hb in 1 month • Investigate further if not improving with iron supplements
> 12 months	< 80	• Consult MO/NP immediately • Initial investigations as per (1) • Recheck Hb in 1 month • Further investigations guided by results and clinical scenario
	80 to < 90	• Commence iron supplements • Give a single dose of albendazole. See Intestinal worms, page 715 • Recheck Hb in 1 month • Investigate further as per (3)
	90 - 110	• Commence iron supplements • Give a single dose of albendazole. See Intestinal worms, page 715 • Ensure seen at next MO/NP visit • Recheck Hb in 1 month • Investigate further if not improving with iron supplements

(1) FBC/film, reticulocyte count (retics), eLFTs, iron studies, vitamin B12 and folate

(2) FBC/film, reticulocyte count (retics), iron studies, vitamin B12 and folate, faecal MCS + OCP, urine MCS

(3) FBC/film, reticulocyte count (retics), iron studies, vitamin B12 and folate, coeliac serology, faecal MCS + OCP, urine MCS

Schedule	2	Ferrous sulfate (Ferro-Liquid®) Ferrous fumarate (Ferro-Tab®)		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Liquid	Ferrous sulfate 30 mg per mL (equivalent to 6 mg of elemental iron per mL)	Oral	Child under 6 months 1 mL daily (in collaboration with MO/NP on individual patient basis) Child 5 kg to < 10 kg 5 mL daily OR daily dose given twice weekly supervised Child 10 kg to < 15 kg 10 mL daily OR daily dose given twice weekly supervised Child 15 kg to < 20 kg 15 mL daily OR daily dose given twice weekly supervised	1 month then review by MO/NP
Tablet	Ferrous fumarate 310 mg (equivalent to elemental iron 100 mg) + folic acid 350 micrograms		Child 20 to < 35 kg 1 tablet daily OR dose given twice weekly supervised Child ≥ 35 kg 2 tablet daily OR daily dose given twice weekly supervised	
Provide Consumer Medicine Information: overdose of iron can be fatal. Keep iron mixtures and tablets out of reach of children. Warn patient/carer about dark, tarry stools and constipation. Give with orange juice or provide Penta-Vite®. Take until course completed. Tablets should be swallowed whole. Dilute Ferro-Liquid® with water, drink through a straw, and follow each dose with plain water to prevent discolouration of teeth				
Note: Therapeutic Guidelines state continue for 3 months after Hb returned to normal to replenish stores. If these preparations of oral iron are not tolerated consult MO/NP				
Management of associated emergency: consult MO/NP				

5,6

5,6

- Give folic acid supplement if:
 - low serum and/or RBC folate
 - severe iron deficiency (haemoglobin < 90 g/L) even if normal folate levels

Schedule	Not Scheduled	Folic acid		DTP IHW/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP RN and SM R&IP. See Scope of practice when administering and/or supplying medicines, page 1				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet (dispersible)	500 microgram	Oral (tablet dispersed in water)	Child < 10 kg 500 microgram daily dose OR given twice weekly supervised Child 10 kg - 20 kg 1 mg daily OR given twice weekly supervised	1 month then review by MO/NP
Provide Consumer Medicine Information: tablet disperses in water - becomes cloudy but is tasteless				
Management of associated emergency: consult MO/NP				

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23,24

5. Follow up

- All children should be followed up in clinic with MO/NP
- Place child on individualised care plan with treatment goals and clearly define who is responsible for providing ongoing support and monitoring
- Repeat FBC after 1 month of iron and/or folate to confirm response to treatment
- Check haemoglobin monthly until it is within normal range
- If a response is demonstrated with iron and/or folate supplements, continue for several months
- If no response to oral therapy after 1 month consider changing means of therapy to IM or IV and consider further investigation

6. Referral/consultation

- Consult MO/NP or see next MO/NP clinic as above
- Refer to Dietitian for diet history, feeding history and nutrition advice
- Refer to Child Health Nurse/Child Health - Health Worker

Giving a ventrogluteal (gluteus medius muscle) injection¹⁰

- Approach the patient with the drawn-up medicine in a syringe and explain the procedure
- Position the patient on their side (position of choice) and bend their knee on the leg chosen for the injection. This helps to locate the greater trochanter
- If lying prone, ask them to 'toe in' to internally rotate the femur. If lying supine, ask them to flex their knee. It is not recommended to give a ventrogluteal injection from a standing position
- Place the heel of your opposite hand on the greater trochanter, that is, your left hand on their right leg and vice versa
- Locate and place your index finger on the anterior superior iliac crest. Your thumb should be pointed towards the front of the leg
- Spread your middle finger to form a 'V' - the injection site is in the middle of the 'V', which should be level with the knuckles of your index and middle fingers

- Remember to remove your fingers before you inject, to prevent a needlestick injury
- If you have small hands and find that with the ball of your hand on the greater trochanter your index finger does not reach the iliac crest, then slide your hand up the leg until it does

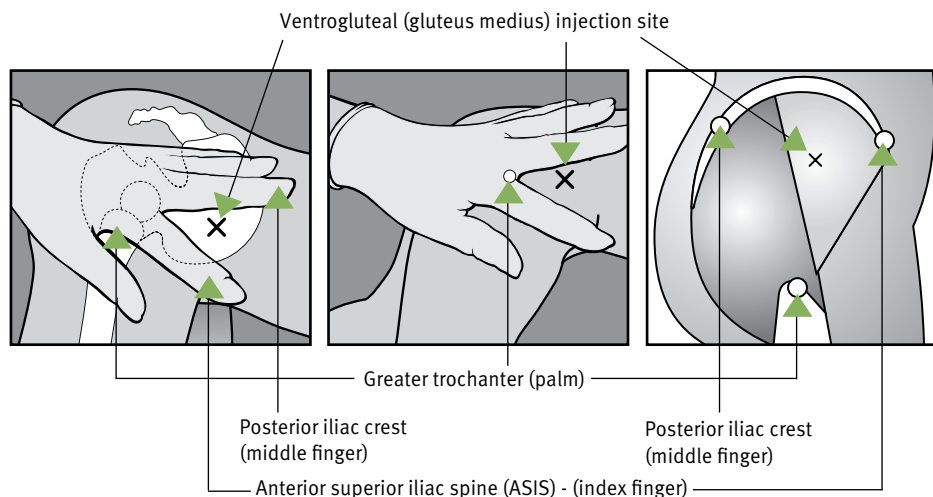
Schedule	4	Iron polymaltose (Ferrum H [®] , Ferrosig [®])		NON DTP Must be ordered by MO/NP
Form	Strength	Route of administration	Recommended dosage	Duration
Ampoule	100 mg/2 mL 50 mg/mL	IM	< 5 kg 0.5 mL/dose 5 to 10 kg 1.0 mL/dose > 10 kg to 45 kg 2.0 mL/dose	Stat or alternate days
Total mL required				
Weight (kg)	Hb 75 g/L	Hb 90 g/L	Hb 105 g/L	
5	3 mL	3 mL	2 mL	
10	6 mL	5 mL	4 mL	
15	9 mL	7 mL	6 mL	
20	11 mL	10 mL	8 mL	
25	14 mL	12 mL	11 mL	
30	17 mL	15 mL	13 mL	
35	23 mL	20 mL	18 mL	
40	24 mL	22 mL	19 mL	
45	26 mL	23 mL	20 mL	

Note: the wrong injection technique may result in pain and persistent discolouration of the skin. Iron polymaltose should never be injected into the arm or other exposed areas

Management of associated emergency: consult MO/NP. See [Anaphylaxis and severe allergic reaction](#), page 67

9

Finding the ventrogluteal site^{11,12}



Iron injection

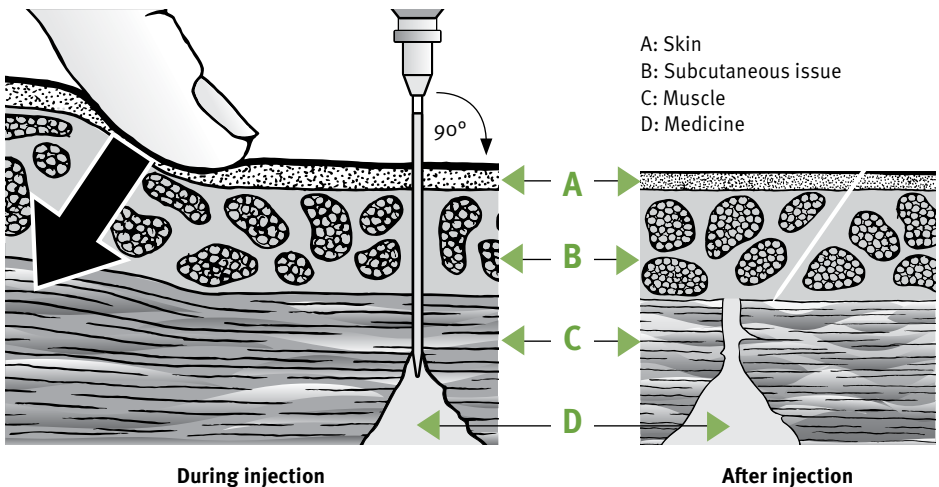
Warning: iron can stain patient's skin. Injections should only be given by staff trained and experienced in IM administration of iron using the Z track injection technique as described

The ventrogluteal site (**not the buttock**) is recommended for injection. The Hochstetter method (using a Z track injection technique) must be used to prevent the injected solution from running back into the subcutaneous tissues and discolouring the skin. Iron injections should never be injected into the arm or other exposed areas.

Z track procedure^{9,13}

- Pull the skin over the site of the injection about 2 cm
- Insert the needle at a right angle to the skin (90°)
- After the injection the needle is slowly withdrawn and pressure from a finger applied beside the puncture site. This pressure is maintained for about one minute
- The patient should move about after the injection
- Up to 3 ml of fluid may be given in this site

Z track injection method¹⁴



Urinary tract problems

Urinary tract infection (UTI) - child

Recommend

- Collection of urine for diagnosis of UTI is best using a sterile method¹. Bag samples may be contaminated
- Any child who is unwell and most children under 6 months of age should be admitted to hospital for IV antibiotics¹
- Finding a UTI in a sick child does not rule out other sources of infection so keep looking e.g. meningitis¹, pneumonia or even viral infections

1. May present with²

- Infant < 3 months
 - fever
 - unwell - looks sick
 - poor feeding
 - may be irritable, have smelly urine, fail to gain weight
- Infants and children 3 months to 1 year
 - fever
 - abdominal pain
 - poor feeding
 - may be irritable, have smelly urine, fail to gain weight
- Older children
 - frequency
 - dysuria
 - loss of continence
 - may be unwell with fever, smelly urine, cloudy or blood stained urine

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history. See [History and physical examination - child, page 630](#)
 - when did symptoms start, what has the progression been
 - ask about fever, cough, fast breathing, diarrhoea, vomiting
 - how is the child's appetite, feeding, sleeping, waking
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weigh all children - use naked weight in young children < 2 years and record against most recent recorded weight
 - assess growth and plot against chart for age and sex
- Perform physical examination:
 - head to toe examination looking for signs of infection - ears, throat, skin, chest, abdomen
 - palpate for loin tenderness which may be present in pyelonephritis
 - UTI should be considered in all babies and children with fever, vomiting or unwell, but it is often not possible to differentiate from other infections including meningitis, pneumonia or even viral infections. In older children there will usually be urinary symptoms

Collection of urine sample

- Children who are unwell and most children under 6 months of age will usually need management in hospital. If possible collect clean catch urine and blood culture before starting antibiotics. Giving antibiotics is more important if not possible

Midstream sample - children old enough to pass urine on demand

- Method - clean genital area and collect a midstream sample

Clean catch - younger children who cannot cooperate

- Method - it takes time and cooperation of the parent
 - clean genital area with water

- wait for the child to pass urine and
- catch a sample in a sterile container

Suprapubic aspirate or catheter

- These should only be done by staff who have been trained. Where no trained staff in residence these children will need evacuation/hospitalisation
- A bag urine should not be used, or only as a very last resort. Contamination rates are so high from bag samples that most UTI's diagnosed on a bag are actually false positives
- After collecting a clean sample on a child where UTI is possible, send sample to pathology for culture. Always write the method of collection on the pathology form
- Use specimen for dipstick urinalysis
- Interpretation of dipstick urinalysis:
 - only look at nitrites and leucocytes. Blood and protein are not useful to diagnose UTI
 - negative dipstick result is a strong predictor of no infection. Positive dipstick result is a poor indicator of an infection
 - if nitrites are positive, commence antibiotics while awaiting confirmation on pathology culture
 - if leucocytes are positive but nitrites negative, UTI is possible but less likely. Wait for pathology culture results before starting antibiotic treatment
 - if leucocytes and nitrites negative then UTI is unlikely. Only send sample to pathology if there are reasons to exclude UTI - such as child is failing to thrive or has fever with other common causes ruled out

4. Management

- Consult MO/NP who will arrange/refer/discuss:
 - children who are unwell and most **children < 6 months of age** will usually need management in hospital and may need a full sepsis workup
- If pain relief required see [Simple analgesia pull out](#)

5. Follow up

- If not evacuated review daily for next 2 days - if not improving, consult MO/NP
- Check results of urine MC/S (24 - 48 hours) and discuss with MO/NP - advice on interpreting culture results may be required
- Follow up with urinalysis 1 week after treatment to indicate cure or midstream urine for MC/S if possible
- See next MO/NP clinic

6. Referral/consultation

- Consult MO/NP on all occasions of suspected UTI in children
- Renal ultrasound - atypical UTI, boys less than 3 months, children less than 6 months, recurrent UTI¹

Bone and joint problems

Bone and joint infections - child **Osteomyelitis and septic arthritis**

Recommend

- Suspected bone and joint infections should always be referred to hospital for investigation and management
- An important consideration if a skin infection is taking a long time to resolve or occurs over a joint

Background

- Osteomyelitis and septic arthritis can affect any joint or bone, but most commonly involve the lower limbs¹
- Polyarthrititis or polyarthralgia can be a manifestation of acute rheumatic fever (ARF). Monoarthritis (one joint) can be a manifestation of ARF, however it must be considered as possible septic arthritis until excluded

Related topics

 [Bacterial skin infections, page 360](#)

 [Acute rheumatic fever, page 672](#)

1. May present with

Osteomyelitis	Septic arthritis
• Pain, limp, refusal to weight bear • Localised pain and tenderness • May be soft tissue swelling and redness • Usually fever	• Pain, limp, refusal to weight bear • Refusal to move joint or pain on moving joint • Pain and tenderness localised to joint • May be swelling and redness over joint • Fever

2. Immediate management

- Consult MO/NP

3. Clinical assessment

- Obtain complete patient history including:
 - history of the pain, when did it start, what makes it worse
 - can the child weight bear or use the limb
 - ask about:
 - fever or poor appetite
 - skin infections recently
 - sore throat recently
 - previous episodes of pain in bones or joints
 - history of ARF
 - current medicines taken
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and

Response Tools)

- Perform physical examination including:
 - observe how child holds and uses limb involved
 - ask them to point to the place where the pain is
 - palpate bone and joint for swelling, tenderness and warmth
 - check range of movement in joint, as tolerated

4. Management

- Consult MO/NP who will arrange:
 - evacuation/hospitalisation
 - referral to Orthopaedic Specialist or Paediatrician or both
 - bloods including blood cultures may be required
 - may order x-ray
 - IV antibiotics
- Rest and immobilise limb¹
- Treat pain and fever with paracetamol. See [Simple analgesia pull out](#)

5. Follow up

- All children with suspected osteomyelitis or septic arthritis should be managed in hospital

6. Referral/consultation

- Consult MO/NP on all occasions of suspected osteomyelitis and septic arthritis
- Refer to Orthopaedic Specialist or Paediatrician or both if osteomyelitis or septic arthritis is suspected or confirmed¹

Child protection

Recommend

- In forming a reasonable suspicion of harm to a child/young person it is recommended that health professionals consult with a line manager or senior colleague, a Child Protection Liaison Officer (CPLO) or Child Protection Advisor (CPA) (s13H *Child Protection Act 1999*). **Note** that individuals may still report concerns if consensus with colleagues is not reached
- Each Queensland Health Hospital and Health Service has a CPLO and CPA available to provide advice and assistance. It is recommended that health professionals maintain their currency in mandatory reporting training, and be familiar with local policies, protocols, and contacts
- The Child Protection Guide is an online decision-support tool to assist with decisions regarding where to report or refer concerns about a child/young person's safety or wellbeing available at: <https://www.communities.qld.gov.au/childsafety/partners/our-government-partners/queensland-child-protection-guide/online-child-protection-guide>
- If a written 'Report of suspected child in need of protection' form has been submitted, health professionals are encouraged to also phone Child Safety Services - Regional Intake Service (CSS-RIS) or Child Safety After Hours Service (CSAHS) and document in the child/young person's clinical record the date, time and name of the person with whom you spoke
- If a written 'Report of suspected child in need of protection' form has been submitted, staff are to print out a copy of the report, place it into the clinical record and send a copy to the local CPLO
- If concerns of suspected child/young person's abuse or neglect do not reach the threshold for a report to Child Safety Services and the family has multiple or complex needs and would benefit from support services, it is best practice to obtain consent prior to making a referral to local family support services however consent is not a requirement
- It is important to document any concerns, symptoms, injuries or disclosures in the child/young person's clinical record. Age appropriate injury proforma may assist with documentation. Child abuse diagrams to assist with recording abuse are available at www.rch.org.au/clinicalguide/cpg.cfm?doc_id=5170
- Cases of child/young person's abuse can be extremely distressing to staff involved. If feeling distressed after involvement in a case it is important to seek support. Agencies include CRANaplus Bush Support Services ☎ 1800 805 391, Employment Assistance Program (EAP)
- Child Protection laws are state-based legislation - health professionals in jurisdictions outside of Queensland should refer to local policy and procedures

Definitions¹

- **Child** - an individual under 18 years of age as per the *Child Protection Act 1999*
- **Parent** - is the child/young person's mother, father or someone else (other than the Chief Executive) having or exercising parental responsibility for the child/young person. This includes under Aboriginal tradition and Torres-Strait Islander custom, a person who is regarded as the parent (S11 of the *Child Protection Act 1999*)
- **Mandatory reporter** - doctors, registered nurses, teachers, police officers, and child advocates are mandatory reporters (S13E(1) of the *Child Protection Act 1999*)
- **Mandatory reporting** - the above mandatory reporters must report a reasonable suspicion, formed in the course of their employment, that a child/young person has suffered, is suffering, or is at unacceptable risk of suffering, significant harm caused by physical or sexual abuse; and may not have a parent able and willing to protect them from harm (S13E(2) of the *Child Protection Act 1999*)
- **Non-mandatory reporting** - it is policy that all Queensland Health staff have a duty of care to report a reasonable suspicion, formed in the course of their employment, that a child/young person may be in need of protection, including an unborn child that may be in need of protection after they are born.

Staff who are not mandatory reporters should consider reporting a reasonable suspicion that a child/young person has suffered, is suffering, or is at unacceptable risk of suffering significant harm caused by emotional abuse and/or neglect; and may not have a parent/carer able and willing to protect them from harm

- **Harm** - is any detrimental effect of a significant nature on the child/young person's physical, psychological or emotional wellbeing. It can be caused by a single act, omission or circumstance; or as a series or combination of acts, omissions, or circumstances. It is immaterial how the harm is caused, however, causes may include:
 - physical, psychological or emotional abuse or neglect
 - sexual abuse or exploitation
- **Significant harm** - considerations when forming a 'reasonable suspicion' include:
 - whether there are detrimental effects on the child/young person's body, psychological or emotional state that are evident or likely to become evident in the future
 - the nature and severity of the detrimental effects
 - the likelihood that the detrimental effects will continue
 - the child/young person's age
- A suspected child/young person in need of protection concerns can include the following examples:
 - physical abuse e.g. hitting, shaking, throwing, burning, biting, poisoning, drowning, using a weapon to inflict punishment
 - neglect e.g. providing unhygienic/unsafe housing, failing to seek medical treatment when required, insufficient supervision, providing insufficient food, clothing or bedding. It can also include failing to act protectively in response to another person's actions e.g. allowing a convicted child sex offender to have unsupervised contact with the child/young person
 - sexual abuse occurs when a male or female adult, or an older child or adolescent including a sibling, uses power to involve a child/young person in sexual activity. It can be physical, verbal or emotional and includes any form of sexual touching, penetration, sexual suggestion, sexual exposure, and exhibitionism, exposure to pornography or sexual explicit material and child prostitution
 - emotional/psychological abuse e.g. rejection, hostility, teasing/bullying, yelling, ignoring or excessive criticism, threats of violence/abandonment and exposure to domestic and family violence

Related topics

Rape and sexual assault, page 620

Poor growth in children, page 723

1. May present with

- **Physical abuse** - an injury, a disclosure
- **Sexual abuse** - physical symptoms such as genital or anal pain, bleeding, discharge or pain on passing urine, STI or pregnancy, non-organic physical complaints
 - emotional or anxiety symptoms, but none are specific for sexual abuse
 - a disclosure by the child/young person or someone else
- **Neglect** - lack of adequate food, clothing, warmth and shelter, emotional and physical security and protection, medical and dental care, cleanliness, education and supervision²
- **Emotional/psychological abuse** - developmental or emotional delay, disruptiveness, aggressiveness, bullying, extreme attention seeking behaviour, non-organic physical complaints
- For clinical risk factors and indicators of the types of harm to children see <http://qheps.health.qld.gov.au/csu/Factsheets.htm> for more detailed information

2. Immediate management

- Attend to any serious illness or injury requiring immediate medical attention
- If an obvious criminal offence (sexual assault, significant physical, domestic violence) has been committed or is about to be committed, immediately consult with line management/senior staff and contact police by calling 'triple O' for police assistance
- If the child/young person has just caused or is about to cause serious harm to self or others consult MO/NP, or call for police assistance as appropriate

3. Assessment and management

- Assessment is made using health professional expertise, knowledge and consideration of:
 - the presence of signs, disclosures, injuries and behaviours of parent/carer/guardian and/or the child/young person that heighten your concerns about the safety and wellbeing of the child/young person
 - whether there are detrimental effects on the child/young person's body, psychological or emotional state that are evident at the time of presentation or likely to become evident in the future
 - the nature and severity of the detrimental effects and the likelihood they will continue
 - the child/young person's age particularly the vulnerability of young children
 - if there is a parent/carer/guardian able and willing to protect the child/young person from harm
- If a reasonable/reportable suspicion has been formed the staff member must immediately report their concerns in writing to an authorised officer of CSS-RIS or CSAHS using the 'Report of suspected child in need of protection' form available at: <https://secure.communities.qld.gov.au/CBIR/ChildSafety>. If unable to access the 'Report of suspected child in need of protection' form the report can be submitted in any format e.g. letter and must include details of the child/young person, nature of the harm, and contact details of the person making the report. Any report, written or verbal should be filed in the child/young person's clinical record and a copy sent to the local Child Protection Liaison Officer (CPLO)
- Document in the child/young person's clinical record:
 - any disclosures using exact quotes including the question that was asked before the disclosure. Be careful not to use leading questions
 - the abuse type or harm
 - the cause of the harm or identified risk factors
 - the degree or significance of the harm
 - who may have caused the harm if known
- Consult MO/NP who may arrange evacuation

Physical abuse

- **Assessment**
 - history of injury: whenever a child/young person presents with an injury, take and record a detailed history about how the injury occurred. What happened, where, when, who was there
 - past history: previous injury, medical problems, who is the child/young person's carer and guardian
 - examine the child/young person: record the injury and also any other injuries. Check the whole body. Use child abuse diagram to record injury or bruises. Think of non-accidental injury if:
 - the injury is in a pattern/shape you recognise such as a hand, belt or buckle
 - the child/young person or someone else tells you that it was caused by a parent/carer
 - a non-mobile baby who has bruises, head injury, neurological symptoms

- a baby less than 2 years of age with any fracture
- there is delay in seeking medical attention
- bruises or fractures where the explanation changes or does not make sense
- **Management**
 - treat the physical injury
 - document the history and the injury. Child abuse diagrams to assist with recording abuse are available at www.rch.org.au/clinicalguide/cpg.cfm?doc_id=5170
 - if any disclosures are made document using exact words and phrases
 - discuss with senior colleague e.g. Nurse Manager, Senior Health Worker, Director of Nursing, CPLO, CPA
 - discuss with MO/NP. May need to transfer to hospital for further investigation
 - ensure child/young person is safe
 - if suspicion of non-accidental injury is formed notify Child Safety Services, Department of Communities, Child Safety and Disability Services. See [Reporting and referring child protection concerns, page 745](#)

Sexual abuse

- **Assessment**
 - if the history suggests **recent sexual abuse** e.g. within the last 72 - 96 hours because of the story, the child/young person's behaviour, signs of genital injury, indications on clothing:
 - document history provided
 - don't try to question the child/young person yourself. But if they make disclosures write it down word for word
 - don't examine the child/young person's genitals, unless needed because of serious injuries/bleeding
 - don't wash the child/young person or change their clothes (may be forensic evidence)
 - **if episode(s) of abuse are not recent**
 - general examination not genital examination
 - **sexual activity in adolescent**
 - consider age of child/young person, intellectual and emotional development being mindful of speech and language development/abilities
 - for adolescent, consider age of young person, age of sexual partner and differences in ages
- **Management**
 - Child Sexual Assault (CSA) examinations should only be performed at the request of Queensland Police Service (QPS) and/or Child Safety Services after there has been some further corroboration of possible sexual abuse. CSA examination needs to be performed by an MO/NP with appropriate paediatric skills including child protection and/or sexual medical examination training or skills
 - do not request STI tests in an asymptomatic child/young person as the initial response to a suspicion of sexual abuse
 - **if episode(s) are recent**
 - discuss with senior colleague e.g. Nurse Manager, Senior Health Worker, Director of Nursing, CPLO, CPA, MO/NP
 - discuss with MO/NP and with CPLO/CPA. If recent assault will need to transfer to regional centre for urgent forensic examination. Child Safety Services and/or Child Protection and Investigation Unit would also be involved in this process
 - report sexual activity that has been assessed as non-consensual, not fully comprehended by the child/young person, suggestive of an inappropriate power differential, constituting an age gap of 5 years or more, involving coercion, exposure to or use of pornographic material, involving other family member notify the Child Safety Services
 - See [Reporting and referring child protection concerns, page 745](#)

- if episode(s) of abuse are not recent
 - consider the safety of the child/young person
 - there is often no physical or medical evidence of sexual abuse
 - support child/young person and their protective parent/carer
 - notify Child Safety Services
 - See [Reporting and referring child protection concerns, page 745](#)

Neglect

• Assessment

- check the following issues which might suggest/impact on carer neglecting child/young person:
 - child/young person is unkempt, unwashed, hungry
 - medical neglect - late presentation or lack of adherence to medical treatment of a child/young person
 - forms inappropriate relationships e.g. clingy with clinical staff
 - concern raised about financial resources available to care for child/young person
 - knowledge of parent/carer mental illness and when unwell are not able to care for the child/young person
- take history about child/young person's care and carers
- ask about difficulties such as substance use and family violence
- arrange for MO/NP review to consider medical problems e.g. for poor growth
- record concerns, support offered and action taken

• Management

- ensure the carers understand the needs of the child/young person
- work with family to develop a plan to meet the child/young person's needs
- involve appropriate health team members, Child Health Nurse, MO/NP, Health Worker
- if medical issues refer to Paediatrician
- notify Child Safety Services if no progress in child/young person's condition despite providing or attempting to provide support
- see [Reporting and referring child protection concerns, page 745](#)

Emotional abuse³

• Assessment

- ask carer/young person about behaviours which may indicate emotional abuse
 - disruptiveness, aggressiveness, bullying, threatening, scaring, exposure to domestic violence, ridiculing or other non-physical forms of hostile behaviour or rejecting treatment

• Management

- ensure the carers understand the impact of behaviours and action on child/young person's needs
- determine the severity of the problem
- child/young person may require assessment of resultant symptoms including withdrawal, excessive anger or aggression, eating disorders, poor growth, developmental delay and emotional disturbances e.g. depression, anxiety, fearfulness, running away
- consider referral to Paediatrician and/or Child and Youth Mental Health Services
- consider referral to support, counselling agencies if available
- if symptoms are significant and are/could be the result of parental actions or behaviours, a mandatory report of child abuse and neglect is required and advice of harm provided to Child Safety Services
- see [Reporting and referring child protection following](#)

Reporting and referring child protection concerns

Health professionals in jurisdictions outside of Queensland should follow local policies and procedures

Concerns

A health professional has concerns for the safety and wellbeing of a child or young person including an unborn child due to physical, sexual, psychological/emotional abuse and/or neglect

Considerations

Assessment is made using health professional expertise, knowledge and consideration of:

- The presence of signs, disclosures, injuries and behaviours of parent and/or the child that heighten your concerns about the safety and wellbeing of the child*
- Whether there are detrimental effects on the child's body or the child's psychological or emotional state that are evident at the time of presentation or likely to become evident in the future
- The nature and severity of the detrimental effects and the likelihood they will continue
- The child's age particularly the vulnerability of young children
- If there is a parent able and willing to protect the child from harm

Consultation

It is recommended that health professionals consult with your line manager, colleagues, Child Protection Liaison Officer or Child Protection Advisor, The Child Protection Guide available at: <https://www.communities.qld.gov.au/childsafety/partners/our-government-partners/queensland-child-protection-guide/online-child-protection-guide>

Note: individuals may still report concerns if consensus with colleagues is not reached

REPORTING TO CHILD SAFETY SERVICES

If you have formed a reasonable suspicion that a child has suffered, is suffering, or likely to suffer significant harm and may not have a parent able and willing to protect them, immediately report your concerns

- Online report form: <https://secure.communities.qld.gov.au/cbir/home/ChildSafety#>
- Print, complete and sign the 'Report of a suspected child in need of protection' form, forwarding a copy to CSS-RIS or CSAHS and your local Child Protection Liaison Officer and store the form in the client medical record
- Fax or email copies to CSS-RIS or CSAH
- If you are unable to access the form you must provide a written report to CSS-RIS or CSAHS including details of the child, the nature of the harm and contact details of the person making the report. It is recommended that you phone CSS-RIS or CSAHS and document in the client's medical record the date, time and name of the person with whom you spoke
- CSS-RIS contact numbers can be accessed at: <https://www.communities.qld.gov.au/childsafety/about-us/contact-us>

REFERRAL TO FAMILY SUPPORT

If concerns do not reach the threshold for a report to Child Safety with consent**, refer family to a family support service. If:

- has multiple and/or complex needs
- requires further assessment and identification of needs

Refer to:

- Family and Child Connect (service rollout during 2015-16) OR
- Intensive family support service (service rollout during 2015-16)
- Complete referral form: <https://secure.communities.qld.gov.au/cbir#>
- Print and file a copy in the client medical record
- If these services areas not available in your area contact 13FAMILY ☎ 13 3264 for referral options or: <http://www.familychildconnect.org.au>

* Consider the need for specific medical investigation and management

** Under S159M pf the *Child Protection Act 1999* particular entities can refer families to a Family and Child Connect or Intensive family support service without their consent to prevent a child from becoming in need of protection

5. Follow up - information sharing and documentation

- All delegated staff must provide relevant information in their possession regarding a child/young person to an authorised officer of the Department of Communities Child Safety and Disability Services (Child Safety Services) upon request (S159N(1) *Child Protection Act 1999*). Relevant information may include information about a child/young person in need of protection, the child/young person's family or someone else relevant to the child/young person. It may be comprised of facts or opinion
- Requests for information should be responded to as per local Hospital and Health Services processes which involves coordination through the Regional Child Protection Liaison Officer
- If there are concerns about sharing information, for any reason, discussion with the local Hospital Health Services Child Protection Liaison Officer and/or medico-legal services is recommended
- When sharing information with Child Safety Services keep copies of all correspondence and record requests in the correspondence section of the child/young person's clinical record
- Additionally, update progress notes in the clinical record to reflect requests for correspondence
- File all written summaries or written reports of relevant information provided to an external agency in the correspondence section of the child/young person's clinical record
- Document in the child/young person clinical record accurate, considered, objective non-judgemental and up to date accounts of concerns, consultations, contacts, actions and plans related to presentation as these may be requested

6. Referral/consultation

- Consult MO/NP. Child may need evacuation
- Seek advice from the local Hospital Health Services Child Protection Advisor and/or Child Protection Liaison Officer who are available to offer support, clinical advice and reporting information
- For more detail see *Protecting Children and Young People Policy, Implementation Standards, Protocol and Procedures* available at: www.health.qld.gov.au/qhpolicy/html/index-p.asp

Resources

- Statewide Child Protection Clinical Partnership resources
<http://qheps.health.qld.gov.au/childrenshealth/html/lcch/cpfms/cpfms-resources.htm>
- Child Abuse Diagrams to assist with recording abuse
www.rch.org.au/clinicalguide/cpg.cfm?doc_id=5170
- Queensland Health, Child Health and Safety Unit
<http://qheps.health.qld.gov.au/csu/home.htm>
- Queensland Health - Forms for reporting
<http://qheps.health.qld.gov.au/csu/reportingforms.htm>
- Department of Communities Child Safety and Disability Services
www.childsafety.qld.gov.au
- Queensland Family and Child Commission
<http://www.qfcc.qld.gov.au/contact-us>
- NSW Department of Community Services
www.community.nsw.gov.au/preventing-child-abuse-and-neglect
Child Protection Help Line ☎ 132 111 (24 hours)
- Child Protection - Department of Human Services, Victoria
<http://www.dhs.vic.gov.au/for-service-providers/children,-youth-and-families/child-protection>
Victorian Police Child Protection ☎ 131 278 (24 hours)
- Australian Institute of Family Studies website - Mandatory reporting across Australia
www.aifs.gov.au/cfca/pubs/factsheets/a141787/index.html

Section 7

Immunisation



Contents

- [Immunisation program, page 750](#)
- [Additional vaccines with special conditions, page 753](#)
- [Sexual health immunisation, page 753](#)
- [Tetanus immunisation, page 755](#)

Immunisation program - adult/child

Recommend

- Utilise all clinical encounters to assess vaccination status and when indicated, vaccinate children and adults
- Administer all due and overdue immunisations at time of presentation, if patient is assessed as fit for vaccination. Plan and document catch-up immunisations if further vaccinations are required

Background

- The National Immunisation Program schedule (NIPs) is antigen based and vaccine combinations may vary from state to state, or region to region
- Targeted approved immunisation programs may vary from state to state, or region to region, and must be appropriately endorsed
- For further advice on immunisation contact your local Public Health Unit

Related topics

 Anaphylaxis and severe allergic reaction, page 67	Acute hepatitis A, page 404
 Tetanus immunisation, page 755	Acute hepatitis B, page 405
 Sexual health immunisation, page 753	
 Child with fever, page 639	

1. May present with

- Vaccination providers should utilise all clinical encounters to assess vaccination status and, when indicated, vaccinate the patient
- Integrate immunisation as part of routine child health check/chronic disease check
- For hospitalised patients e.g. all paediatric or emergency admissions, review documented vaccination status and arrange routine or catch-up vaccination if required
- Targeted community immunisation programs e.g. annual influenza and pneumococcal programs
- Follow up/receiving a 'late for vaccination date' notification. Refer to the 'catch-up chapter' in current edition of *The Australian Immunisation Handbook*

2. Immediate management Not applicable

3. Clinical assessment

- Standard vaccination procedures should be followed as per current edition of *The Australian Immunisation Handbook*
- Obtain documented evidence of vaccines already given and assess which vaccines are due at presentation. Check:
 - Vaccination Information and Vaccination Administration System (VIVAS)/Public Health Unit
 - Australian Childhood Immunisation Register (ACIR)
 - Human Papillomavirus Immunisation Coverage Data (HPV Register)
 - My Health Record
 - clinical notes
 - other clinics/GP practice where may have been vaccinated

4. Management

- The resuscitation equipment, medicines and protocol necessary for the management of anaphylaxis must be available and checked prior to each immunisation session
- Maintain and monitor vaccine refrigerator and other vaccine cold chain components, according to the current edition of the *National Vaccine Storage Guidelines*. Record minimum/maximum temperatures twice daily¹
- Appropriate information about the risks and benefits of vaccination and the risk of vaccine preventable diseases must be provided to and be discussed with the patient to be vaccinated or with that patient's parent or guardian. This must be documented
- A pre-vaccination assessment to determine the vaccinee's medical fitness for vaccination must be undertaken. Any concern about the patient's eligibility for vaccination must be discussed with a specialist immunisation clinic, a MO/NP with expertise in vaccination, local Public Health Unit, or the immunisation section within your state or territory health authority. See *The Australian Immunisation Handbook* for contact details. Available at: <http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook10-home>
- Following the provision of appropriate information (as per above) and the pre-vaccination assessment, valid consent must be obtained from the patient to be vaccinated or from their parent or guardian. This should be documented. Explicit verbal consent is required prior to subsequent vaccinations even when written consent has been recorded at previous vaccination encounters
- The patient to be vaccinated or that patient's parent or guardian must be advised that the patient should remain under observation in a designated place for 15 minutes after the vaccination
- The dose, route and technique of administration of the vaccine(s) must be in accordance with the current edition of *The Australian Immunisation Handbook*
- Check each dose of vaccine to ensure the expiry date has not lapsed and there is no particulate matter or colour change in the vaccine
- The vaccination status of other family members should be checked and opportunistic vaccination should be offered in appropriate settings
- Needles, syringes and vaccine vials must be disposed of as per standard infection control guidelines
- The patient, or the parent or guardian of the patient who has just been vaccinated, must be advised on the management of the common adverse events that may occur after vaccination
- Advise patient or guardian of the patient how to report a significant adverse event following immunisation
- Prior to departure, the patient or the patient's parent or guardian should be informed, preferably in writing, of the date of the next scheduled vaccination
- Document details of vaccination:
 - on a personal health record book or personal record to be retained by patient
 - in clinical record
 - on a Queensland Health Vaccination Record Form (VIVAS), Australian Childhood Immunisation Register encounter form or equivalent
 - on the clinic recall database i.e. patient information recall system

Schedule	4	Vaccines	DTP IHW/SM R&IP/IPN/Mid

Authorised Indigenous Health Worker must consult an MO/NP

Scheduled Medicine Rural & Isolated Practice Registered Nurse and Immunisation Program Authorised Registered Nurse may proceed

Midwives may proceed with # only

Conditions/situations	• In accordance with the current edition of <i>The Australian Immunisation Handbook</i> PLUS • In accordance with the current National Immunisation Program schedule (NIPs); or • As approved by the National Health and Medical Research Council (NHMRC) for future inclusion in NIPs; or • For use in other immunisation programs that have been approved by the Chief Health Officer; or • For use in a case/outbreak situation, or other specific situations, as directed by a Public Health Medical Officer; or • An immunisation program certified by the Chief Executive Queensland Health or delegate

Antigens (vaccine)*

Diphtheria - tetanus (dT)	Human papillomavirus (HPV)
Diphtheria - tetanus - acellular pertussis adult/adolescent (dTpa) #	Inactivated poliomyelitis (IPV)
Diphtheria - tetanus - acellular pertussis child (DTPa)	Influenza #
Diphtheria - tetanus - acellular pertussis - inactivated poliovirus (DTPa-IPV)	Japanese encephalitis - inactivated
Diphtheria - tetanus - acellular pertussis - inactivated poliovirus (dTpa-IPV)	Japanese encephalitis - live attenuated
Diphtheria - tetanus - acellular pertussis - hepatitis B - inactivated poliovirus - Haemophilis influenzae type B (DTPa-hepB-IPV-Hib)	Measles, mumps, rubella (MMR) #
Haemophilis influenzae type B (Hib)	Measles, mumps, rubella, varicella (MMRV)
Haemophilis influenzae type B - meningococcal C conjugated (Hib-MenCCV)	Meningococcal C conjugated (MenCCV)
Hepatitis A	Rotavirus
Hepatitis B #	Varicella (VV)
Hepatitis A and Hepatitis B combination	13 - valent pneumococcal conjugate (13vPCV)
Hepatitis B Immunoglobulin # (Midwives only) For babies of HBsAG positive mothers only	23 - valent pneumococcal polysaccharide (23vPPV)

Management of associated emergency: See [Anaphylaxis and severe allergic reaction, page 67](#)

2

*Vaccines on NIPs are funded (free) for eligible patients

Additional vaccines with special conditions

Q Fever

- Should only be administered under vaccination programs approved by the Chief Health Officer
- Medical and nursing personnel must be experienced in skin testing and interpretation as per current *The Australian Immunisation Handbook*

Tuberculosis (BCG)

- Should only be administered by specially trained medical and nursing staff who are authorised by a Queensland tuberculosis control unit and conversant with recommended procedures as per current *The Australian Immunisation Handbook*

5. Follow up

- Confirm next visit
- ① Any serious or unexpected adverse event following immunisation **must** be promptly reported. In Queensland report any significant adverse event following immunisation (AEFI) directly to Queensland Health by completing an AEFI form available at: <https://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/aei-reporting-form.pdf> and fax to number on form. If practising outside of Queensland use the local reporting systems
- For any incorrect or inappropriate procedure the 'incident' **must** be promptly reported to the provider's supervisor. In Queensland complete and submit a clinical incident report, in other jurisdictions use the local clinical incident reporting system

6. Referral/consultation

- Consult with a specialist immunisation clinic, an MO/NP with expertise in vaccination, local Public Health Unit, or the immunisation section within your state or territory health authority. See *The Australian Immunisation Handbook* for contact details



Sexual health immunisation program

Recommend

- Clinicians should administer all due and overdue vaccinations at the time of presentation if patient is assessed as fit for vaccination. Plan and document catch up vaccinations if further vaccinations are required

Background

- For further advice on immunisation contact your local Public Health Unit or Communicable Diseases Control Centre. Contact numbers are listed in the current edition of *The Australian Immunisation Handbook* or available at: <http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook10-home>

Related topics

- [Anaphylaxis and severe allergic reaction, page 67](#)
- [Immunisation program, page 750](#)

[Acute hepatitis A, page 404](#)
[Acute hepatitis B, page 405](#)
[HIV infection, page 616](#)

1. May present with

- Opportunistic immunisation is best practise. Vaccination providers should utilise all clinical

encounters to assess vaccination status and, when indicated, vaccinate the patient in accordance with the current *The Australian Immunisation Handbook* recommendations

- Integrate immunisation as part of routine sexual and reproductive health clinical practice

2. Immediate management Not applicable

3. Clinical assessment

- See [Immunisation program, page 750](#)

4. Management

- Vaccination procedures must be followed. See [Immunisation program, page 750](#)

Schedule	4	Vaccines	DTP IHW/SM R&IP/SRH/IPN
Authorised Indigenous Health Worker must consult an MO/NP			
Scheduled Medicines Rural & Isolated Practice Registered Nurse, Sexual and Reproductive Health Authorised Registered Nurse and Immunisation Program Authorised Registered Nurse may proceed			
Conditions/situations	• In accordance with the current edition of <i>The Australian Immunisation Handbook</i> PLUS • In accordance with the current National Immunisation Program schedule (NIPs); or • As approved by the National Health and Medical Research Council (NHMRC) for future inclusion in NIPs; or • For use in other immunisation programs that have been approved by the Chief Health Officer; or • For use in a case/outbreak situation, or other specific situations, as directed by a Public Health Medical Officer; or • An immunisation program certified by the Chief Executive Queensland Health or delegate		
	Antigens (vaccine)*		
Hepatitis A	Hepatitis B	Human papillomavirus (HPV)	Measles, mumps, rubella (MMR)
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67			

2

2

*Vaccines on NIPs are funded (free) for eligible patients

5. Follow up

- Confirm the next visit
- ① Any serious or unexpected adverse event following immunisation **must** be promptly reported. In Queensland report any significant adverse event following immunisation (AEFI) directly to Queensland Health by completing an AEFI form available at: <https://www.health.qld.gov.au/publications/clinical-practice/guidelines-procedures/aei-reporting-form.pdf> and fax to number on form. If practising outside of Queensland use the local reporting systems
- For any incorrect or inappropriate procedure the 'incident' **must** be promptly reported to the provider's supervisor. In Queensland complete and submit a clinical incident report, in other

jurisdictions use the local clinical incident reporting system

6. Referral/consultation

- Consult with a specialist immunisation clinic, a MO/NP with expertise in vaccination, local Public Health Unit, or the immunisation section within your state or territory health authority. See *The Australian Immunisation Handbook* for contact details

Tetanus immunisation - adult/child

Recommend

- Assess tetanus immunisation status before giving vaccination

Background

- The definition of a tetanus prone injury is not straight forward as tetanus may occur after apparently trivial injury, such as from a rose thorn, or with no history of injury. It is for this reason that all wounds other than clean, minor cuts are considered tetanus prone³
- The tetanus HMP should be used in accordance with the current edition of *The Australian Immunisation Handbook*: <http://health.gov.au/internet/immunise/publishing.nsf/Content/Handbook10-home>

Related topics

-  Acute wounds, page 157
-  Trauma to teeth, page 307
-  Trauma and injuries, page 118
-  Compound fractures, page 147
-  Redback spider bite, page 266
-  Human (tooth-knuckle) and animal bites, page 171

- Burns, page 178
- Spider bites (general), page 262
- Tick bites, page 269
- Funnel-web (big black) spider bite, page 263

1. May present with

- As part of immunisation schedule
- Tetanus prone wound

2. Immediate management Not applicable

3. Clinical assessment

- All wounds other than clean minor cuts are considered tetanus prone
- In particular assess²:
 - compound fractures
 - bite wounds
 - deep penetrating wounds, wounds containing foreign bodies, especially wood splinters
 - wounds complicated by pyogenic infections
 - wounds with extensive tissue damage e.g. contusions or burns
 - superficial wounds contaminated with soil, dust or horse manure, especially if topical disinfection is delayed more than 4 hours
 - re-implantation of an avulsed tooth
- Does the patient inject drugs? In particular practise skin 'popping' i.e. injecting under the skin

- If patient has a humoral immune deficiency they may require Tetanus immunoglobulin³
- See [Immunisation program, page 750](#)

4. Management

- Vaccination procedures must be followed. See [Immunisation program, page 750](#)
- Whatever the immune status of an individual with a tetanus prone wound local disinfection and, where appropriate, surgical treatment of wound must never be omitted
- Assess tetanus immunisation status. See 'Guide to tetanus prophylaxis in wound management' box below
- Administer tetanus containing vaccine as appropriate
- Consult MO/NP if tetanus immunoglobulin (TIG) required

Guide to tetanus prophylaxis in wound management²

History of tetanus vaccination	Time since last done	Type of wound	DTPa, DTPa combinations, dT, dTpa as appropriate	Tetanus Immunoglobulin (TIG)*
≥ 3 doses	< 5 years	Clean minor wounds	NO	NO
		All other wounds [†]	NO	NO [‡]
≥ 3 doses	5 - 10 years	Clean minor wounds	NO	NO
		All other wounds [†]	YES	NO [‡]
≥ 3 doses	> 10 years	Clean minor wounds	YES	NO
		All other wounds [†]	YES	NO [‡]
< 3 doses or uncertain [§]	> 10 years	Clean minor wounds	YES	NO
		All other wounds [†]	YES	YES

* Recommended dose for TIG is 250 International Units, given by IM injection, as soon as practicable after the injury. If more than 24 hours has elapsed, 500 International Units should be given. Because of its viscosity, TIG should be given to adults using a 21 G needle. For children, it can be given slowly using a 23 G needle

[†] All wounds, other than clean minor wounds, should be considered tetanus prone

[‡] Patients with a humoral immune deficiency, including HIV-infected patients who have immunodeficiency, should be given TIG if they have received a tetanus prone injury, regardless of the time since their last dose of tetanus-containing vaccine

[§] Patients who have no documented history of a primary vaccination course (3 doses) with a tetanus toxoid-containing vaccine should receive all missing doses and must receive TIG. See *The Australian Immunisation Handbook* for catch-up

Schedule	4	Vaccines	DTP IHW/SM R&IP/IPN/IPAP
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP			
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Immunisation Program			
Authorised Registered Nurse may proceed			
Vaccine	Route of administration	Recommended age	
Diphtheria, tetanus acellular pertussis (DTPa)	IM	Paediatric formulation if < 10 years	
Diphtheria, tetanus acellular pertussis (dTpa)	IM	Adolescent/adult formulation if > 10 years ‡	
Diphtheria, tetanus dT (ADT)	IM	Adult formulation	
Condition: dose, route and timing interval of administration of vaccines to be in accordance with the current edition of <i>The Australian Immunisation Handbook</i>			
Management of associated emergency: See Anaphylaxis and severe allergic reaction, page 67			
‡ dTpa provides added protection against pertussis and should be considered - not funded on NIPs			

2

2

Prevention of tetanus in inadequately immunised people with tetanus prone wound

Schedule	4	Tetanus immunoglobulin (TIG)	DTP IHW/SM R&IP/IPN/IPAP	
Authorised Indigenous Health Worker and Isolated Practice Area Paramedic must consult MO/NP				
Scheduled Medicines Rural & Isolated Practice Registered Nurse and Immunisation Program				
Authorised Registered Nurse may proceed				
Condition		Dose, route and timing interval of administration of vaccines to be in accordance with the current edition of <i>The Australian Immunisation Handbook</i>		
Form	Strength	Route of administration	Recommended dosage	Duration
Vial	250 International Units	IM	250 International Units If more than 24 hours have elapsed since wound give 500 International Units	Stat
Management of associated emergency: consult MO/NP. See Anaphylaxis and severe allergic reaction, page 67				

2

2

5. Follow up

- Review wound. See [Acute wounds, page 157](#)
- If TIG or vaccine given provide patient with record of vaccination for them to notify their primary health care provider
- If catch-up schedule required arrange/confirm next visit to complete immunisation course
- ① Any serious or unexpected adverse event following immunisation **must** be promptly reported. In Queensland report any significant adverse event following immunisation (AEFI) directly to Queensland Health by completing an AEFI form available at: <https://www.health.qld.gov.au/>

[publications/clinical-practice/guidelines-procedures/aefi-reporting-form.pdf](#) and fax to number on form

- If practising outside of Queensland use the local reporting systems
- For any incorrect or inappropriate procedure the 'incident' **must** be promptly reported to the provider's supervisor. In Queensland complete and submit a clinical incident report, in other jurisdictions use the local clinical incident reporting system

6. Referral/consultation

- Consult with a specialist immunisation clinic, a MO/NP with expertise in vaccination, local Public Health Unit, or the immunisation section within your state or territory health authority. See *Australian Immunisation Handbook* for contact details

Appendices



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- [Medication reconciliation, page 762](#)
- [Medication history checklist, page 763](#)
- [Management of patient death, page 764](#)
- [Assessing level of consciousness, page 766](#)
- [Glasgow coma scale \(GCS\)/AVPU, page 766](#)
- [Safe use of paracetamol, page 767](#)
- [Administration tips for benzathine penicillin \(Bicillin LA\) and procaine penicillin, page 768](#)
- [Abbreviations, page 769](#)

Medication reconciliation¹

Medication reconciliation: 4 simple steps to improve patient safety

Matching up medicines that the patient should be prescribed with those that are actually prescribed is a process called medication reconciliation. This can help ensure continuity of care and prevent harm by reducing the opportunity for medication errors

1. Obtain best possible medication history	2. Confirm the accuracy of the history
• Using information from patient interview, referrals, discharge summary and other sources compile a comprehensive list of the patient's current medicines • Include prescription, over-the-counter and complementary medicines • Include information about the medicine's name, dose, frequency and route • Use the Medication history check list to obtain the Best Possible Medication History (BPMH) • Document on Medication Action Plan form • The BPMH is different and more comprehensive than a routine primary medication history, which is often a quick medication history • In Aboriginal and Torres Strait Islander and Culturally and Linguistically Diverse (CALD) populations it is recommended to utilise interpreters and/or Aboriginal and Torres Strait Islander Health Workers to assist in the medication history taking process	• Use a second source to confirm the information obtained • Ensure you have the best possible medication history • Verify medication history through use of: – reviewing the patient's medicines list – inspecting medicine containers including dosette box or Webster-pak[®] – contacting community Pharmacist, tertiary or secondary facilities – talking with carers and other members of patient's family
3. Reconcile the history with prescribed medicines	4. Supply accurate medicines information
• Compare the patient's medication history with the prescribed medicines • Check that these MATCH or that any changes are clinically appropriate • Where there are discrepancies, discuss these with the prescriber • Document reasons for change to therapy	• Ensure current accurate medication information is available to all health care providers • When patients are transferred to ensure the person taking over their care is supplied with an accurate and complete list of the patient's medicines • Ensure that the patient and their carer is also provided with information about any changes that have been made to their medicines in language and format they can understand

Resources

1. Resource: Australian Commission on Safety and Quality in Health Care. Get it right! [video on Internet]. ACSQHC's channel: You Tube; [cited 2016 Jan 25]. Available from: <https://www.youtube.com/watch?v=dc5jFuba6CI>

Medication history checklist

A medication history is a record of all medicines that are taken at the time of presentation. Obtaining a best possible medication history (BPMH) is one of the 4 steps in the medication reconciliation process, which aims to improve patient safety^{1,2}. Use the checklist below to prompt specific questions to obtain the best possible medication history

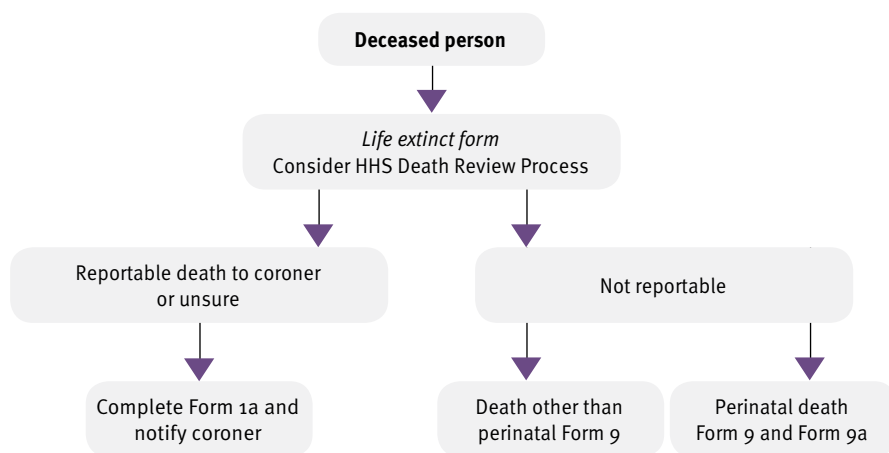
- ☐ Prescription medicines
 - sleeping tablets
 - inhalers, puffers with or without spacer, sprays, sublingual tablets
 - oral contraceptives, hormone replacement therapy
- ☐ Over-the-counter medicines
 - analgesics
 - gastrointestinal medication for reflux, heartburn, constipation, diarrhoea
- ☐ Bush medicines
- ☐ Complementary medicines e.g. vitamins, herbal or natural therapies
- ☐ Topical medicines e.g. creams, ointments, lotions, patches
- ☐ Inserted medicines e.g. nose/ear/eye drops, pessaries, suppositories
- ☐ Injected medicines
- ☐ Recently completed courses of medicine
- ☐ Other people's medicine
- ☐ Social and recreational drugs
- ☐ Intermittent medicines e.g. weekly or twice weekly
- ☐ Any previous adverse medicine reactions, including allergies
- ☐ Recently ceased or altered medicines
- ☐ Assess adherence by asking:
 - 'People often have difficulty taking their pills for one reason or another. Have you had difficulty taking your pills?'
 - 'About how often would you say you miss taking your medicines?'

Management of patient death

Refers to the management of a patient death in the state of Queensland. Other jurisdictions are advised to follow local policy and procedures:

- Complete a *Life Extinct Form* - can be completed by a MO/NP, Registered Nurse, Paramedic or Police Officer (in certain obvious death cases only) for the purpose of management and transportation of the deceased body and to facilitate the management of the deceased in the community prior to the death certificate being issued for the deceased. 'Obvious death' is defined on the *Life Extinct Form*, available in all facilities or at: http://www.afda.org.au/media/member/QLD_Life_Extinct_Form.pdf
- A decision must be made if the death is a reportable death in accordance with the *Coroners Act 2003*. The criteria for a reportable death¹ are:
 - death of an unknown person
 - death in suspicious circumstances
 - death in care
 - violent or otherwise unnatural death
 - death in custody
 - death as a result of police operations
 - health care related death
 - death where *Form 9: Cause of Death Certificate* not issued and unlikely to be issued
- Where the death is considered a reportable death or if unsure and there is a need to seek coroner's advice, complete a *Form 1a: Medical practitioner report of death to a coroner* and fax/scan/email to the coroner available from: www.courts.qld.gov.au/courts/coroners-court/forms
- When the death is considered reportable as a violent or otherwise unnatural death (other than those from mechanical falls) the death must be reported to the police who will then report the death to the coroner. Medical equipment, tubes and medical devices attached or inserted should remain in situ until police investigations have concluded, unless otherwise directed by the police
- Where the death is not a reportable death a *Form 9: Cause of Death Certificate* can be completed by a MO only. Refer to guidance issued by the Office of the State Coroner *Issuing cause of death certificates for apparent natural causes deaths* available at: <http://www.courts.qld.gov.au/courts/coroners-court/fact-sheets-and-publications>.
- Information for health professionals available at: http://www.courts.qld.gov.au/__data/assets/pdf_file/0006/92868/m-osc-fs-information-for-health-professionals.pdf
- A MO is not to complete a *Form 9: Cause of Death Certificate* for a reportable death, unless authorised to do so by the coroner
- Where the death is a perinatal death (baby at least 20 weeks gestation or 400 grams weight and died within 28 days after birth) a *Form 9a Perinatal Supplement to Form 9: Cause of Death Certificate* must also be completed
- Form 9 and Form 9a are triplicate forms available in all facilities
- Where a deceased person requires transport, funeral directors may require an Authority to Transport - check Hospital and Health Service forms
- Other Forms may apply to specific types of deaths:
 - child death - *Report Of Suspected Child In Need Of Protection* form, available from: <https://secure.communities.qld.gov.au/cbir/home/ChildSafety#>. See *Child protection*, page 740
 - mental health patient - contact Hospital and Health Service Director of Mental Health
 - maternal patient death - contact Hospital and Health Service Director of Obstetrics
 - peri operative patient death - Queensland Audit of Surgical Mortality contact the Hospital and Health Service Director of Medical Services
- All inpatient deaths in Queensland Health facilities and non-inpatient deaths where the patient

was treated by a Queensland Health facility within the last 30 days are subject to a local death review process. Contact the Hospital and Health Service Director of Medical Services for more information and applicable forms



Resources

Queensland

- Coronial management resources: <http://courts.qld.gov.au/courts/coroners-court>

New South Wales

- www.health.nsw.gov.au/policies/pd/2015/PD2015_040.html
- PD2015_040 Death - Verification of Death and Medical Certificate of Cause of Death. Available from: http://www.health.nsw.gov.au/policies/pd/2015/pdf/PD2015_040.pdf

Victoria

- Coroner court: www.coronerscourt.vic.gov.au
- Coroner Clinical Liaison Service: www.health.vic.gov.au/cls/index.htm

Assessing level of consciousness - AVPU/GCS

A	Alert
V	Responds to verbal statement
P	Responds to painful stimuli
U	No response (unresponsive)

Glasgow coma scale (GCS) - adult/child/infant			
(GCS)	Adult Child > 5 years	Child 2 - 5 years	Infant 0 - 23 months
Eyes open	4. Opens eyes spontaneously 3. Opens eyes on command or to speech 2. Opens eyes with pain (pinching) 1. No eye opening/no response		
Best verbal response	5. Fully orientated 4. Confused, disorientated: not sure of their name or where they are or what happened 3. Inappropriate meaningless words 2. Incomprehensible noises - grunts, moans 1. No sounds	5. Appropriate words and phrases 4. Inappropriate words 3. Cries and/or screams 2. Grunts 1. No response	5. Smiles, coos, cries appropriately 4. Cries but consolable 3. Persistent cries and/or screams 2. Grunts, moans to pain 1. No response
Best motor response	6. Obeys commands 5. Localises to pain 4. Withdraws to pain 3. Flexor response to pain (bends arm or leg) 2. Extensor response to pain (straightens arm or leg) 1. No response		6. Obeys commands 5. Localises pain 4. Withdraws to stimuli 3. Abnormal flexion 2. Extensor responses 1. No response
Scale	Maximum scale: eyes 4 + verbal 5 + motor 6 = 15 (fully alert, conscious) Minimum scale: eyes 1 + verbal 1 + motor 1 = 3 (unconscious) Always act on: • Scale less than 15 • Drop of 2 or more from last assessment • If GCS is 8 or less prepare to intubate GCS not valid if patient: • Has direct eye injury or periorbital swelling after head trauma • Intubated patients • Immobilised limbs In these situations it is appropriate to record the individual scales for each measurable response (motor, verbal or eyes)		

Safe use of paracetamol

- Paracetamol (also known as acetaminophen) is a common and widely-used non-opioid analgesic
- Paracetamol has a well-established safety profile when used appropriately
- In acute overdose, paracetamol can lead to severe and sometimes fatal hepatotoxicity¹
- Dose should be titrated according to weight and risk factors. In obese children the dosage should be based on ideal body weight² i.e. 50th centile on an appropriate weight-for-age percentile chart Available from http://www.rch.org.au/childgrowth/Growth_Charts

Recommended dose paracetamol		
Risk Factor	Dose	Duration
Children 3 months to 11 years		
• No risk factors	• 15 mg/kg/dose every 4 to 6 hours up to a maximum of 60 mg/kg in 24 hours • Do not exceed 1 g per dose • Do not exceed 4 g in 24 hours	• Review at 48 hours • If treatment to continue beyond 48 hours, consider reducing dose
• One or more risk factors	• 15 mg/kg/dose every 4 to 6 hours up to a maximum of 45 mg/kg in 24 hours • Do not exceed 1 g per dose • Do not exceed 3 g in 24 hours	• Review at 48 hours • If treatment to continue beyond 48 hours, consider monitoring LFTs and INR
Adult and child ≥ 12 years		
• No risk factors	• 0.5 g - 1 g every 4 to 6 hours, up to a maximum of 4 g in 24 hours	• Review at 48 hours
• One or more risk factors and actual weight greater than or equal to 50 kg	• 0.5 g - 1 g every 4 to 6 hours, up to a maximum of 3 g in 24 hours	• Review at 48 hours • If treatment to continue beyond 48 hours, consider monitoring LFTs and INR
• One or more risk factors and actual weight less than 50 kg	• 15 mg/kg/dose every 4 to 6 hours up to a maximum of 4 doses in 24 hours	
• Severe hepatic impairment and actual weight greater than or equal to 50 kg	• 0.5 g - 1 g every 4 to 6 hours, up to a maximum of 2 g in 24 hours	
• Severe hepatic impairment and actual weight less than 50 kg	• 15 mg/kg/dose every 4 to 6 hours up to a maximum of 3 doses in 24 hours	

1,2,3

Factors that may increase the risk of paracetamol toxicity

Adult	Child
• Prolonged fasting or dehydration • Chronic under-nutrition • Chronic, excessive alcohol use • Chronic use of anticonvulsants • Severe hepatic impairment • Elderly, frail patients	• Febrile illness • Younger age • Prolonged fasting, vomiting or dehydration • Chronic under-nutrition • Hepatic impairment • Prior paracetamol intake e.g. in over-the-counter cough/cold preparations • Use of adult rather than paediatric formulations • Use of paediatric formulations designed for an older age group e.g. siblings or availability of multiple strengths of paediatric formulations

1

Administration tips for benzathine penicillin (Bicillin LA®) and procaine penicillin

Administration tips

- Apply EMLA® cream to the injection site 30 - 60 minutes prior to giving needle
- Consider administering paracetamol before giving the injection. See [Simple analgesia pull out](#)
- Allow medicine to warm up to room temperature by rolling the syringe between hands for 1 - 2 minutes
- Apply ice to injection site 10 mins prior to injection, and distract children
- Give by deep IM injection only in the upper, outer quadrant of the buttock or midlateral aspect of the thigh. Avoid major nerves and blood vessels. Do not give into the deltoid
- Apply firm pressure with thumb to the exact injection site for 30 seconds prior to the injection
- Use 21 G needle and deliver injection very slowly i.e. over 2 minutes
- The addition of 0.5 - 1.0 mL of 1% lignocaine is used elsewhere but is not recommended with preloaded syringes available in Australia

Abbreviations

ACEI	angiotensin converting enzyme inhibitor	CSOM	chronic suppurative otitis media
ACR	albumin creatinine ratio	CT	computed tomography
ADDS	adult deterioration detection system	CVA	cerebrovascular accident
ADR	adverse drug reaction	CVS	cardiovascular system
ADL	activities of daily living	DCI	decompression illness
ADT	adult diphtheria tetanus (vaccine)	DKA	diabetic ketoacidosis
AED	automatic external defibrillator	DRS ABCD	danger, response, send, airway, breathing, compressions, defibrillator
AFB	acid fast Bacilli(us)	DTP	drug therapy protocol
ALS	advanced life support	DT	delirium tremens
AMHS	authorised mental health services	DVT	deep vein thrombosis
AOM	acute otitis media	EAR	expired air resuscitation
APH	antepartum haemorrhage	ECC	external cardiac compression
APSGN	acute post streptococcal glomerulonephritis	ECG	electrocardiogram
ARF	acute rheumatic fever	EEG	electroencephalogram
ASOT	anti-streptolysin-O titre	EIA	enzyme immuno assay
ATOD	alcohol tobacco and other drugs	ENT	ear, nose and throat
AVPU	alert, verbal, painful, unresponsive	ETT	endotracheal tube
BBV	blood borne virus	EWARS	early warning and response system (tools)
BCG	bacillus calmette-guerin	FBC	full blood count
BGL	blood glucose level	FAST	focussed assessment with sonography for trauma
βhCG	beta human chorionic gonadotropin	FEV ₁	forced expiratory volume in 1 second
BLS	basic life support	fFN	fetal fibronectin
BMI	body mass index	FHR	fetal heart rate
BP	blood pressure	FiO ₂	fraction of inspired oxygen concentration (%)
BSE	breast self examination	FNE	forensic nurse examiner
BVM	bag valve mask	FMH	feto-maternal haemorrhage
°C	Degrees celsius	FTA	fluorescent treponemal antibodies
CBT	cognitive behavioural therapy	FTT	failure to thrive
CCG	clinical care guidelines	G	guage e.g. 14 gauge
CCT	controlled cord traction	GAS	group A <i>Streptococcus</i>
CDC	centre for disease control	GCS	glasgow coma scale
CEWT	children's early warning tool	GDM	gestational diabetes mellitus
CHD	chronic heart disease	GFR	glomerular filtration rate
CKD	chronic kidney disease	GIT	gastrointestinal tract
CNS	central nervous system	GTN	glyceryl trinitrate
COC	combined oral contraceptive (pill)	GTT	glucose tolerance test
COPD	chronic obstructive pulmonary disease	GUD	genital ulcer disease
CPR	cardio pulmonary resuscitation	Hb	haemoglobin
CrCl	creatinine clearance	HbA1c	glycosylated (or glycated) haemoglobin
CRP	C-reactive protein		

hCG	human chorionic gonadotrophin
HHS	Hospital and Health Service
HIV	human immunodeficiency virus
HMP	health management protocols
HPV	human papilloma virus
HR	heart rate
HRT	hormone replacement therapy
HVS	high vaginal swab
IADLs	instrumental activities of daily living
IBD	irritable bowel disease
IDC	indwelling catheter
IDU	injecting drug user
IHD	ischaemic heart disease
IHW	authorised Indigenous Health Worker
IGT	impaired glucose tolerance
IM	intramuscular
INR	international normalized ratio
IO	intraosseous
IPAP	Isolated Practice Area Paramedic
IPN	Immunisation Program Authorised Nurse
ITO	involuntary treatment order
IUCD	intrauterine contraceptive device
IUGR	intrauterine growth restriction
IV	intravenous
IVP	intravenous pyelogram
J	joules
LDH	lactate dehydrogenase
LFT	liver function test (s)
LIF	left iliac fossa
LMA	laryngeal mask airway
LNMP	last normal menstrual period
LOC	level of consciousness
LVS	low vaginal swab
MAD	mucosal atomisation device
MAOI	monoamine oxidase inhibitor
Max.	maximum
MC/S	microscopy, culture and sensitivity
MCU	micturating cystourethrogram
MDI	metered dose inhaler
MDT	multi drug therapy
MgSO ₄	magnesium sulfate
Mid	Midwife
MO	Medical Officer

MRSA	methicillin resistant <i>Staphylococcus aureus</i> multi-resistant <i>Staphylococcus aureus</i>
MSE	mental state examination
MSM	men who have sex with men
MSU	mid stream (specimen of) urine
NAA	nucleic acid amplification (test)
NGT	nasogastric tube
NIPs	National Immunisation Program schedule
NMDA	N-methyl D-aspartate
Non-STEMI	non-ST elevation myocardial infarction
NP	Nurse Practitioner
NSAID	non-steroidal anti-inflammatory drug
O ₂	oxygen
OCCP	oral combined contraceptive pill
OCP	ova, cysts and parasites
OGT	orogastric tube
OGTT	oral glucose tolerance test
OM	otitis media
OME	otitis media with effusion
ORS	oral rehydration solution
PaPP	pregnancy associated plasma protein
PCI	percutaneous coronary intervention
PCCM	<i>Primary Clinical Care Manual</i>
PCR	polymerase chain reaction
PEA	pulseless electrical activity
PEFR	peak expiratory flow rate
PEP	post exposure prophylaxis
PIC	Poisons Information Centre
PID	pelvic inflammatory disease
PIH	pregnancy induced hypertension
PoCT	point of care testing
PPH	post partum haemorrhage
PPE	personal protective equipment
PPI	proton pump inhibitor
PPROM	preterm prelabour rupture of membranes
PROM	prelabour rupture of membranes
PT	prothrombin time
PV	per vagina
QADDS	Queensland Adult Deterioration Detection System
QAS	Queensland Ambulance Service

QH	Queensland Health
RFDS	Royal Flying Doctor Service
RHD	rheumatic heart disease
RIF	right iliac fossa
RMDP	recognition and management of the deteriorating patient
RN	registered nurse
RPM	respirations per minute
RPR	rapid plasma reagin (test for syphilis)
RSQ	Retrieval Services Queensland
S	schedule
S ₂	schedule 2 poison
S ₃	schedule 3 poison
S ₄	schedule 4 medicine (restricted drug)
S ₈	schedule 8 medicine (controlled drug)
SAH	subarachnoid haemorrhage
SCUBA	self contained underwater breathing apparatus
SM R&IP	scheduled Medicines Rural & Isolated Practice Registered Nurses
SpO ₂	arterial oxygen saturation measured by pulse oximetry
SRH	Sexual and Reproductive Health Authorised Registered Nurse
STEMI	ST elevation myocardial infarction
STI	sexually transmitted infection
Subcut	Subcutaneous
SVDK	snake venom detection kit
TB	tuberculosis
TBSA	total body surface area
TCAs	tricyclic antidepressants
TGA	Therapeutic Goods Administration
TIA	transient ischaemic attack
TIG	tetanus immunoglobulin
TPPA	<i>Treponema pallidum</i> particle agglutination
UEC	urea, electrolytes and creatinine
UKMEC	United Kingdom medical eligibility criteria
URTI	upper respiratory tract infection
USS	ultrasound scan
UTI	urinary tract infection
VA	visual acuity
VDRL	venereal disease research laboratory (test)

VE	vaginal examination
VF	ventricular fibrillation
VT	ventricular tachycardia
VTE	venous thromboembolism
<	less than
>	greater than
≤	less than or equal to
≥	greater than or equal to
+	slight trace or reaction
++	trace or notable reaction
+++	moderate amount or reaction
++++	large amount or pronounced reaction

Acceptable medicine terms and abbreviations³

bd	twice a day
nocte	at night
qid	four times a day
stat	immediately and once only
tds	three times a day
g	gram
kg	kilogram
mg	milligram(s)
microgram	microgram(s)
L	litre(s)
mL	millilitre(s)
cm	centimetre (s)
min	minute (s)
mmol	millimole (s)

References

The references are organised according to each section and sub section of the manual as found on the contents page at the beginning of the book and at the start of each section and on the footer on each page.

The complete list of references is available at: <https://publications.qld.gov.au/dataset/primary-clinical-care-manual-9th-edition>

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