

Primary Clinical Care Manual



10th edition 2019

Criteria for early notification of trauma for interfacility transfer¹

ALL trauma patients - do rapid assessment of **vital signs**, **injuries** and **mechanism of injury**

	Adult	Newborn < 4 weeks	Infant 1 - 12 mths	Child 1 - 8 years	Child 9 - 15 years
Vital signs					
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 > 120
GCS	< 14	Altered LOC	Altered LOC	Altered LOC	Altered LOC

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 – fractured pelvis

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 ANY of the above are present PROMPTLY CALL

RSQ ☎ 1300 799 127

for management support, retrieval advice and destination decision
or your local/state trauma escalation service

If none of the above is present, follow usual local processes for assessment and transfer of the patient

The *Primary Clinical Care Manual 10th edition 2019*

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Comments and feedback

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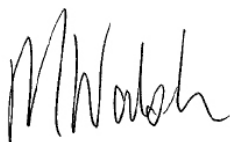
Queensland Health

The *Primary Clinical Care Manual* (PCCM) 10th edition provides guidelines and protocols that support health professionals in isolated, rural and remote areas to provide quality care and medications. The interventions recommended in the PCCM 10th edition are evidence based and expert clinicians have confirmed these as best practice.

The PCCM 10th edition is the result of a successful partnership between Queensland Health and the Royal Flying Doctor Service (Queensland Section). Both organisations share ownership of the PCCM, this being forged through the collaborative development of this manual over the more than 20 years of its existence. The PCCM is also used extensively within other states and by all branches of the Australian Defence Forces. The protocols included in the PCCM set out the circumstances, conditions and restrictions under which various medicines can be provided. In Queensland the PCCM contains protocols that support the following health practitioners:

Indigenous Health Worker Isolated Practice Area
Aboriginal and Torres Strait Islander Health Practitioner – Isolated Practice Area
Queensland Ambulance Service Isolated Practice Area Paramedic
Rural and Isolated Practice Area Registered Nurse
Sexual Health Program Nurse (including Reproductive Health)
Midwives
Immunisation Program Nurse

Queensland Health staff working in rural and remote ambulatory care settings use the clinical care guidelines contained in the PCCM 10th edition as their guide to practice. I commend the PCCM 10th edition as the principal clinical reference and policy document for rural and remote practitioners.



Michael Walsh
Director-General, Queensland Health

Royal Flying Doctor Service (Queensland Section)

It has been over twenty years since the first edition of the *Primary Clinical Care Manual* (PCCM) was co-authored by Dr Geoff King and Lyn Overton. Whilst reflecting upon Dr King's belief that *"the best health outcomes are achieved when well prepared health professionals work in collaboration and partnership in both practice and educational settings"* we recognise and celebrate this important milestone.

The Royal Flying Doctor Service (Queensland Section) (RFDS) acknowledges the many challenges faced when providing high quality health care in rural and remote locations. Particularly, where clinicians frequently experience limited access to support, or reliance on external support delivered 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. The PCCM provides support for appropriately authorised clinicians to initiate treatment prior to consultation and ongoing collaboration with a Medical Officer, thus ensuring timely interventions and, ultimately, better health outcomes for those living and working in rural and remote Australia.

Importantly, the RFDS acknowledges the generous sharing of time and expertise by clinical staff, from both Queensland Health and the RFDS, which is essential to the review and revision of each new edition of the manual. The tenth edition of the PCCM is very much a shared success story, and through its support of the treating clinician, helps to overcome the 'tyranny of distance' for rural and remote communities, ensuring they receive the same standard of care available in Australian urban centres.



Trent Dean

Head of Clinical Governance

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 10th 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 (ADF), 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 10th edition of the *Primary Clinical Care Manual* (PCCM).

A handwritten signature in black ink, appearing to be 'Tracy Smart', with a large loop at the start and a stylized 'f' or 'T' shape.

Tracy Smart AM

Air Vice-Marshal

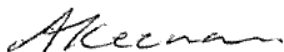
Surgeon General, Australian Defence Force

Department of Health and Human Services, Victoria

Victoria's rural and regional health services work to improve coordination of care and optimisation of health outcomes for rural people through providing safe, high-quality care. An integral clinical model of care provided from our rural and regional health services is delivered by Scheduled Medicines Rural and Isolated Practice Registered Nurses (RIPRN). The Primary Clinical Care Manual and its health management protocols are an integral resource in delivering current, evidence based health care to rural people for RIPRN. I commend and fully support Queensland Health, Royal Flying Doctor Service (Queensland Section) and other members of the Editorial Committee in the ongoing production of the Primary Clinical Care Manual.

In rural Victoria the experience of using the 'collaborative practice model' to implement RIPRN has led to the development of a more flexible clinical workforce which through the Primary Clinical Care Manual is well resourced to meet the community's primary and urgent health care needs. The RIPRN assessment skills and ability to supply and administer medicines under these comprehensive drug therapy protocols has improved Victorian rural health services' ability to provide the right care, at the right time in the right place to rural people.

I am also pleased that a Victorian RIPRN is a member of Queensland's Primary Clinical Care Manual Editorial Committee. I recognise all committee members' expertise in reviewing and revising the content of this manual. It is a pleasure to endorse the use of the 10th edition of the Primary Clinical Care Manual across the state of Victoria by appropriately trained RIPRN supported by strong clinical governance under the collaborative practice model from Victoria's rural health services.



Adj. Assoc. Professor **Ann Maree Keenan**
Deputy CEO/Chief Nurse and Midwifery Officer
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- Dr Krispin Hajkowicz, Director Infectious Diseases, Royal Brisbane and Women's Hospital
- Professor Michael Muller, Senior Visiting Medical Officer, General Surgery, Burns and Trauma Professor, Royal Brisbane and Women's Hospital
- Dr Jason Brown, Staff Specialist Burns Unit, Royal Brisbane and Women's Hospital
- Queensland Emergency Department Strategic Advisory Panel, Healthcare Improvement Unit, Clinical Excellence Division, Queensland Department of Health
- Statewide Diabetes Clinical Network, Clinical Excellence Division, Queensland Department of Health
- Statewide Respiratory Clinical Network, Clinical Excellence Division, Queensland Department of Health
- Statewide Cardiac Clinical Network, Clinical Excellence Division, Queensland Department of Health
- Statewide Stroke Clinical Network, Clinical Excellence Division, Queensland Department of Health
- Statewide Trauma Clinical Network, Clinical Excellence Division, Queensland Department of Health

Section 4. General

- Dr Lara Wieland, Medical Officer, Royal Flying Doctor Service (Queensland Section), Kowanyama
- Dr Welwyn Aw-Yong, Registrar, Statewide ED Network, Barcardine Hospital and Multipurpose Health Service
- Judith Murrells, Clinical Nurse Consultant Respiratory, Chronic Disease Programs Transitional Care Service
- Dr Lea Merone, Public Health Registrar, Apunipima Cape York Health Council

- Dr Krispin Hajkowicz, Director Infectious Diseases, Royal Brisbane and Women's Hospital
- Dr Paul Butel, Staff Specialist, Rural Generalist (Emergency Medicine), Emergency Department Logan Hospital, Royal Flying Doctor Service (Queensland Section), Mt Isa
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- Kate Lynch, Clinical Nurse Consultant, Communicable Diseases Branch, Prevention Division, Queensland Department of Health
- Dr Garry Brian, Ophthalmologist
- Dr Stephen Lambert, Senior Medical Officer, Epidemiology and Research / Communicable Diseases Branch, Prevention Division, Queensland Department of Health
- Ghislaine Wharton, Clinical Nurse Consultant, Ophthalmology Specialist Clinics / Adgir Gubau Giz Community Wellness Centre, Thursday Island
- Dr Mike Hill, Medical Officer, Royal Flying Doctor Service
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- Dr Alister Keyser, Public Health Registrar, Tropical Public Health Unit Cairns
- Dr Annie Preston-Thomas, Public Health Medical Officer Sexual Health, Tropical Public Health Services Cairns Division
- Erin Howel, A/Manager, Rheumatic Heart Register and Control Program, Queensland Department of Health
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- Statewide Respiratory Clinical Network, Clinical Excellence Division, Queensland Department of Health

Section 5. Mental health and substance misuse

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Section 6. Obstetric and neonatal

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- Dr Kathleen Braniff, Clinical Director, Staff Specialist, Obstetrics and Gynaecology, Mackay Base Hospital
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- Victoria Cluff, Clinical Midwifery Educator, Nursing and Midwifery, Torres and Cape Hospital and Health Service
- Jeanette Tyler, Clinical Nurse Midwifery Consultant, Women's and Newborn Services, Royal Brisbane and Women's Hospital
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- Dr Christopher Edwards, Staff Specialist, General Paediatrics, Bundaberg Hospital
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- Statewide Maternity and Neonatal Clinical Network, Clinical Excellence Division, Queensland Department of Health
- Statewide Diabetes Clinical Network, Clinical Excellence Division, Queensland Department of Health

Section 7. Sexual and reproductive health

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Section 8. Paediatrics

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 - Whitney Tatten, Senior Health Worker
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 - Maggie Allen, Advanced Audiologist
- Dr Lea Merone, Public Health Registrar, Apunipima Cape York Health Council
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Section 9. Immunisation

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Section 10. Appendices

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- Fiona McIver, Manager Medication Safety, Medication Services Queensland, Chief Medical Officer and Healthcare Regulation Branch, Queensland Department of Health
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Cover Images

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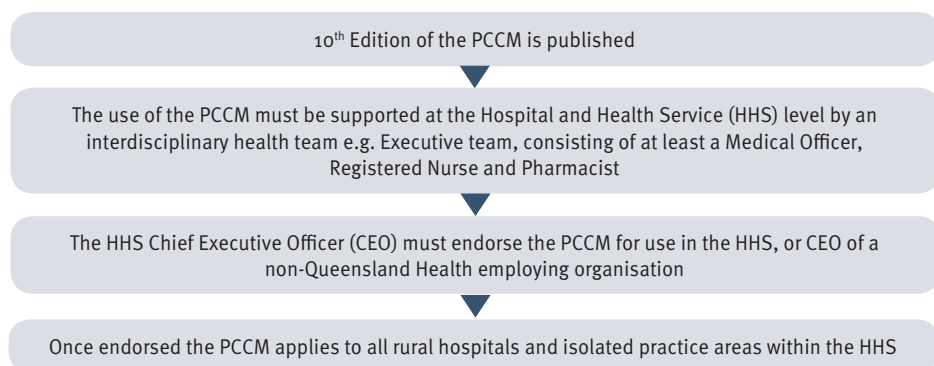
Introduction

The Primary Clinical Care Manual (PCCM) supports and enables rural, remote and isolated clinicians to provide the best possible evidence based and safe care for the people living in these areas. It has been developed and reviewed according to the principles set out by the National Health and Medical Research Council

In Queensland, the PCCM meets legislative requirements to support the expanded practice of clinicians who have undergone additional education and have additional authorities to administer and supply medicines, including:

- Rural and Isolated Practice Registered Nurses (RIPRN)
- Sexual Health Program Registered Nurses (SRH)
- Immunisation Program Nurses (IPN)
- Midwives (MID)
- Aboriginal and Torres Strait Islander Health Practitioners (ATSIHP)
- Authorised Indigenous Health Workers (IHW)
- Queensland Ambulance Service - Isolated Practice Area Paramedics (IPAP)

Endorsing the PCCM in Queensland



The PCCM and collaborative practice

The PCCM promotes a collaborative approach to patient care. Collaborative practice describes the relationship between health professionals who use the PCCM as a guide. The collaborative practice relationship incorporates the dual notions of collaboration and delegation. The defining characteristics of the collaborative practice relationship in the rural and isolated context are:

- Mutual respect and acknowledgment of each profession's role, scope of practice and unique contribution to health outcomes
- Clear protocols and guidelines for clinical decision-making that 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

Recognising and responding to clinical deterioration (RRCD) in acute health care

The PCCM supports the use of Early Warning and Response System (EWARS) tools. EWARS tools have been developed to address human factor elements associated with failures to recognise and manage deteriorating patients. They comply with Standard 8 of the National Safety and Quality Health Service Standards and the National Consensus Statement, available at: <https://www.safetyandquality.gov.au/>

EWARS tools:¹

- Present the most important vital signs for detecting deterioration in most patients
 - Provide a track and trigger system to facilitate the detection of deterioration
 - Provide an overall score that corresponds with an action for clinicians to escalate care, increase observations and facilitate early notification to a medical officer, nurse practitioner, Retrieval Services Queensland or Royal Flying Doctor Service
 - Are not a substitute for sound clinical judgment - an urgent consultation should take place if the clinician has a concern regarding a patient, regardless if the patient's vital signs have reached the threshold for notification
- Clinical incident analysis involving the EWARS tools has demonstrated that quality patient care and safety may be complemented by:
 - consistent use of the tools
 - complete recording of all required observations and calculating score
 - taking action as indicated by the score

Always calculate and record the score, even if the score is zero (0)

- In Queensland, use age and patient appropriate rural and remote EWARS tools as per local policy:
 - Q-ADDs - adult
 - MEWT - maternity
 - CEWT - paediatric
 - NEWT - neonatal (28 days old or less)
- Ordering information available at: <https://qheps.health.qld.gov.au/psu/rccd/resources> or contact: RMDP@health.qld.gov.au or ☎ 07 3328 9893
- In jurisdictions outside of Queensland, use local early warning and response system tools

Authority to administer and supply medicines

- Authorisation for clinicians to administer and supply medicines is provided by the medicines and poisons law within the state or territory of practise. Clinicians are advised to familiarise themselves with the relevant legislation, check for updates/changes, and adhere to local policies for using medicines
- **Note:** The legislation provides definitions and conditions related to a persons authority to use medicines (e.g. administer, supply)
- Schedules of medicines (S2, S3, S4, S8) within the PCCM are stated according to the current Standard for Uniform Scheduling of Medicines and Poisons, available at: <https://www.tga.gov.au/publication/poisons-standard-susmp>

QUEENSLAND

- At the time of print, the *Health (Drugs and Poisons) Regulation 1996* was under review. For current medicines and poisons laws see: <https://www.health.qld.gov.au/system-governance/licences/medicines-poisons/legislation-standards/acts-regulation>

CLINICIANS WITH EXTENDED AUTHORITIES TO USE MEDICINES - QUEENSLAND, VICTORIA AND THE AUSTRALIAN DEFENCE FORCE

- The PCCM incorporates Health Management Protocols to enable clinicians with extended authority in Queensland (and RIPRNs in Victoria and the Australian Defence Force) to administer and supply medicines and poisons in rural and isolated areas
- Clinicians must practise within their individual scope, and in accordance with conditions and circumstances of practice relevant to their authority, for example, Drug Therapy Protocol (DTP) (or equivalent) as required by current legislation.
- In Queensland see <https://www.health.qld.gov.au/system-governance/licences/medicines-poisons/legislation-standards/acts-regulation>
- In Victoria see: <https://www2.health.vic.gov.au/hospitals-and-health-services/rural-health/rural-endorsed-nurse/ripn-roles>
- If a RIPRN in the Australian Defence Force refer to local policies

PRACTISING IN OTHER STATES OR TERRITORIES

- If practising elsewhere, clinicians are still able to use the PCCM if their employer authorises them to do so. Clinicians must be familiar with the relevant state and territory medicines and poisons legislation, and ensure they practise within their legal authority for that state/territory when using medicines and poisons

Health Management Protocols and Clinical Care Guidelines

- Each topic in the PCCM is either a Health Management Protocol (HMP) or Clinical Care Guideline (CCG)
- HMPs are easily identified with the letters HMP in the topic header. CCG are all other topics
- HMPs are required for clinicians who are practising with an extended authority in Queensland. They are the same as a CCG, but also include a drug box providing details of the medicine authorised to be administered or supplied

Example of HMP in topic title

- Example of a *Health Management Protocol* topic title - **HMP in title**

HMP Anaphylaxis - adult/child

- Example of a *Clinical Care Guideline* topic title - **no HMP in title**

Drowning/submersion - adult/child

INFORMATION RELATED TO DRUG BOXES

- Drug boxes are not intended to contain all information required for safe administration or supply of the medicine
- Clinicians should:
 - refer to the current *Australian Medicines Handbook* or other adult or paediatric pharmacology resource prior to using medicines for additional information such as adverse effects, interactions and contraindications
 - be aware of contraindications and known side effects and advise the patient accordingly
 - source additional consumer medicine information as relevant e.g. <https://www.nps.org.au/medical-info/medicine-finder>
 - practise within their individual scope
 - consult with a medical officer, nurse practitioner or pharmacist as needed, or if unsure
 - adhere to local policies and any other legislative requirements in regards to medicines

DRUG BOX EXAMPLES

Example 1: Extended authority. Always located within an HMP. Identifies which clinicians have extended authority (in Queensland) in this topic, and details if the clinician can proceed or requires an order

Clinicians are advised if they are required to obtain an order or are authorised to proceed without an order

Clinicians who have extended authority identified here
Note abbreviations:

- **ATSIHP:** Aboriginal and Torres Strait Islander Health Practitioner
- **IHW:** Authorised Indigenous Health Worker
- **IPAP:** Isolated Practice Area Paramedic
- **RIPRN:** Rural and Isolated Practice Registered Nurse
- **SRH:** Sexual Health Program Nurse
- **MID:** Midwife
- **IPN:** Immunisation Program Nurse

Schedule

4

Azithromycin

Extended authority

ATSIHP/IHW/IPAP/RIPRN/SRH

ATSIHP, IHW, IPAP and RN must consult an MO/NP

RIPRN and SRH may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	1 g	stat
			For <i>M. genitalium</i> only: after stat dose give 500 mg daily	3 days

Provide Consumer Medicine Information: Take with or without food. May cause rash, diarrhoea, nausea, abdominal cramps and candidiasis

Management of associated emergency: Consult MO/NP. See [Anaphylaxis, page 102](#)

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Example 2: Not related to an extended authority. An order may or may not be required

Clinicians are advised if they are required to obtain an order or are authorised to proceed without an order

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Schedule	Unscheduled	Selenium sulfide	
ATSHP, IHW, IPAP, MID, RIPRN and RN may proceed			
Form	Strength	Route of administration	Recommended dosage
Shampoo	25 mg/mL (2.5 %)	Topical	Daily Apply to wet skin. Leave on for at least 10 minutes or overnight
Provide Consumer Medicine Information: Complete course. To help prevent recurrence, can be applied 1 or 2 times a month after initial treatment			
Management of associated emergency: Consult MO/NP			

1,3

Example 3: Prescribing guide. Must be ordered by an authorised prescriber and only given by clinicians who as a usual part of their profession are authorised to administer medicines on an order e.g. RN or Midwife. Not related to an extended authority

Must be ordered by an authorised prescriber.
Only to be administered by clinicians who are authorised to administer medicines on an order as per usual scope of their profession e.g. RN, Midwife

Prescribing guide identified

Schedule	Unscheduled	Calcium gluconate monohydrate	Prescribing guide
MID, RIPRN and RN only. Must be ordered by an MO			
Form	Strength	Route of administration	Recommended dosage
Injection	10% (2.2 mmol) in 10 mL	IV	2.2 mmol (10 mL)
Duration stat Inject slowly over 5-10 minutes in a large peripheral vein			
Provide Consumer Medicine Information: Given for overdose of magnesium sulfate			
Note: High risk medicine which can be rapidly fatal in overdose. Hypotension alone will generally respond to IV fluids and parenteral calcium is rarely necessary. Avoid extravasation as will cause tissue necrosis. Subcut and IM route contraindicated			
Management of associated emergency: Consult MO. See Anaphylaxis, page 102			

5,8

What's new in this edition

NEW SECTION STRUCTURE

- The 10th edition of the Primary Clinical Care Manual has been increased from 8 to 10 sections
- Colour coding for each section is used in page side bars, headings, tables, flow charts and drug box shading as follows:

1. Patient assessment and transport	
2. Pain, nausea and vomiting	
3. Emergency	
4. General	
5. Mental health and substance misuse	
6. Obstetrics and neonatal	
7. Sexual and reproductive health	
8. Paediatrics	
9. Immunisations	
10. Appendices	

NEW SECTION: SECTION 2, PAIN, NAUSEA AND VOMITING

- Consolidates the presentation, assessment, management and follow up around pain, nausea and vomiting from all HMPs
- Allows broader consideration of pain, nausea and vomiting by clinicians
- Where there is a specific indication for medicine management of pain or nausea for a given presentation, the drug box has remained within that HMP e.g. ketorolac in *Renal colic*

NEW SECTION: SECTION 6, OBSTETRICS AND NEONATAL

- Obstetrics and neonatal was previously included in the Sexual and Reproductive health section
- Separating this section recognises the specialty of obstetrics and neonatal care, and enables easier navigation to topics within this section

SUB-SECTIONS MORE CLEARLY IDENTIFIED

- Subsections are now identified by the title being contained within a coloured bar
- Coloured side bars now contain subsection titles rather than individual topic titles

TOPIC NAME CHANGES

- Some topics have had name changes. The index includes previous topic names to enable easy navigation to the new name
- Topic name changes considered:
 - **alignment with common usage of terms e.g. *Marine lacerations* has been changed to *Water related wounds***

- **ease of indexing to aid navigation e.g. Arterial occlusion has been changed to Acute lower leg ischaemia**
- **alignment with contemporary terminology in the literature e.g. Mental health behavioural emergencies has been changed to Acute severe behavioural disturbance (ASBD)**
- **expansion of content e.g. Diabetic ketoacidosis (DKA) has been changed to Hyperglycaemia to reflect the inclusion of Hyperosmolar hyperglycaemic state**

NEW HMP FOR SUPPLY OF MEDICINES BY ATSIHP AND IHW

- In the previous edition of the PCCM, several HMPs existed to enable the supply of medicines for chronic conditions by ATSIHPs and IHWs, including:
 - Chronic asthma
 - Chronic obstructive pulmonary disease (COPD)
 - Hypertension
 - Chronic kidney disease (CKD)
 - Chronic heart disease (CHD)
 - Diabetes
- The HMPs have been consolidated into a single HMP *Supply of chronic condition medicines by ATSIHP and IHW*. This does not change the scope of practice of the ATSIHP or IHW
- The ATSIHP and IHW Drug Therapy Protocols no longer require all medicines for supply for chronic conditions to be listed in the PCCM. Drug boxes are therefore no longer included in this HMP. ATSIHP and IHW are advised to instead check the medicine is listed within their relevant Drug Therapy Protocol (or equivalent)

NON-ACUTE TOPICS REMOVED

- Non-acute topics have been removed from the PCCM with users being referred to *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* for guidance: <https://publications.qld.gov.au/dataset/chronic-conditions-manual> including:
 - Tobacco smoking
 - Alcohol misuse
 - Health check - women
 - Poor growth in children
 - Dementia
- The *Eating disorders* and *Insomnia* topics have been removed (not within the scope of the PCCM)

NEW TOPICS

New topics	
• Acute pain management • Nausea and vomiting • Deep vein thrombosis (DVT) • Dental caries • Unintended pregnancy • Shoulder dystocia • Breech birth • Urticaria, allergic rhinitis	• Supply of chronic condition medicines by ATSIHP and IHW • Interventions in non-consenting patients • Behavioural and psychological symptoms of dementia (BPSD) • Genital herpes simplex virus (HSV) • Donovanosis • De-escalation techniques (Appendix)

TOPIC CONSOLIDATION, EXPANSION OR RELOCATION

Topic consolidation or expansion		
Section	Original name	Consolidated/expanded
Patient assessment and transport	Pain management for interfacility transfer	Acute pain management
Emergency	Cardiorespiratory arrest	Advanced life support (ALS)
	Chest pain	- Chest pain assessment - Acute coronary syndromes
	- Removal of small embedded fish hook - Removal of tight ring - Subungual haematoma	Acute wounds
	Breathlessness	Specific respiratory presentations e.g. Acute asthma, Pneumonia
	Marine envenomation	Specific marine toxinology presentations i.e. Box jelly fish, Fish stings, etc
General	Mild and moderate allergic reaction	Urticaria, allergic rhinitis
	Assessment and examination of skin, hair and nails	Adult and child History and physical examination (skin assessment)
Obstetrics and neonatal	- Hypertensive disorders in pregnancy - Hypertension in pregnancy - Management overview - blood pressure in pregnancy - Chronic hypertension	Hypertension in pregnancy
	- Vaginal bleeding in early pregnancy - Miscarriage/incidental bleeding in pregnancy	Vaginal bleeding in early pregnancy - up to 20 weeks gestation
	- Suppression of preterm labour - Prevention of neonatal distress syndrome	Preterm labour
	Normal labour and birth	- Labour 1st stage - Imminent birth - Immediate care of the newborn
Simple analgesia	Simple analgesia (back cover fold out)	Acute pain management

- The following topics from the 9th edition have been relocated in this edition:
 - Meningitis-adult/child* has been relocated from **Paediatrics** and placed into Section 3 **Emergency**
 - Delirium* has been relocated from **Mental health and substance misuse** and placed into Section 3 **Emergency**
 - Button battery ingestion/insertion - child* has been relocated from **Emergency** and placed into Section 8 **Paediatrics**

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Patient assessment and transport



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Patient presentation - adult and child

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, pay particular attention to history from parent/carer where available

Rapid assessment

- Does the patient look well or sick
- **A**irway - compromised
- **B**reathing - not breathing, significant respiratory distress
- **C**irculation - pulse absent, slow, rapid or profuse bleeding
- Level of consciousness - **A**lert, **V**oice, **P**ain, **U**nresponsive
- Rapid history, allergies
- RR, SpO₂, HR, BP, T - full emergency Q-ADD5/CEWT or other local EWARS

Is the patient immediately at risk?

Yes

Perform immediate stabilising or life saving measures. As relevant see [DRS ABCD resuscitation/ the collapsed patient, page 54](#)

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 \(inside front cover\)](#)

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 20](#) or [History and physical examination - child, page 664](#)

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 as appropriate

Adult presentation

History and physical examination - adult

Recommend

- For paediatric presentations see [History and physical examination - child, page 664](#) in Section 8, Paediatrics
- This section is designed to assist clinicians to document their findings clearly, concisely and in logical sequence
- Opportunistic health promotion and screening should occur during visit whenever appropriate. For screening tools and checks, see the *Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>

Background

- The history is the most powerful tool for identifying the likely diagnosis in most cases^{2,3}
- Types of history taking:⁴
 - **complete** - comprehensive history of the patient's past and present health status. Usually done at initial visit in a non-emergency situation
 - **episodic** - is shorter and specific to the patient's current presenting concern
 - **interval or follow up** - builds on a preceding visit. Documents the follow up required from the prior visit
 - **emergency** - only information required immediately to treat the life-threatening condition is gathered from patient or witnesses. A more comprehensive history may be taken once patient is stabilised

Related topics

[Mental health assessment, page 450](#)

[History and physical examination - child, page 664](#)

[How to perform an STI check, page 617](#)

[Traumatic injuries, page 163](#)

Adult approximate normal values - can vary by person, age, activity and time of day^{1,2}

Temperature (oral) (T)	36.5-37.5°C ¹
Heart rate (HR)	60-100 beats/minute ³
Respiration rate (RR)	12-20 breaths/minute ¹
Blood pressure (BP)	Systolic < 130 mmHg AND diastolic < 85 mmHg ³
O ₂ saturation (SpO ₂)	≥ 94% ²
Conscious level (AVPU)	Alert

Always document clinical observations on Q-ADDS rural and remote or other local Early Warning and Response Tool

Calculate and act on Q-ADDS score if indicated

If pregnant, use Q-MEWT rural and remote antenatal tool

Step 1: Obtain history of the presenting concern/problem³

- Taking the history is the first step in making a diagnosis
- The history will be used to direct the physical examination/further investigations
- More often than not an accurate history suggests the correct diagnosis, whereas the physical examination and subsequent investigations merely serve to confirm this impression³

History of the presenting concern/problem³

Presenting concern/ problem	• Ask what the problem is • Use open ended questioning
History of presenting concern	• Ask about length of illness and details of symptoms • For each symptom, as relevant, ask about: Site: where is the symptom - localised or diffuse Onset: – gradual, rapid or sudden onset – continuous or intermittent – what were they doing when it started Character: e.g. sharp, dull or burning Radiation of pain or discomfort Alleviating factors: does anything make it better e.g. sitting up, medicine, analgesic Timing: when did it first begin; have they had it before Exacerbating factors: does anything make it worse e.g. movement Severity: if pain; mild, moderate or severe See pain assessment tools in Acute pain management, page 35
Any associated/ other symptoms	• e.g. nausea, vomiting, photophobia, headache, appetite, urine, bowels, energy • 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
• Ask if there are any other concerns • Consider possible differential diagnosis • Use closed ended questioning to help confirm or eliminate various possibilities	

Step 2: Ask about past history³

- Review and update past history in clinical records each visit
- Consider relevant past history that may assist with differential diagnosis this visit
- Always ask about **allergies and medicines**

Past history³	
Past medical and surgical history	• Significant illnesses in the past • Ask about diabetes, hypertension, angina and heart attacks, epilepsy, asthma, mood/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 recreational drugs • Recent overseas travel - where/when • Diet/exercise
Medicines	• Regular and prn medicines: prescribed, complimentary, alternative, bush medicines, over the counter: – generic name – dose, frequency – taken correctly • Ask females if they are taking oral or other contraception • See Medication history and reconciliation, page 778
Allergies and adverse medication reactions	• Ask about adverse reactions/allergies to: – medicines – other allergies e.g. honey bee stings, sticking plaster, food • Specific reaction: – anaphylaxis, skin reaction, bronchospasm, other • Is an adrenaline (epinephrine) autoinjector e.g. EpiPen® used • Check for medic alert jewellery and accessories: – may be normal jewellery or other accessory⁵ – e.g. key ring, USB stick, shoe tag, anklet, watch, tattoo • Check clinical records • If adverse medication reactions/allergies ensure documented as per local policy⁶
Immunisations	• Check if up to date • Offer opportunistic immunisation as appropriate • See Immunisation program, page 768
Opportunistic health checks (if appropriate)	• Check if due for routine health check e.g: – STI/BBV; Cervical Screening Test; mammogram – adult health check. See the <i>Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia</i> available from: https://publications.qld.gov.au/dataset/chronic-conditions-manual • Offer or refer for health checks as appropriate

Step 3: Perform physical examination³

- Most information will be gained from history taking
 - use information from history of presenting concern to guide your examination
- **In an adult who is not sick:**
 - examine the relevant system first
 - proceed to further examination if required - be guided by your findings
- **In a sick adult:**
 - examine the relevant system first followed by ALL other systems
- Use a systematic approach to physical examination

Physical examination - adult³

Standard clinical observations - for all patients presenting	• RR • SpO₂ • BP • HR • T • Conscious state - AVPU ± GCS. See Glasgow Coma Scale/AVPU, page 785 • If indicated: – BGL – capillary refill time: < 2 seconds • Always document on Q-ADDS rural and remote/other local Early Warning and Response Tool. Calculate score • If pregnant, use Q-MEWT rural and remote tool
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 – sweating – 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 • Recent weight loss/weight gain

(continued)

Physical examination - adult (continued)

Skin	• Be guided by history and presentation • Check the whole body in a sick patient: – consider removing clothing to underwear • Look for: – rashes - non-blanching, petechiae, purpura – signs of infection - redness, swelling, tenderness – bruising, unexplained or unusual marks – general pigmentation - areas where skin is lighter or darker • Any skin lesions or sores: – colour, shape, size, location, distribution on body – exudate e.g. clear, pus, bloody – any family members/close contacts with similar lesions • Palpate noting: – temperature, dryness/moisture, clamminess • Are there palpable/tender lymph nodes in the neck, axillae or groin
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. Time how long it takes for the colour to return • Any evidence of oedema, particularly feet, hands, face or sacrum • Look for distended neck veins • If skilled, listen to heart sounds • See Chest pain assessment, page 130 for detailed assessment
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, $\pm$ 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

(continued)

Physical examination - adult (continued)

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 i.e. press down and take your hand away very quickly, is pain greater when you do this • Change of bowel habits • Ask women: – date of last normal menstrual period – abnormal vaginal bleeding or discharge – do point of care pregnancy test 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 238 or detailed assessment
Nervous system	• Assess conscious state. See Glasgow Coma Scale/AVPU, page 785 • 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
Musculoskeletal system	• Ask if any painful or stiff joints or muscular pain • Observe gait • Inspect joints for redness, swelling and pain
Eyes	• As indicated, 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 358 for detailed assessment

(continued)

Physical examination - adult (continued)**Ears, nose and throat****Ears**

- Inspect 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/redness, dullness, bulging/retraction, fluid or air bubbles, perforations or discharge
- Check behind the ear (mastoid) for redness/swelling/pain
- See [Ear and hearing assessment, page 708](#) for detailed assessment

Nose

- Feel for facial swelling (sinuses) inflammation, pain
- Any discharge or obvious foreign body

Throat

- Inspect the lips, buccal mucosa, gums, palate, tongue, throat for:
 - colour changes/swelling/bleeding/pus/fissures
- Teeth - condition
- Inspect tonsils - redness, enlargement or pus

Urine

- Examine the urine of all sick patients, all patients with abdominal pain or urinary symptoms and all patients with a history of diabetes
- Note colour
- Presence of deposits/crystals/foam
- Note odour
- Perform urinalysis
- Perform point of care pregnancy test in all females of childbearing age with abdominal pain

Step 4: Consider differential diagnosis

- If unsure, collaborate with MO/NP

Step 5: Select *Health Management Protocol* or *Clinical Care Guideline*

- To guide further assessment and management
- Document the page number of the HMP/CCG referred to in the clinical record

Step 6: Order/collect pathology if indicated

- RIPRN:⁷
 - may order pathology as per a HMP
 - name and signature of the MO, NP or RIPRN must be on request form or follow local protocol for electronic ordering
 - if RIPRN orders pathology, they are responsible for following up the result
 - consult MO/NP if results are abnormal
- Other clinical staff may be able to request pathology if there is a local agreement in place between the director of the clinical unit and Pathology Queensland/local health service
- Write or record on electronic request 'copy of report to...' RFDS/other collaborative health provider on the pathology form as appropriate

- Point of care testing is available in some facilities e.g. iSTAT®
- See Pathology Queensland for:
 - pathology test list
 - rural and remote pathology request forms
 - see <https://www.health.qld.gov.au/healthsupport/businesses/pathology-queensland/healthcare>
- If outside Queensland refer to local pathology services

Step 7: Collaborate with MO/NP as needed

- Have Q-ADDS score completed
- Use ISOBAR to guide your communication. See [Clinical consultation, page 28](#)
- Always consult with MO/NP if you are not sure
- Check your local facility guidelines to find out who to contact - during and after hours

Queensland contacts may include:

Local/onsite MO/NP	Check contact details/on call roster at your workplace	
Royal Flying Doctor Service (RFDS) (Queensland Section)	• Routine and emergency medical advice, support and coordination to primary health care facilities at which RFDS provide GP services, aeromedical retrieval and transport services	1300 697 337 (1300MYRFDS) Cairns RFDS base: 07 4040 0500 Mount Isa RFDS base: 07 4743 2802 Charleville RFDS base: 07 4654 1443
Retrieval Services Queensland (RSQ)	• 24 hour telehealth, coordination and emergency medical advice • For critically unwell, high acuity patients e.g. if local doctor not available, or if RSQ is your first point of contact	1300 799 127 Keep your video conferencing equipment switched on at all times. RSQ will make a video conference call. No need to use remote control
Telehealth Emergency Management Support Unit (TEMSU)	• For lower acuity, non-critical clinical support and advice via video conference • 24 hour, 7 day a week nursing support to rural and remote nursing staff in Queensland Health facilities • Medical and subspecialty support may be available depending on locally agreed pathways	1800 11 44 14 https://qheps.health.qld.gov.au/temsu

Clinical consultation

Consulting with MO/NP/retrieval co-ordinator¹

- Be clear and methodical
- Write your findings down first time permitting
- Advise early if you think the patient may need evacuation
- Say what you think is wrong. Your assessment is important

I

Identify yourself **AND** identify name and spelling of receiving MO/NP

- I am ... (your name and role)
- I am calling from ... (location)

S

Situation and **status** - why are you calling

- I have a patient ... (name, age and gender)
- I think the patient is/has ... (clinical impression/suspected diagnosis/unsure but worried)
- Who is ... (stable/unstable/deteriorating/improving)

O

Observations

- Most recent observations
- The ADDS/MEWT/CEWT score is ... (or other local Early Warning and Response tool score)
- General appearance
- Weight

B

Background

- History of presenting problem, relevant past history
- Evaluation - physical examination, findings, investigation findings
- Allergies
- Current medicines
- I have ... (taken the following actions e.g. given O₂, inserted IV, started IV sodium chloride 0.9%)

A

Agree to a plan

- I am wanting ... (advice, orders, evacuation)
- Level of urgency is ...
- Agree on plan of action with MO/NP/retrieval co-ordinator

R

Recommendations and **read back**

- Confirm shared understanding of what needs to happen - who is doing what and when
- Read-back critical information
- Identify parameters for review or escalation
- Identify any risks

Patient retrieval/evacuation

1. Who to contact

- Usually the MO/NP or DON (if possible) will arrange evacuation if required
- Be guided by local facility policy as to which retrieval service to contact:
 - RSQ 1300 799 127
 - some facilities contact RFDS (Qld section) directly
 - if the community is normally serviced by the RFDS for advice and evacuation, RFDS will advise RSQ of evacuation requirement
- If you think a patient may need evacuation/retrieval, contact the relevant retrieval service early:
 - even if transport requirement not confirmed
 - this helps allocate resources
- Notify change of clinical condition of patient if worsening or improving:
 - flight priority can always be reassessed

Retrieval Services Queensland (RSQ)

- Provides clinical coordination for aeromedical transfer for patients from parts of Northern NSW to the Torres Straits
- Utilises multiple government and non-government organisations to achieve aeromedical coverage of Queensland - e.g. RFDS Qld, QAS, QGAir Helicopter Rescue, Life Flight Retrieval Medicine
- Provide specialist medical and nursing coordinators in adult, paediatric, neonatal and high-risk obstetrics
- Return of patients to referring centres where aeromedical transfer is required
- **Emergency retrieval and transport criteria of patient**
 - meets early notification of trauma criteria. See [Criteria for early notification of trauma for interfacility transfer \(inside front cover\)](#)
 - requires aeromedical evacuation
 - QADDs/CEWT/MEWT: ≥ 6 or E
 - > 2 hours/200 km by road to receiving hospital
 - requires medical escort
 - all neonate/high-risk obstetric, critically ill/injured adult and paediatric patients
- For further information: <https://qheps.health.qld.gov.au/rt>

2. Retrieval preparation

Retrieval preparation		
Documentation	- Complete the RFDS Aeromedical retrieval checklist - Ensure all appropriate documentation, as per local protocol and as part of the clinical handover, accompanies patient including: - pre-hospital documentation - referral letter - copy of nursing/medical records - pathology results - ECG print out - X-rays - if digital radiology available, if possible electronically transfer x-rays to receiving facility	
Handover location	- Handover location will be determined during the retrieval coordination process - If patient stabilised and prepared, handover at airport/airstrip may occur - Critical and unstable patients will be reviewed at the referring facility by the retrieval team prior to transport	
Patient escort and baggage	- If room, an escort may be carried at the discretion of the pilot - name, weight of escort required - Maximum baggage allowance is one (1) small bag with a weight of 5 kg - Medical aids/additional baggage at the pilot's discretion	
Space and weight restrictions apply		
General preparation		
Consideration	Requirements	Rationale
Allergies/identification	Apply ID bands if available	Rapid correct identification
Analgesia	Give analgesia as clinically indicated prior to transfer. See Acute pain management, page 35	Movement of the patient may exacerbate pain
Antiemetic	- Parenteral antiemetic essential if: - head, spinal, or penetrating eye injury - Consider for: - history of motion sickness - general nausea - Give 30 minutes prior to transfer - See Nausea and vomiting, page 48	- Vomiting may exacerbate certain clinical conditions by raising ICP and intraocular pressure - Puts airway at risk - Motion sickness common in aeromedical environment
Intravenous cannula (IVC)	- Ensure most patients have at least 1 IVC - Insert 2 x IVC in critically ill and disturbed patients	Venous access may be difficult during flight due to space restrictions and turbulence
Urinary catheter	- Get patients to empty their bladder prior to transfer Insert urinary catheter in: - Incontinent or potentially incontinent patients	- No toilet facilities on aircraft - Use of bedpans is avoided due to limitations of space and waste disposal

(continued)

General preparation (continued)

Consideration	Requirements	Rationale
Parenteral medicine infusion	Prior to transfer prepare infusions using compatible equipment, if possible, when using RFDS or other retrieval services	Time is saved if infusions are prepared prior to RFDS arrival
Nasogastric tube (NGT) or orogastric tube (OGT)	- Ensure NGT/OGT inserted in: - all ventilated patients - patients with bowel obstruction	Allow for drainage of stomach contents and reduce risk of vomiting and aspiration

Specific medical conditions

Consideration	Requirements	Rationale
Mental illness/disturbed behaviour	- Reliable IV access. If possible 2 x IVC - Complete RFDS risk assessment <i>Transfer of disturbed patients including patient with a mental illness</i> - Sedation and physical restraint may be required. Seek medical advice	For aviation safety, special requirements apply to transportation of patients showing signs of disturbed behaviour, or regarded as being a danger to themselves or others
Infectious conditions	Always advise retrieval coordinator of infectious conditions	Limited ability to isolate patients in aircraft
Spinal injury	- Transport on vacuum mattress - Insert urinary catheter - Insert NGT if have altered level of consciousness	To maintain stabilisation
Bowel obstruction	- Insert NGT - leave on free drainage or attach anti-reflux valve (do not spigot) - Give parenteral antiemetic and adequate analgesia prior to transfer	Trapped gas will expand in volume at altitude and cause pain. NGT will allow gas to escape and reduce vomiting
Pneumothorax	- Ensure intercostal catheter in place - Connect to Heimlich valve or Portex® ambulatory chest drain system - Suspected pneumothorax should be excluded, if possible, by appropriate imaging	- 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
Penetrating eye injury	- Give antiemetic to all patients with proven or suspected eye injury - Patients may be transported at reduced cabin altitude	- Trapped gas in the globe will expand at altitude and potentially worsen the injury - Vomiting may also exacerbate injury by raising intraocular pressure

 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
IV Cannula (1)			
IV Cannula (2)			
☐ Toilet prior to flight	☐ Urinary Catheter	☐ ICC	☐ Heimlich valve
☐ 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, nausea and vomiting



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Acute pain management

HMP Acute pain management

Recommend¹

- Effective management of pain requires:
 - assessment of the pain
 - appropriate analgesia
 - reassessment of the pain

Background²

- This topic is intended for initial management of acute pain in rural and isolated areas or during inter-facility transfers
- Ongoing pain management should be a collaborative process between the patient, MO/NP and others involved in their care
- Pain is 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage'
- Pain is an individual, multifactorial experience influenced, among other things, by culture, previous pain experience, beliefs expectations, mood and ability to cope

Related topics

[Safe use of paracetamol, page 786](#)

1. May present with^{1,2}

- Self-report of acute pain
- Emotional responses to pain e.g. crying, screaming, anger, grimacing
- Could present as/be related to:
 - fracture or dislocation
 - soft tissue injury e.g. wound, abrasion, contusion
 - burns
 - back pain
 - herpes zoster
 - gout
 - abdominal pain (note: analgesia does not impact in the diagnostic process)
 - headache
 - toothache
 - earache
 - renal colic
 - cardiac pain
 - other cause

2. Immediate management

- If chest pain, immediately see [Chest pain assessment, page 130](#)
- If severe acute pain or pain due to an emergency obtain rapid patient history

3. Clinical assessment²

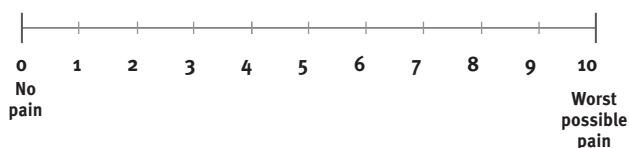
- Always seek to identify the cause of the pain
- Ask about the pain:
 - **Site** - where is it
 - **Onset** - when did it start
 - sudden or gradual onset
 - result of trauma/activity/cold/stress
 - **Characteristics** e.g. sharp, throbbing, aching, burning, stabbing
 - **Radiation** - does it spread anywhere else
 - **Associated symptoms** e.g. nausea, vomiting, sweating, fever
 - **Timing** - duration, constant or intermittent
 - has anything changed the pain
 - ever had this pain before; how often does it occur
 - **Exacerbating or relieving factors:**
 - e.g. rest, medicines, eating, position changes, ice/splinting
 - **Severity** - at rest; on movement
 - assess using appropriate pain scale for patient
- Ask about:
 - any pain relief already given/taken prior to presentation e.g. by carer, self, or ambulance staff
 - when, what, dose, how effective
 - pain relief used in past - what worked/did not work; side effects
- Obtain past medical history, in particular:
 - current medicines; over the counter medicines
 - allergies
- Perform standard clinical observations (full ADDS/MEWT/CEWT score or other local Early Warning and Response Tools)

Pain assessment scales

- **Verbal rating scale^{1,2}** - adults/older children

“On a scale of 1 to 10, with zero being no pain at all and 10 being the worst pain you could imagine, where would you rate the pain you are experiencing right now”

- **Verbal analogue scale²** - adults/older children
 - ask the patient to indicate a position along the line indicating their pain level



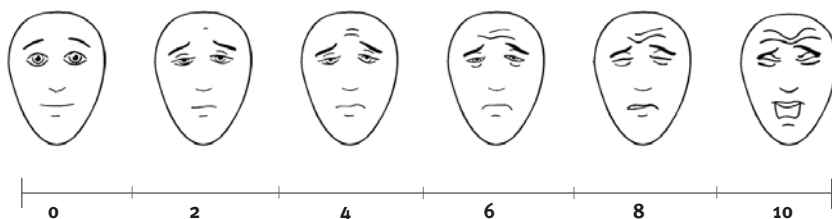
- **FLACC behavioural pain assessment scale**^{2,3} - 2 months-7 years
 - also use if unable to verbally communicate
 - observe behaviour for at least 2-5 minutes:
 - observe legs and body uncovered
 - reposition patient or observe activity; assess body for tenseness and tone
 - initiate consoling interventions if needed
 - calculate score:
 - 0 = relaxed and comfortable
 - 1-3 = mild discomfort
 - 4-6 = moderate pain
 - 7-10 = severe discomfort/pain

Behaviour	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant quivering chin, clenched jaw
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking or legs drawn up
Activity	Lying quietly, normal position, moves easily	Squirming, shifting, back and forth, tense	Arched, rigid or jerking
Cry	No cry (awake or asleep)	Moans or whimpers, occasional complaint	Crying steadily, screams, sobs, frequent complaints
Consolability	Content, relaxed	Reassured by touching, hugging or being talked to, distractible	Difficult to console or comfort

- **FACES pain scale revised (FPS-R)**^{2,4} - 4-12 years
 - clinician to say 'hurt' or 'pain' (language child understands)
 - do not use words like 'happy' or 'sad'
 - clinician to score the chosen face

These faces show how much something can hurt.

This face [point to left-most face] shows no pain. The faces show more and more pain [point to each from left to right] up to this one [point to right-most face]. It shows very much pain. Point to the face that shows how much you hurt [right now]



4. Management

- If severe pain, consult MO/NP as soon as able:
 - evacuation/hospitalisation will likely be required
- Consult MO/NP if:
 - child with severe pain (for analgesia advice)
 - pregnant woman or woman in labour if clinician is not a midwife
 - analgesia is not effective
 - unable to identify the source of the pain
 - recurrence of pre-existing condition
 - clinician has suspicion of opioid seeking behaviour
- Select analgesia based on clinical assessment/judgement, with consideration of:^{2,5}
 - age
 - medicine(s) that may have already been given prior to presentation e.g. paracetamol
 - allergies
 - severity of pain
 - current opioid use (if any)
 - likely cause of pain
- Some causes may require alternative treatment/considerations:
 - chest pain. See [Chest pain assessment, page 130](#)
 - head injury - opioids should only be given after consultation with an emergency physician or neurosurgeon.⁶ Consult MO/NP. See [Head injuries, page 175](#)
 - headache - always consider severe causes.² See [Acute and chronic headache, page 336](#)
 - renal colic - consider giving ketorolac trometamol. See [Renal colic, page 254](#)
 - pregnant woman in labour. See [Labour 1st stage, page 548](#)
 - bites and stings - hot water immersion may be effective. See [Toxinology \(bites and stings\), page 292](#)
 - eyes - topical oxybuprocaine eye drops may be indicated. See [Red or painful eye, page 362](#)
 - administration of benzathine benzylpenicillin (Bicillin LA[®]) and procaine benzylpenicillin (procaine penicillin) injection. See [Administration tips for benzathine benzylpenicillin, page 787](#)
- Use a stepwise approach to acute pain management:⁷
 - start with doses towards lower end of range or non pharmacological options
 - titrate up depending on patient's response

Non-pharmacological options²

- Ice
- Elevation and splinting of injuries
- Repositioning
- Reassurance - explanations of cause of pain and expected outcome (to relieve anxiety)
- Distraction, imagery
- In young children: distraction, positioning, sucrose and cold application may be helpful
- Massage, heat pack

- Use oral route wherever possible for mild to moderate pain²
- IV is preferred for severe pain:
 - insert IV cannula
 - ensure resuscitation equipment available
 - titrate dose against patient response and sedation score
- If obtaining IV access will unreasonably delay analgesia and care:
 - consider subcut or IM routes
 - subcut is as effective as IM and has better patient acceptance²
 - be aware absorption may be impaired in conditions of poor perfusion e.g. hypovolaemia, shock, hypothermia or immobility² leading to inadequate pain relief
 - if given subcut, monitor for at least 2 hours due to delayed absorption/adverse effects⁵

Step wise approach to acute pain management^{2,5,7}

Severity	Analgesia (if not allergic)	Practice points
1-3 Mild	Step 1 Non-pharmacological options AND/OR Paracetamol	• The paracetamol content of all medicines must be considered
4-6 Moderate	Step 2 As for step 1 AND/OR Ibuprofen AND/OR Oxycodone (adults only)	• Combination of oral paracetamol and ibuprofen is generally more effective than the use of either alone • Consider oxycodone only if pain is not adequately relieved by paracetamol and/or ibuprofen
7-10 Severe	Step 3 As for Step 2 AND/OR Increase dose of oral opioid (adults only) OR Morphine (adults only) OR Fentanyl (adults only)	• Carefully monitor the sedation score of all patients receiving IV opioids • Do not give if sedation score ≥ 2 • Preferably titrate via the IV route • Note: analgesia will not interfere with diagnostic processes in acute abdominal pain and should still be given • Intranasal fentanyl is effective for children with severe pain - must be on MO/NP order
Short term options		
Acute trauma e.g. while transferring in ambulance, quick procedures		Methoxyflurane (Pentrox®)
Acute trauma or other quick procedures < 10 minutes e.g. laceration repair, administration of IM penicillin, IV cannulation		Nitrous oxide (Entonox®)

- Monitor effect of analgesia:^{1,2}
 - monitor sedation score closely after giving morphine or fentanyl (most effective way of detecting opioid induced respiratory depression)
 - regularly assess effect of analgesia using pain scale:
 - 30-60 minutely mild/moderate pain
 - 5-15 minutely if severe pain
- Continue to monitor standard clinical observations as appropriate
- Nausea and vomiting is a frequent adverse effect of opioid analgesia. Consider antiemetic if indicated. See [Nausea and vomiting, page 48](#)

Sedation score⁸

- Patient must be woken to assess sedation

Score	Description	Action
0	• Awake and alert	Acceptable • No action needed • May increase opioid dose if needed • Recheck sedation score prior to giving further opioid analgesia
1	• Slightly drowsy or asleep but easy to wake AND • Stays awake for ≥ 10 seconds, able to answer a complete question	
2	• Frequently drowsy, rousable • Drifts off to sleep during conversation • Unable to stay awake > 10 seconds	Unacceptable • Stay with patient • Do not give further opioids • Monitor: – respiratory status (rate, depth, regularity) + – sedation level closely – until sedation level is stable at ≤ 2 and respiratory status is satisfactory • Give O_2 to maintain $SpO_2 \geq 94\%$ • Contact MO/NP
3	• Difficult to rouse or un-rousable • Sleepy/drowsy and minimal or no response to verbal or physical stimulation	Unacceptable • Stay with patient, call for help • Give naloxone • Contact MO/NP urgently • Give O_2 to maintain $SpO_2 \geq 94\%$ • Monitor (minimum 5 minutely) – respiratory status (rate, depth, regularity) + – sedation level – until sedation level stable at ≤ 2 and respiratory status is satisfactory • Initiate resuscitation if needed. See DRS ABCD resuscitation/the collapsed patient, page 54

Pasero Opioid-Induced Sedation Scale (POSS)⁸ modified to align with Queensland Government Early Warning and Response tools

Schedule	2	Paracetamol		Extended authority ATSIHP/IHW/IPAP
ATSIHP, IHW, IPAP, MID and RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	Adult and child ≥ 12 years 1-2 tablets to a max. 8 tabs/day (max. 4 g in 24hrs)	stat
Oral liquid	120 mg/5 mL 100 mg/mL		Child > 1 month to < 12 years 15 mg/kg/dose to a max. of 1 g/dose (max of 60 mg/kg up to 4 g in 24 hours) Round down to the nearest measurable dose	Then 4-6 hourly as required for 48 hours
Suppository	125 mg 250 mg 500 mg	PR	Adult and child ≥ 12 years 500 mg-1 g Child > 1 month to < 12 years 15 mg/kg/dose to a max. 1 g/ dose Round down to nearest suppository strength	stat Further doses on MO/NP orders
Provide Consumer Medicine Information: Too much paracetamol can cause liver damage. Consider paracetamol content of other medicines being taken. If further pain relief is required after 48 hours return to the clinic for re-assessment				
Note: Clinicians should be aware risk factors of paracetamol toxicity before giving. See Safe use of paracetamol, page 786 Rectal absorption can be erratic and delayed: oral administration preferred. Infants and children tolerate low grade fever e.g. < 38-38.5°C well, and often respond to fluids and comfort and may not need paracetamol; there is no evidence that paracetamol prevents febrile seizures				
Management of associated emergency: Consult MO/NP. Recognise and treat suspected paracetamol toxicity without delay. Contact Poisons Information Centre ☎ 131 126. See Paracetamol, page 283				

9

Schedule	2	Ibuprofen	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, MID and RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg	Oral	Adult and child ≥ 12 years 200-400 mg	stat
Oral liquid	20 mg/mL		Child > 3 months 5 - 10 mg/kg/dose to a max. of 400 mg/dose Round down to the nearest measurable dose	Then 6-8 hourly as required May supply 48 hours of tablets or one bottle of liquid
Provide Consumer Medicine Information: Do not take if dehydrated e.g. due to vomiting or diarrhoea (particularly children or elderly people). Take with a glass of water. If upsets stomach take with food. May cause nausea, indigestion, GI bleeding, diarrhoea, headache, dizziness, fluid retention and hypertension				
Note: If renal impairment, those taking diuretics, ACEIs or ARBs seek MO/NP advice. Use with caution in patients with asthma, cardiovascular disease or increased cardiovascular risk and patients taking lithium and anticoagulants				
Contraindication: Severe or immediate allergic reaction to ibuprofen/NSAIDs, dehydration, active peptic ulcer disease or GI bleeding, severe renal failure, severe heart failure, severe liver failure and coagulation disorders				
Use in pregnancy: Seek specialist advice for use in the second half of pregnancy; do not use during the last few days before expected birth. May increase rate of miscarriage				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

10

Schedule**8****Oxycodone (Endone®)****Extended authority**

ATSIHP/IHW/RIPRN

ATSIHP, IHW and RN must consult MO/NP

RIPRN may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet (conventional release)	5 mg	Oral	Adult only 5 mg	stat Repeat after 4 hours if needed. Further doses on MO/NP order

Provide Consumer Medicine Information: May cause nausea, vomiting, itch, drowsiness, dizziness headache, low blood pressure when moving to standing, indigestion, dry mouth

Note: If renal or hepatic impairment seek MO/NP advice. Monitor sedation score and respiratory rate

Pregnancy: Contraindicated

Contraindications: Hypersensitivity to opioids, acute or severe bronchial asthma or other obstructive airways disease, biliary colic, GIT obstruction, concurrent use with MAO inhibitors, head injuries, raised ICP, respiratory depression, severe renal or hepatic impairment, acute alcoholism, delirium tremens

Management of associated emergency: Consult MO/NP. See [Anaphylaxis, page 102](#) Give naloxone to reverse opioid-related sedation. After naloxone pain will return

11

Schedule	8	Morphine	Extended authority ATSIHP/IHW/MID/RIPRN		
ATSIHP, IHW and RN must consult MO/NP					
RIPRN may proceed EXCEPT for pregnant women					
MID may proceed for intrapartum use only: IM/subcut routes only					
Form	Strength	Route of administration	Recommended dosage		Duration
Injection	10 mg/mL	IM/Subcut	Adult only		stat Further doses on MO/NP order
			Age (years)	mg	
			< 39	7.5-10	
			40-59	5-10	
			60-69	2.5-7.5	
			70-85	2.5-5	
		> 85	2-3		
		Start at lower end of dose range and titrate according to response and sedation score			
		IV	Adult only		stat Inject slowly over 4-5 minutes Repeat every 3-5 minutes if needed (based on response and sedation score) to a max. of 10 mg Further doses on MO/NP order
			0.5-2 mg increments to a max. of 10 mg		
Dilute with 9 mL water for injections to make a concentration of 1 mg/mL					
Note: IHW and ATSIHP may NOT administer IV					
Provide Consumer Medicine Information: May cause nausea, vomiting, itch, drowsiness, dizziness headache, low blood pressure when moving to standing, dry mouth, sweating, dysphoria					
Note: Monitor sedation score and respiratory rate. Use with caution in > 70 years and significant renal or liver disease (reduce dose). Fentanyl is more appropriate					
Contraindication: Hypersensitivity to morphine or other opioids, acute or severe bronchial asthma or other obstructive airways disease, biliary colic, GIT obstruction, concurrent use with MAO inhibitors, head injuries, raised ICP					
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102 . Give naloxone to reverse opioid-related sedation. After naloxone pain will return					

12,13,14

12,13,14

Schedule

8

Fentanyl

Extended authority
ATSIHP/IHW/RIPRN

ATSIHP, IHW and RN must consult MO/NP

RIPRN may proceed

Form	Strength	Route of administration	Recommended dosage		Duration
Injection	100 microgram/2 mL	Subcut	Adult only		stat Further doses on MO/NP order
			Age (years)	microgram	
			< 39	100	
			40-59	75-100	
			60-69	40-100	
			70-85	40-75	
			> 85	30-50	
		IV	Adult only		stat Inject slowly over 3-5 minutes Repeat every 5-10 minutes if needed (based on response and sedation score) to a max. of 100 microgram Further doses on MO/NP order
			10-20 microgram increments to a max. of 100 microgram		

Provide Consumer Medicine Information: May cause rash, itch, erythema, bradycardia, drowsiness, dizziness, headache, low blood pressure when moving to standing, indigestion and dry mouth. May have a lower incidence of nausea and vomiting than other opioids

Note: Monitor sedation score and respiratory rate. Use with caution in > 70 years

Contraindication: Hypersensitivity to fentanyl or other opioids, acute or severe bronchial asthma or other obstructive airways disease, biliary colic, GI obstruction, concurrent use with MAO inhibitors, head injuries and raised ICP

Management of associated emergency: Consult MO/NP. See [Anaphylaxis, page 102](#) Give naloxone to reverse opioid-related sedation. After naloxone pain will return

5,6,7,15,16

Schedule	4	Methoxyflurane		Extended authority ATSIHP/IHW/RIPRN
ATSIHP, IHW and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Inhalation solution	99.9% in 1.5 mL 99.9% in 3 mL	Inhalation	Adult and child ≥ 6 years 3 mL	stat May be repeated after 20 minutes to a maximum of 6 mL in one day
Provide Consumer Medicine Information: Pain relief after 6-8 breaths and continues for several minutes after use. May cause dizziness, drowsiness, headache, shivering, nausea and vomiting. Can occasionally produce loss of consciousness, hypotension				
Note: Patient must self-administer via inhalation device under direct observation - children should not be assisted by parents or others. Only use in haemodynamically stable conscious patients. Use with caution in liver disease, and people affected by alcohol or drugs. Staff should limit exposure to patient exhaled methoxyflurane; use the carbon scavenger unit provided in confined areas				
Contraindications: Severe or immediate allergic reaction to inhaled anaesthetics, renal impairment, respiratory depression, head injury, loss of consciousness, history of malignant hyperthermia. Do not use on consecutive days. Do not exceed 15 mL in one week				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5,17,18

5,17,18

Schedule	4	Nitrous oxide + oxygen (Entonox [®])		Extended authority ATSIHP/IHW	
ATSIHP, IHW, RIPRN and RN must consult MO/NP					
Form	Strength	Route of administration	Recommended dosage	Duration	
Premix gas (clear)	nitrous oxide 50% + oxygen 50%	Inhalation	Adult and child self administered as needed	short term use only	
Provide Consumer Medicine Information: Patient must self administer i.e. hold the mouthpiece or mask (not clinician or parent). May cause nausea, vomiting, dizziness, drowsiness or shivering					
Note: Monitor sedation score and respiratory rate. Use with caution if vitamin B12 deficiency or if opioid has been administered. Debilitated patients more sensitive to adverse and anaesthetic effects: monitor closely					
Contraindication: Air containing cavities e.g. pneumothorax, obstruction of middle ear or sinus cavities, recent vitreoretinal surgery, pneumocephalus, bowel obstruction, gas embolism, increased intracranial pressure, muscular dystrophies					
Management of associated emergency: Consult MO/NP. Give oxygen if overdose. See Oxygen delivery, page 64					

2,21

Schedule	3	Naloxone	Extended authority ATSIHP/IHW

ATSIHP and IHW may proceed for one dose only. Must then consult MO/NP

RIPRN and RN may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Injection	400 microgram/mL	IV/IM (IV preferred)	Adult 400 microgram	stat Can be repeated at intervals of 2-3 mins to a max. of 2 mg

Provide Consumer Medicine Information:

Note: Use with caution in opioid dependence: may have an acute withdrawal syndrome e.g. anxiety, agitation, tachycardia, confusion, or rarely more severe effects e.g. seizures, pulmonary oedema or arrhythmias. There should be an improvement within 1 minute. Reconsider diagnosis if no response after a total of 10 mg has been given. Opioids 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

Use in pregnancy: Do not use in opioid dependent women; risk of withdrawal in fetus

Management of associated emergency: Consult MO/NP. See [Anaphylaxis, page 102](#)

19,20

5. Follow up

- Patients who receive parenteral opioid analgesia will likely require transfer to hospital for further management

6. Referral /consultation

- Consult MO/NP:
 - if further analgesia is required and maximum dose has been administered
 - for anyone with severe pain, when able
 - for all children with severe pain
 - cause of pain is uncertain

Nausea and vomiting

HMP Nausea and vomiting

Recommend²

- Always consider life threatening causes of vomiting including: bowel obstruction, mesenteric ischemia, acute pancreatitis and myocardial infarction

Background

- This topic is intended for initial management of nausea and/or vomiting in rural and isolated areas or during inter-facility transfers
- In the absence of acute abdominal pain, significant headache, or recent initiation of certain medicines, acute nausea and vomiting is usually the result of self-limited gastrointestinal infections¹
- In acute nausea and vomiting a cause is often able to be identified²
- One medicine is no more superior to another in the treatment of acute nausea and vomiting³

Related topics

[Acute gastroenteritis/dehydration - adult, page 243](#)

[Differential diagnosis - child, page 673](#)

[Acute gastroenteritis/dehydration - child, page 730](#)

[Pyloric stenosis, page 746](#)

1. May present with

- Nausea
- Vomiting
- Requires prophylactic antiemetic prior to aeromedical transfer
- Antiemetic indicated in another HMP within the PCCM

2. Immediate management

- If associated with chest pain. See [Acute coronary syndromes, page 135](#)

3. Clinical assessment²

- Always seek to identify the cause of the nausea/vomiting
- Obtain complete patient history
- Include in history taking:
 - frequency of vomiting
 - timing of vomiting in relation to meals
 - current gastrointestinal symptoms in family members or close contacts
 - what does the vomitus look like - any blood/coffee grounds, bile, undigested food
 - food eaten in the preceding 24 hours - could it be food poisoning
 - pregnancy
 - recent weight loss
 - recent trauma or head injury
 - exposure to toxins/poisons/bites/stings
 - recent alcohol/drug intake. See [Acute alcohol intoxication, page 487](#)
 - recent travel

- Ask about other symptoms in particular:^{1,2,4}
 - abdominal pain, distension or tenderness
 - chest pain
 - headache
 - heartburn
 - vertigo or dizziness
 - last bowel motion; diarrhoea
 - related to motion/travel
 - fever
 - neck stiffness
 - confusion
 - dysuria or frequency of urine
- Obtain past history including:
 - allergies
 - current medicines; over the counter medicines; previous antiemetics
 - recent initiation of a new medicine
 - diabetes
 - abdominal surgery
- Perform standard clinical observations (full ADDS/MEWT/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - abdominal examination. See [Acute abdominal pain, page 238](#)
 - plus as determined from history taking
 - perform point of care testing for pregnancy for women of reproductive age
 - BGL if cause unknown or history of diabetes:
 - consider hypo/hyperglycaemia as cause
- Assess hydration. See:
 - [Acute gastroenteritis/dehydration - adult, page 243](#)
 - [Acute gastroenteritis/dehydration - child, page 730](#)

Warning signs in children vomiting that may indicate a serious cause⁵

- Prolonged vomiting: > 12 hours in neonate; > 24 hours in child
- Lethargy
- Significant weight loss
- Marked abdominal distension and tenderness
- Rectal bleeding
- Vomiting blood/bile
- Projectile vomiting in an infant 3-6 weeks of age. See [Pyloric stenosis, page 746](#)
- Bulging fontanelle in neonate or young infant
- Headache
- Lack of nausea
- Altered consciousness, seizures, focal abnormalities
- History of head trauma

4. Management^{1,4}

- If related to chest pain. See [Acute coronary syndromes, page 135](#)
- Urgently contact MO/NP if nausea/vomiting is related to:
 - severe abdominal pain or distension
 - note: relief of abdominal pain with vomiting suggests bowel obstruction
 - severe acute onset headache
 - head injury
 - severe dehydration/fluid depletion
 - child with warning signs
- Treat cause if known: be guided by relevant HMP
- If related to:
 - pregnancy - seek advice from Midwife or MO/NP - avoid antiemetic if possible⁶
 - probable gastroenteritis. See:
 - [Acute gastroenteritis/dehydration - adult, page 243](#)
 - [Acute gastroenteritis/dehydration - child, page 730](#)
- Contact MO/NP if:
 - child/infant
 - no obvious cause/unsure of cause
 - dehydrated/unable to tolerate fluids
 - looks sick
 - suspected poisoning
 - diabetic
 - does not respond to antiemetic
 - unintended weight loss
 - re-presents to facility
- Offer antiemetic as needed for:
 - initial symptomatic relief of nausea and vomiting
 - nausea/vomiting related to opioids given as analgesia
 - aeromedical retrieval prophylaxis
 - an adjunct for acute gastroenteritis in children if unable to tolerate oral fluids. See [Acute gastroenteritis/dehydration - child, page 730](#)
 - an indication from within another HMP in the PCCM
- Monitor effect of antiemetic
- Be guided by MO/NP for continued management as relevant

Antiemetic selection⁷

Medicine	Indication
Ondansetron	- Nausea and vomiting related to acute gastroenteritis in children - General nausea and vomiting in adults is 'off label' use 2nd line therapy for hyperemesis gravidarum (on MO order)
Metoclopramide	- General use - Particularly useful if related to migraine - Oral, IM or IV - Avoid use in patients < 20 years of age - Avoid if stimulation of the gastrointestinal tract is dangerous e.g. suspected bowel obstruction or perforation - Can rarely cause extrapyramidal adverse effects (dystonic reactions)

Schedule	4	Ondansetron	Extended authority ATSIHP/IHW/RIPRN

ATSIHP, IHW, MID and RN must consult MO/NP

RIPRN may proceed for child only - must consult MO/NP for adult

Form	Strength	Route of administration	Recommended dosage	Duration
Oral disintegrating tablet (ODT) / Wafer	4 mg	Oral	Adult 4-8 mg Child > 6 months - 16 years Oral 8- <15 kg - 2 mg 15-30 kg - 4 mg > 30 kg - 8 mg	stat Further doses on MO/NP order Give IV dose slowly over 5 minutes (or 15 minutes if > 75 years)
Injection	4 mg/2 mL	IV	IV 0.15 mg/kg to a max. of 8 mg	

Provide Consumer Medicine Information: Place ODT place on top of the tongue to dissolve, then swallow. May cause constipation, headache, dizziness

Note: Use for non specific nausea and vomiting is off-label. When used off-label, clinicians should ensure documentation and evaluation is undertaken as per CATAG guiding principles for the quality use of off-label medicines. See www.catag.org.au

Seek MO/NP advice if: hepatic impairment; phenylketonuria or prolonged QT interval or risk factors for prolonged QT interval

Management of associated emergency: Consult MO/NP. See [Anaphylaxis, page 102](#)

7,8,10,12

Schedule	4	Metoclopramide	Extended authority ATSIHP/IHW/RIPRN/MID	
ATSIHP, IHW and RN must consult MO/NP				
MID and RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	10 mg	Oral/IM/IV	Adult ≥ 20 years 10 mg	stat
Injection	10 mg/2 mL			Inject IV dose slowly over at least 3 minutes
Further doses on MO/NP order				
Provide Consumer Medicine Information: May cause drowsiness, dizziness or headache. Avoid driving or operating heavy machinery if affected. Report uncontrolled or repeated body movements e.g. tongue				
Note: If renal impairment seek MO/NP advice				
Contraindications: Parkinson's disease, pheochromocytoma and conditions where increased GI motility may be harmful e.g. GI obstruction, haemorrhage or perforation				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102 Can cause extrapyramidal adverse effects, including tardive dyskinesia (more common in elderly, especially women) and acute dystonic reaction. Can occur in minutes to days. Treat with benztropine				

9

9

Schedule	4	Benzatropine	Extended authority ATSIHP/IHW/MID/RIPRN	
ATSIHP, IHW and RN must consult MO/NP				
RIPRN may proceed. MID may proceed with oral dose only				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	2 mg	IM/Oral	Adult only 1-2 mg	stat
Injection	2 mg/2 mL			Further doses on MO/NP order
Provide Consumer Medicine Information: May cause drowsiness, dizziness or blurred vision. May increase effects of alcohol				
Note: Used as an antidote for extrapyramidal side effects such as tardive dyskinesia and acute dystonic reaction. Use with caution in heart disease, fever and elderly				
Contraindication: GIT or urinary obstruction, myasthenia gravis				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

11

11

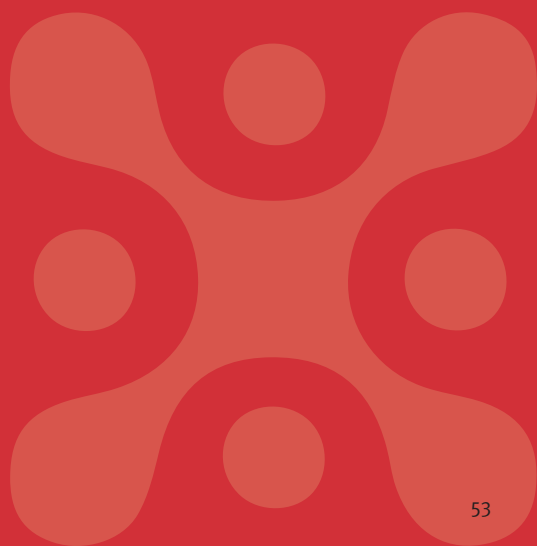
5. Follow up

- As required depending on cause of nausea/vomiting

6. Referral /consultation

- Contact MO/NP as indicated above

Emergency



Resuscitation

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

Recommend^{1,2}

- Good quality CPR and reducing time to defibrillation are the highest priorities in resuscitation from sudden cardiac arrest
- Do not routinely roll onto side to assess airway, unless obstructed with fluid or matter
- If pregnant, once CPR in progress put padding such as a towel under the woman's right hip to tilt the hips about 15-30°, but leave her shoulders flat
- Airway takes precedence over any injury
- Palpation of a pulse is unreliable and should not be performed to confirm the need for resuscitation

Background³

- Agonal breaths (occasional irregular gasps) are common in the early stages of cardiac arrest

1. May present with³

- Sudden collapse
- Unresponsive and not breathing normally e.g. gasping

2. Immediate management^{2,3,4}

- **DRS ABCD** as per **Basic life support flow chart**
- If unresponsive but breathing normally, see [Unconscious/altered level of consciousness, page 73](#)
- **If unresponsive and not breathing properly commence CPR:**
 - rate of 100-120 compressions per minute
 - each set of CPR is 30 compressions: 2 breaths
 - a loop is 5 sets of CPR in 2 minutes
- **If skilled in advanced life support continue to resuscitate** as per [Advanced life support \(ALS\), page 56](#)
- **Otherwise continue with BLS:**
 - attach automated external defibrillator (AED)
 - follow prompts
 - deliver shock(s) if indicated
 - continue CPR - minimise interruptions to chest compressions
- **Continue CPR until:**
 - responsiveness or normal breathing returns OR
 - MO/NP instructs otherwise
- **Urgently contact MO/NP for further management**

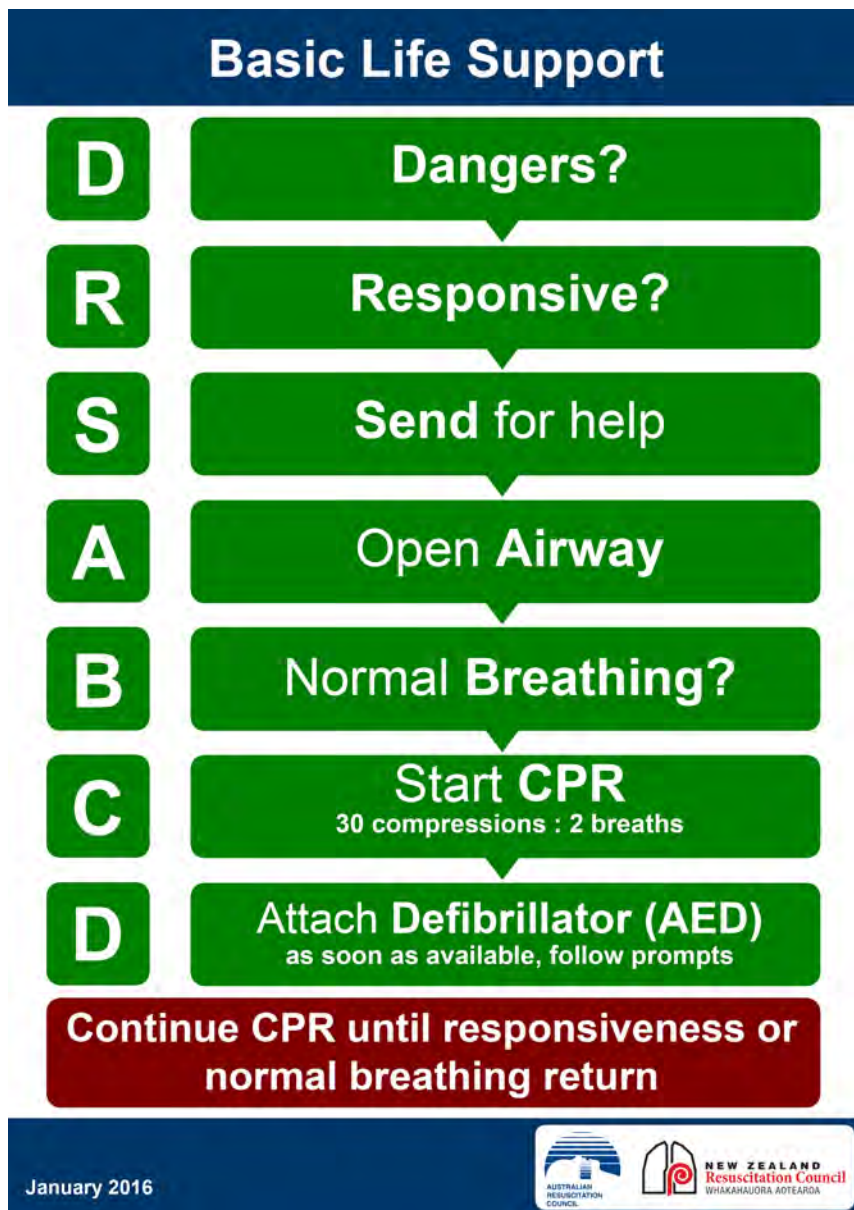
3. Clinical assessment - as per immediate management

4. Management

- Prevent further harm or injury to patient
- Control bleeding

- Protect from the weather
- Other first aid measures depending on circumstances

Basic life support flowchart



Reproduced with permission from Australian Resuscitation Council. 2018

5. Follow up

- According to patient's condition/presentation

6. Referral/consultation

- Always contact MO/NP as soon as circumstances allow

Advanced life support (ALS) - adult/child/infant

Recommend^{1,2}

- Good quality CPR and reducing time to defibrillation are the highest priorities in resuscitation from sudden cardiac arrest
- As soon as possible, ALS treatments are used to supplement BLS measures
- Minimise interruptions to CPR during ALS interventions
- Pulse check may be used by clinician but should not delay CPR for more than 10 seconds. If uncertain about presence of pulse start CPR

Background^{2,3}

- Effective BLS buys time until reversible causes can be diagnosed and treated
- 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

Related topics

[DRS ABCD resuscitation/the collapsed patient, page 54](#)

1. May present with^{2,4}

- Sudden collapse
- Unresponsive and not breathing normally e.g. gasping

2. Immediate management^{1,5,7}

- DRS ABC - see [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- As soon as possible ALS treatments are used to supplement BLS measures
- **Commence CPR:**
 - for adults 30 compressions: 2 breaths
 - for children start with 2 breaths then 15 compressions: 2 breaths
 - give 100-120 compressions per minute
 - Note: 1 loop = 5 sets of 30 compressions: 2 breaths = 2 minutes
- **Attach defibrillator** - placement of paddles or pads for:
 - adults - on exposed chest on the mid-axillary line over the 6th left intercostal space and the other on the right parasternal area over the 2nd intercostal space
 - for infants - consider anterior/posterior placement
- **Assess rhythm:**
 - determine if shockable or non-shockable

During CPR in all cases^{3,5,6}

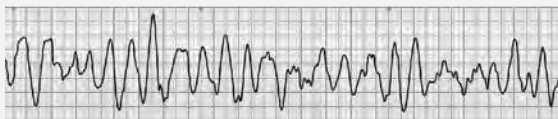
- Minimise interruptions during ALS interventions
- Administer 100% O₂ when available
- Obtain IV or intraosseous access
- Consider airway adjuncts e.g. LMA, but attempts to secure the airway should not interrupt CPR for more than 5 seconds
- Waveform capnography if available
- Administer adrenaline (epinephrine) every 2nd loop - approximately every 4 minutes
- Other medicines/electrolytes should be considered depending on the individual circumstances

PLUS look for reversible cause of arrest**If SHOCKABLE rhythm - VF OR pulseless VT ^{1,5,7}**

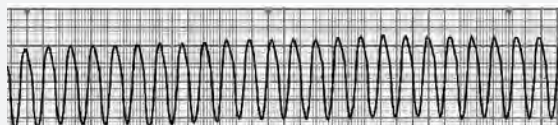
- **Administer a single shock:**
 - adults and children > 8 years:
 - monophasic shock 360 joules for all shocks
 - biphasic shock 200 joules for all shocks
 - infants and children to 8 years:
 - 4 joules/kg
- **Immediately resume CPR for 2 minutes:**
 - unless responsiveness or breathing become apparent
 - do not delay commencing CPR to assess the rhythm
- **After 2 minutes** reassess rhythm:
 - direct treatment as per rhythm i.e. if shockable rhythm administer another shock
 - if rhythm assessment results in a significant interruption to CPR, then continue another 2 minutes of CPR before more shocks are delivered
- **Continue above loop** (i.e. shock, CPR for 2 minutes, reassess rhythm, treat as per rhythm)
- **After 2nd failed shock** attempt **give adrenaline (epinephrine):**
 - repeat adrenaline (epinephrine) after every 2nd loop of CPR
- **After 3rd failed shock** attempt **give amiodarone** (on MO/NP order only)
- Urgently contact MO/NP as soon as circumstances allow

Shockable rhythms¹**Ventricular fibrillation (VF)**

- Asynchronous chaotic ventricular activity that produces no cardiac output
- VF rhythm may not always appear coarse e.g. can be smaller in amplitude

**Ventricular tachycardia (pulseless VT)**

- A wide complex regular tachycardia associated with no clinically detectable cardiac output
- Pulseless or haemodynamically compromising VT rhythm may not always be this rapid in rate

**If NON-SHOCKABLE rhythm - Asystole OR Pulseless Electrical Activity (PEA)^{1,5,7}**

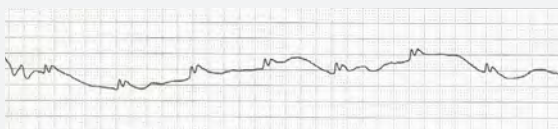
- Do not defibrillate
- Continue with CPR
- **Give adrenaline (epinephrine):**
 - repeat after every 2nd loop of CPR
- Look for reversible cause

Non-shockable rhythms¹**Asystole**

- Absent of any cardiac electrical activity

**Pulseless electrical activity (PEA) or Electromechanical Dissociation (EMD)**

- Presence of a coordinated electrical rhythm without a detectable cardiac output (pulse)



Schedule	3	Adrenaline (epinephrine)	Extended authority NIL	
RN and RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	1:10,000 (1mg/10mL)	IV/Intraosseous	Adult 1 mg	stat then every 2 nd loop
	OR If unavailable dilute 1 mL of the 1:1000 solution with 9 mL sodium chloride 0.9%		Child Birth (at term) - 18 years 10 microgram/kg to a max. 1 mg NOTE: 10 microgram = 0.1 mL adrenaline 1:10,000	Rapid injection Flush with sodium chloride 0.9% (small bolus for children; 20mL for adults)
Provide Consumer Medicine Information:				
Note: Approximate weights of children according to age: Newborn = 3.5 kg; 1 year = 10 kg; ≤ 9 years = (age x 2) plus 8 kg; ≥ 10 years = age x 3.3 kg				
Management of associated emergency: Consult MO/NP				
1,2,3,10,12				

Schedule	4	Amiodarone	Prescribing guide	
RIPRN and RN only. Must be ordered by an MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	150 mg/ 3 mL	IV/Intraosseous Dilute 150 mg in 10 mL of glucose 5%	Adult 300 mg An additional dose of 150 mg can be considered	stat after 3rd shock Rapid bolus
			Child 1 month - 18 years 5 mg/kg to a max. of 300 mg	Flush with glucose 5% (small bolus for children; 20 mL for adults)
Note: Infuse amiodarone in glucose 5% injection. Incompatible with sodium chloride 0.9%. Approximate weights of children according to age: Newborn = 3.5 kg; 1 year = 10 kg; ≤ 9 years = (age x 2) plus 8 kg; ≥ 10 years = age x 3.3 kg				
Management of associated emergency: During IV administration monitor BP; severe hypotension and circulatory collapse can occur with rapid infusion. Contact MO/NP				
1,2,4,10,11,12				

3. Clinical assessment^{1,8}

- See Immediate management
- During CPR look for reversible causes - 4H's and 4T's:
 - Hypoxia
 - Hypovolaemia
 - Hyper/hypokalaemia/metabolic acidosis
 - Hypothermia/hyperthermia
 - Tension pneumothorax
 - Tamponade
 - Toxins
 - Thrombosis (pulmonary/coronary)
- Common causes of sudden cardiac arrest:
 - coronary heart disease/cardiac related - approx. 70% of cases
 - non-cardiac related - approx. 25% of cases e.g. trauma, bleeding, drug intoxication, intracranial haemorrhage, pulmonary embolism, drowning, airway obstruction
- In paediatrics, cardiac arrest is usually the result of established hypoxaemia or hypotension (or both) occurring in numerous diseases and traumatic events
- Obtain history from witnesses if able:
 - physical circumstances
 - medicines/allergies
 - precipitating events
- Undertake interventions based on the presumed cause in collaboration with MO/NP

4. Management^{1,9}

- Contact MO/NP as soon as circumstances allow
- Be guided by MO/NP as to when to cease CPR

Post resuscitation care

- Commences once return of spontaneous circulation occurs
- In collaboration with MO/NP:
 - re-evaluate patient - airway, breathing, circulation, disability and exposure
 - maintain SpO₂ ≥ 94%. See [Oxygen delivery, page 64](#)
 - perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
 - continuous cardiac monitoring
 - maintain systolic BP
 - monitor BGL frequently
 - MO/NP may consider antiarrhythmic to prevent recurrent VF
 - maintain temperature. Avoid hyperthermia
 - obtain ECG and chest x-ray
 - assess the adequacy of perfusion and consider the need for reperfusion therapy e.g. thrombolytics or percutaneous coronary intervention
 - assess for resuscitation related injuries
 - consider replacement of IV lines
 - urgent evacuation required
 - continue to investigate for reversible causes

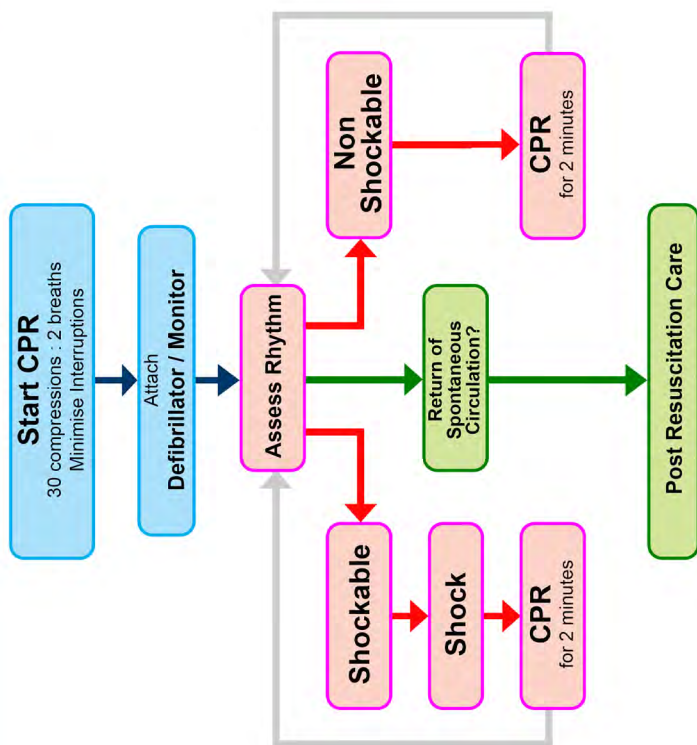
5. Follow up¹

- Sensitive, professional debriefing of people involved in resuscitation is valuable
- 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)

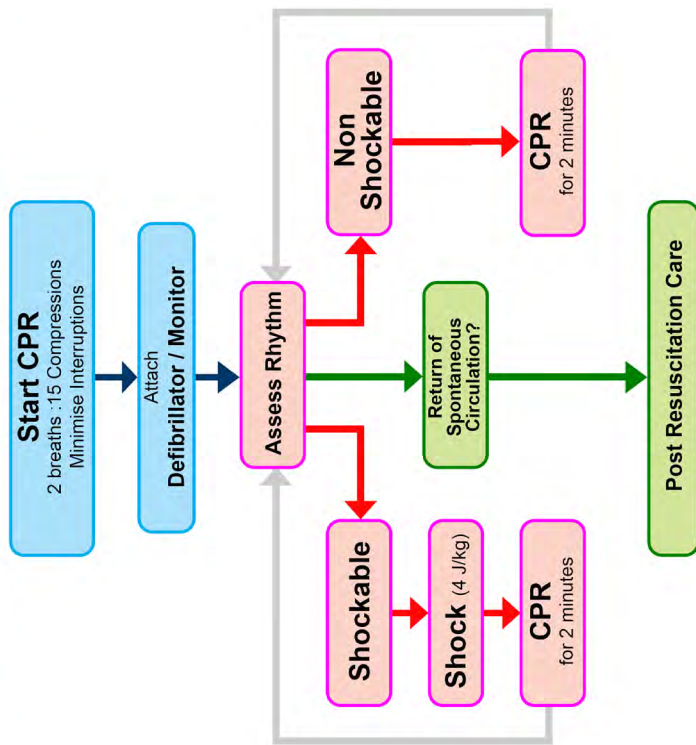
Post Resuscitation Care

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



January 2016

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



Oxygen delivery

Oxygen delivery - adult/child

Recommend^{1,2}

- Frequent clinical assessment is required in all patients receiving O₂ therapy
- In the primary clinical care setting arterial O₂ saturation is measured via pulse oximetry documented as SpO₂
- Nasal prongs, simple face masks and non-rebreathing masks deliver O₂ percentage concentrations that may vary considerably
- In selecting the proper delivery method, consideration should be given to the clinical condition of the patient and the amount of O₂ needed

Definitions³

- SpO₂ - Arterial oxygen saturation measured by pulse oximetry
- SaO₂ - O₂ saturation obtained from arterial blood
- Hypoxaemia - Low O₂ tension in the blood
- FiO₂ - Fraction of inspired O₂ concentration (%)

Oxygen use in specific scenarios^{1,4,5}

Scenario	Recommendation	Target SpO ₂
Shock Major trauma Sepsis Other critical illnesses	• Manage initially with high concentration O₂ from a reservoir mask	≥ 94%
Acute coronary syndromes	• Supplemental oxygen should be initiated only if the patient has breathlessness, hypoxaemia (SpO₂ < 94%), signs of heart failure or shock. Routine use is not recommended • Hyperoxaemia may be potentially harmful in uncomplicated myocardial infarction	
Acute stroke	• Routine use of supplemental O₂ not recommended unless hypoxic (SpO₂ < 94%)	
Hypotension	• Administer until hypoxia can definitely be excluded	
Carbon monoxide poisoning	• Routine use of high dose supplemental O₂ via reservoir mask recommended • Pulse oximetry may not differentiate carboxyhaemoglobin from oxyhaemoglobin but a low reading is clinically significant	
Diving emergencies in patients developing signs of decompression sickness (musculoskeletal or neurologic symptoms)	• Treat with high flow concentration O₂ via Venturi face mask as soon as possible to increase rate of nitrogen washout	

Oxygen use in specific scenarios (continued)^{1,4,5}

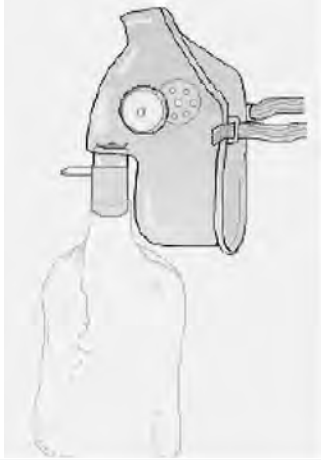
Scenario	Recommendation	Target SpO ₂
Paraquat poisoning Bleomycin lung injury	• Routine use of supplemental O₂ is NOT recommended (can be hazardous) • Only give if needed	88-92%
Patients at risk of hypercapnic respiratory failure e.g: • COPD • Cystic fibrosis • Bronchiectasis • Severe kyphoscoliosis • Severe ankylosing spondylitis • Severe lung scarring from past TB • Morbid obesity (BMI > 40 kg/m²) • Overdose of opioids, benzodiazepines or other respiratory depressant drugs • Musculoskeletal disorders with respiratory muscle weakness	• Routine use of supplemental O₂ is not recommended (can be hazardous) • In this population, normal SpO₂ is sometimes 90-92%. Excess O₂ can lead to elevated SpO₂ (> 95%) which reduces respiratory drive and under-ventilation • Use capnometry if available	88-92%

Oxygen delivery systems^{1,2,3}

User guide

Flowrate

Non-rebreathing mask



Partial non-rebreathing face mask with reservoir bag

8-12 L/min delivers approximately 70-85% O₂

Full non-rebreathing face mask with reservoir bag

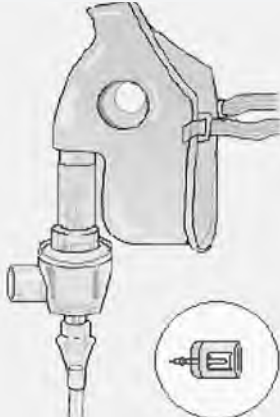
10-15 L/min delivers approximately 80-95+% O₂

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

8-15 L/min

O₂ flow meters - high and low flow meters are available
Low flow ranges from 0-3 L/min and high flow ranges from 4-15 L/min

Oxygen delivery systems ^{1,2,3}		User guide	Flowrate										
Nasal cannula (prongs) 	Child < 2 years 0.125-2 L/min Child > 2 years/ adult 0.125-4 L/min <table><tr><th>Flow rate L/min</th><th>% O₂</th></tr><tr><td>1</td><td>25</td></tr><tr><td>2</td><td>29</td></tr><tr><td>3</td><td>33</td></tr><tr><td>4</td><td>37</td></tr></table>	Flow rate L/min	% O ₂	1	25	2	29	3	33	4	37	Low flow device Nasal cannula are very comfortable for patients and are the most common low flow O₂ delivery device Best suited to patients who do not require a high FiO₂ and will not be harmed by the lack of precise control If need more than 4 L/min use a face mask	0.125- 4 L/min
Flow rate L/min	% O ₂												
1	25												
2	29												
3	33												
4	37												
Simple face mask 	5-6 L/min 35-50% 6-10 L/min 50-65%	Low flow device Available in two sizes - paediatric and adult Ensure good mask fit for max. O₂ Inspired FiO₂ varies as this is dependant on O₂ flow rate, mask size and fit and the patient's ventilation rate If require more than 10 L/min use non-rebreathing mask	5-10 L/min										
Venturi face mask 	Colour coded dilution jets delivering: 24% 28% 31% 35% 40% 50%	High flow device Select the appropriate coloured dilution jet and O₂ flow rate according to manufacturer's instructions	4-10 L/min										

Laryngeal mask airway (LMA) insertion

Laryngeal mask airway (LMA) insertion - adult/child



- 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 patient¹
- 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 precautions 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 LMA²
- Confirm placement with end tidal CO_2 ($ETCO_2$) disposable detector and/or monitor if available
- Become familiar with the equipment available at your facility

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

Intraosseous Infusion

HMP Intraosseous infusion - adult/child

Recommend¹

- Intraosseous provides a route for the administration of parenteral fluids and medicines in life threatening situations in any age
- Use this route when IV access is immediately needed and:
 - unable to be established
 - likely to be difficult and time consuming
 - after 2 minutes or 2 attempts to insert an IV cannula have failed
- In a responsive patient consider using local anaesthetic for intraosseous insertion
- Administration of fluid via intraosseous can be extremely painful. Intraosseous lidocaine (lignocaine) 2% is recommended
- Bilateral intraosseous lines with pressure infusion cuffs are effective in delivering large volumes quickly in cases of severe shock
- Clinicians should familiarise themselves with available intraosseous devices and follow manufacturer's recommendations on correct usage and safe work practices
- Do not insert an intraosseous needle into a site if the bone is broken, made brittle by disease, or if the tissue over the bone is burnt or infected
- Generally IV access should be established within 2-3 hours and the intraosseous infusion ceased

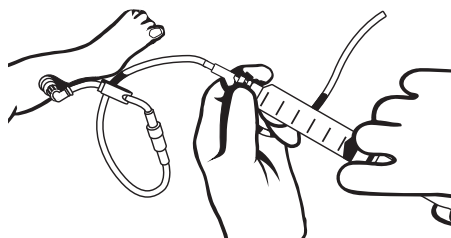
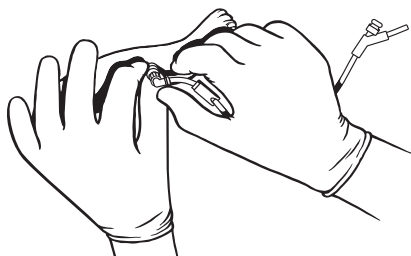
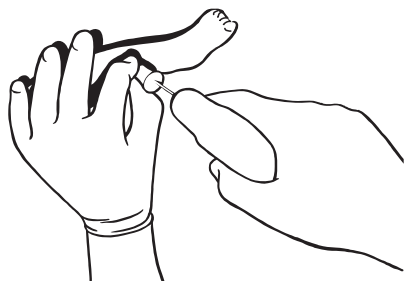
Intraosseous sites and recommendations²

Site	Age	Intraosseous needle set	Recommendations
Proximal tibia	Any	45 mm (if excessive tissue) 25 mm (> 40 kg) 15 mm (3-39 kg)	Insert needle at 90° to skin surface into the anterior (flat) medial surface of the proximal tibia 1-3 cm below the tibial tuberosity
Distal tibia	Any	45 mm (if excessive tissue) 25 mm (> 40 kg) 15 mm (3-39 kg)	Insert needle at 90° to skin surface into the medial surface of the tibia, 2-3 cm proximal to the medial malleolus
Humerus	Adults	45 mm	Insert needle at 90° to skin surface 1 cm above the anterolateral proximal humerus

Preparation of intraosseous site^{2,3,7}

- Prepare injection site using aseptic technique with antiseptic solution
- Anaesthetise the skin, subcutaneous tissue and periosteum with 1% lidocaine (lignocaine)
- Stabilise and support the leg (or humerus in an adult) on a firm surface
- Palpate landmarks to identify distal tibia or proximal tibial site (or humerus in an adult)
- 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 of intraosseous needle



- 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 intraosseous 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
- If flow is good connect the IV line extension set with a 3 way stopcock at the luer lock and secure the needle with a clear dressing and tape
- **Do not attach a syringe directly to the intraosseous hub.** This will risk dislodgement
- Aspirate to collect blood sample if required
- For those responsive to pain consider intraosseous lidocaine (lignocaine) as intraosseous fluid infusion can be painful
- If IV fluids do not flow via gravity be wary as the fluid is likely to be extravasating (escaping into the surrounding tissues)
- Although fluid may run in via the IV line by gravity, the rate is too slow for resuscitation
- Faster rates of infusion is achieved by drawing 20 mL boluses from the IV bag and administering manually via the 3 way stopcock

Battery powered handheld drill/driver²

- 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 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
- A sudden give or pop indicates 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
- Aspirate to collect blood sample if required
- Attach an extension set to the intraosseous hub with a 3 way stopcock at the proximal end, and secure the needle with clear dressing and tape, or the specific stabiliser dressing. Tape the line to the leg (or shoulder) to prevent dislodgement
- For those responsive to pain consider intraosseous lidocaine (lignocaine) as intraosseous fluid infusion can be painful
- Connect the IV line and begin the infusion. Observe for extravasation (fluid escaping into the tissues)
- Faster rates of infusion is achieved by drawing 20 mL boluses from the IV bag and administering manually via the 3 way stopcock or by using a pressure infusion cuff
- Continue to monitor for signs of extravasation

For those responsive to pain (due to intraosseous fluid infusion)²

- Prime intraosseous extension set with lidocaine (lignocaine):
 - note that the priming volume of the intraosseous connection set is approximately 1 mL
 - if primed with 2% lidocaine (lignocaine), this will be approximately 20 mg
- Over 120 seconds (2 minutes):
 - slowly infuse 40 mg of lidocaine (lignocaine) intraosseous for adults
 - slowly infuse 0.5 mg/kg (max. 40mg) of lidocaine (lignocaine) intraosseous for children (and those < 80 kg)
- Allow lidocaine (lignocaine) to dwell in intraosseous space for 60 seconds (1 minute)
- Flush the intraosseous catheter with 5 mL of sodium chloride 0.9% for adults and children
- Over 60 seconds (1 minute):
 - slowly infuse 20 mg of lidocaine (lignocaine) intraosseous for adults
 - slowly infuse 0.25 mg/kg of lidocaine (lignocaine) intraosseous for children (and those < 80 kg)

Schedule	4	Lidocaine (lignocaine)		Extended authority ATSIHP/IHW/IPAP/RIPRN
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	1% 50 mg/5 mL	Subcut	Adult and child ≥ 12 years or > 50 kg up to 3 mg/kg to a total max. of 200 mg Child < 12 years up to max. of 3 mg/kg	stat
Provide Consumer Medicine Information: Report any drowsiness, dizziness, blurred vision, vomiting or tremors				
Note: Use the lowest dose that results in effective anaesthesia				
Management of associated emergency: Ensure resuscitation equipment readily available. Consult MO/NP. See Anaphylaxis, page 102				

3,4,5,6

3,4,5,6

Schedule	4	Lidocaine (lignocaine)		Prescribing guide
RIPRN and RN only. Must be ordered by an MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	2% (is equivalent to 20 mg/mL) 40 mg/2 mL 100 mg/5 mL 400 mg/20 mL	Intraosseous	Adult and child ≥ 12 years or > 80 kg 40 mg lidocaine (lignocaine) followed by a 5 mL rapid sodium chloride 0.9% flush then 20 mg lidocaine (lignocaine) again Child and those < 80 kg 0.5 mg/kg to a max. of 40 mg lidocaine (lignocaine) followed by a 5 mL rapid sodium chloride 0.9% flush then 0.25 mg/kg lidocaine (lignocaine) again	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 that results in effective anaesthesia				
Management of associated emergency: Ensure resuscitation equipment readily available. Consult MO/NP. See Anaphylaxis, page 102				

2,3,4,5,6

2,3,4,5,6

Critical emergencies

Unconscious/altered level of consciousness - adult/child/infant

Recommend^{1,2}

- Unconsciousness is a time sensitive medical emergency - early stability and diagnosis are vital to optimise patient outcomes
- Never leave an unconscious/altered LOC patient alone if possible
- Assume a serious cause until proven otherwise
- If alcohol consumption suspected, a thorough search for other causes should continue
- Management should aim to avoid hypoxia, hypotension, hyperthermia and hyperglycaemia; maintain normovolaemia, and cerebral perfusion; minimise any increase in ICP³

Background¹

- Causes of unconsciousness include:
 - low brain oxygen levels
 - heart and circulation problems e.g. fainting, abnormal heart rhythms
 - metabolic problems e.g. overdose, intoxication, low blood sugar
 - brain problems e.g. head injury, stroke, tumour, epilepsy

1. May present with^{1,3}

- Confusion, drowsiness
- Poor response to stimulation
- Unresponsiveness
- Before loss of consciousness, patient may experience:
 - yawning, dizziness, sweating
 - change from normal skin colour
 - blurred or changed vision
 - nausea

2. Immediate management^{1,2,3,4}

- Assess as per [DRS ABCD resuscitation/the collapsed patient, page 54](#)
 - if fails to respond, or shows only a minor response e.g. groaning without eye opening, manage as unconscious
 - if not breathing properly, start BLS
- If unconscious and breathing normally:
 - assist patient onto the ground/bed and position on side
 - ensure airway open - airway takes precedence over any injury
 - handle gently, avoid twisting or forward movement of head and spine
 - use head tilt/chin lift for adults and children > 1 years
 - infants - keep head neutral
 - call for help
 - do GCS. See [Glasgow Coma Scale/AVPU, page 785](#)
 - promptly stop any bleeding
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
 - measure BGL

- attach cardiac monitor
- give O₂ to maintain SpO₂ ≥ 94%^{2,3}. See [Oxygen delivery, page 64](#)
- Contact MO/NP promptly, urgently if patient is a child - particularly if:
 - GCS < 15
 - GCS drops 2 or more points since last assessment
- If GCS ≤ 8 consider LMA for airway support until patient able to be intubated. See [Laryngeal mask airway \(LMA\) insertion, page 67](#)

3. Clinical assessment^{1,2}

- Constantly re-check the patient's condition for any change
- Continually observe airway for any signs of obstruction e.g.⁴
 - laboured or noisy breathing, or no sound of breathing
 - in-drawing of spaces between ribs and collar bone during inspiration
 - abdomen moves in and out, but loss of natural rise of chest
- Obtain rapid history from friends/relatives or bystanders:³
 - was the loss of consciousness witnessed
 - when/what happened prior/what were they doing
 - did the person complain of a headache/chest pain/other symptom
 - any witness of:
 - ingestions, IV drug use
 - trauma
 - seizures/abnormal movements
- Look for clues which may indicate reason for unconscious state e.g:
 - trauma
 - overdose e.g. suicide note, empty medicine packet(s), needle and syringe
 - alcohol or substance/drug use
 - note: if alcohol intoxication suspected, continue to look for other causes²
 - infection - especially elderly
 - bruising/minor injuries
 - snake bite/other envenomation
 - allergy jewellery or accessory (key ring, USB stick, shoe tag, anklet, watch, tattoo)
- Obtain past history as able (from relatives/friends/clinical notes):
 - known underlying illness
 - any epilepsy, diabetes, cancer
 - allergies
 - medications e.g. anticoagulants
 - recent surgery/hospitalisation
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Note pattern and regularity of breathing:²
 - deep, laboured (Kussmaul respiration, often associated with diabetic acidosis)
 - shallow with extremely depressed RR (seen in opiate overdose)
 - hyperventilation
- Perform neurological observations - use standard neurological observation chart:
 - GCS, motor responses, pupil size and reaction
- ECG

- Perform thorough head to toe examination:
 - any odour noted
 - check skin e.g. rash, bruising, drug injection sites, puncture wounds (snake bite)
 - remove all clothing as you move down, maintaining privacy
 - keep patient warm
- Take bloods² - consider point of care testing:
 - FBC, blood glucose, urea and electrolytes
 - calcium
 - LFT, clotting screen
 - toxicology screen; including paracetamol, salicylate and blood alcohol level
- If fever or sepsis suspected, take blood cultures
- Urinalysis
- Perform point of care testing for pregnancy for women of reproductive age
- Additional pathology depending on suspected cause - be guided by MO/NP

4. Management^{1,2}

- See Immediate management
- If BGL < 4 mmol/L treat immediately. See [Hypoglycaemia, page 115](#)
- If hypotensive, commence rapid IV sodium chloride 0.9% 10-20 mL/kg. See [Shock, page 77](#)
- Be guided by MO/NP for further management, which may include:
 - chest x-ray
 - evacuation for further investigations and management
 - treatment according to suspected cause. See **Differential diagnosis for altered level of consciousness** table on next page

Differential diagnoses for altered level of consciousness^{1,2}**Brain problems**

- Head injury (think of non-accidental injury in young child)
- Stroke
- Tumour
- Epilepsy
- Meningitis/encephalitis
- Seizure/post ictal

Metabolic problems

- Hypoglycaemia/hyperglycaemia (diabetes)
- Drug overdose - oral, inhaled, IV
- Intoxication - alcohol, inhalants
- Poisoning
- Encephalopathy
- Liver failure
- Kidney failure
- Sepsis - especially in the elderly
- Electrolyte derangement

Low brain oxygen problems

- 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

Heart and 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

6. Referral/consultation

- Always contact MO/NP

Shock - adult/child

Recommend¹

- 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^{2,3}

- 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 e.g. from the skin. Many organs can stop functioning
- Types of shock:
 - hypovolaemic - 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 e.g. myocardial infarction
 - obstructive e.g. tension pneumothorax, cardiac tamponade, pulmonary embolism
 - distributive e.g. severe infection, allergic reactions, severe brain/spinal injuries
- SpO₂ readings in shock can be unreliable due to poor peripheral perfusion

Related topics

[Anaphylaxis, page 102](#)

[Sepsis/septic shock, page 80](#)

1. May present with^{2,3}

- Collapse
- 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
- ↓ urine output
- Altered mentation, irritability, confusion, drowsiness, altered conscious state (not due to head injury)
- Very low or high temperature
- Warm peripheries in distributive shock
- Thirst
- As part of clinical picture of emergencies e.g. trauma and injuries, burns, fractures, acute wounds, nose bleed, gastrointestinal bleeding, septicaemia, heart attack, tubal/ectopic pregnancy, anaphylaxis

2. Immediate management^{1,3}

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Call for help
- Urgently contact MO/NP when able
- Place into supine position
- Control any major bleeding - by direct pressure with a bandage and/or apply traction and splint

fracture(s) if possible

- Diagnostic evaluation should occur at the same time as resuscitation
- Assess conscious state. See [Glasgow Coma Scale/AVPU, page 785](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
 - capillary refill time
 - check body and skin temperature
- Give O₂ to maintain SpO₂ > 94% adult⁴ or > 95% child. See [Oxygen delivery, page 64](#)
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
 - if IV access is unable to be established or is likely to be difficult and time consuming insert intraosseous cannula¹. See [Intraosseous infusion, page 69](#)
 - if unable to attain IV or intraosseous access consult MO/NP immediately
- Take emergency history from patient and relatives and/or friends, if present
- For cardiogenic shock and obstructive shock, the cause should be treated. MO/NP will advise
- For hypovolaemic shock and distributive shock:
 - give sodium chloride 0.9% or Hartmann's solution 10-20 mL/kg bolus²
 - reassess
 - bolus may need repeating on MO/NP order
- The aim in adults is to keep:
 - 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
- Insert IDC and monitor hourly urine output¹

3. Clinical assessment¹

- Obtain patient history including circumstances that may suggest the cause of shock including medicines
- Monitor BP, HR, RR, SpO₂, BGL, body and skin temperatures +
 - capillary refill
 - urine output
 - conscious state
 - consider pregnancy test
- Pay particular attention to the trends in vital signs^{2,3}

4. Management¹

- Consult MO/NP urgently to organise evacuation
- Monitor response to intervention
- Use caution when treating elderly patients and those on beta blockers¹
- If in distributive shock consider early antibiotic therapy in consultation with MO/NP. See [Sepsis/septic shock, page 80](#)
- Suspect internal bleeding if injured and/or shocked and not obvious where blood has been lost from:
 - abdomen (ruptured spleen/liver/kidneys). See [Abdominal injury, page 183](#) and [Ectopic pregnancy, page 511](#)

- fractured femur (thigh), pelvis. See [Fractured pelvis, page 190](#)
- chest (haemothorax). See [Chest injuries, page 171](#)
- Manage coexisting condition in consultation with MO/NP as per:
 - [Acute coronary syndromes, page 135](#)
 - [Acute gastroenteritis/dehydration - adult, page 243](#)
 - [Acute gastroenteritis/dehydration - child, page 730](#)
 - [Anaphylaxis, page 102](#)
 - [Acute wound\(s\), page 198](#)
 - [Burns \(general\), page 217](#)
 - [Fractures, dislocations and sprains, page 185](#)
 - [Nose bleed/epistaxis, page 234](#)
 - [Primary postpartum haemorrhage, page 572](#)
 - [Rectal bleeding, page 251](#)
 - [Secondary postpartum haemorrhage, page 586](#)
 - [Traumatic injuries, page 163](#)
 - [Upper gastrointestinal bleeding, page 249](#)

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

HMP Sepsis/septic shock - adult/child

Recommend^{1,2,3}

- Sepsis is a medical emergency - early recognition and rapid treatment is imperative for survival
- Sepsis must be considered in every patient with fever or acute illness
- Initial presentation can be vague, so always have a high index of suspicion in neonates and young infants, the elderly or immunocompromised
- A diagnosis of sepsis is made using clinical judgement supported by laboratory testing
- If sepsis is suspected, initiate treatment and investigations until sepsis has been excluded
- Early involvement of paediatric intensive care unit (PICU) services, RSQ (or local evacuation services) is essential for optimising outcomes for patients with suspected sepsis
- **Use sepsis clinical pathways to guide management and antibiotic choice if available**

Background

- Sepsis is a life-threatening organ dysfunction caused by a dysregulated host response to infection⁶
- Septic shock is a subset of sepsis with profound circulatory, cellular and metabolic abnormalities. Clinically presents as persisting hypotension that requires vasopressors to maintain a mean arterial pressure of 65 mm Hg or higher, and a serum lactate > 2 mmol/L despite adequate volume resuscitation⁷
- A child can have sepsis with normal BP. Hypotension is a late sign of shock
- Neonates and infants < 1 year are at highest risk of sepsis because their immature immune systems are unable to ward off severe pathogens^{1,3}
- An elevated serum lactate > 2 mmol/L may indicate the severity of sepsis and is used to follow the therapeutic response⁵
- Streptococcal toxic shock syndrome (TSS) is managed like septic shock in the early stages, until the causative organism is known⁹

Related topics

[Shock, page 77](#)

1. May present with^{1,2,4,8}

- Screen ALL patients for sepsis if ANY of the following:
 - looks sick
 - you suspect they may have sepsis
 - patient, family or carer/parent has concerns
 - signs of deterioration during current illness
 - Q-ADDS or CEWT score ≥ 4
 - fever or hypothermia ($T < 35.5^{\circ}\text{C}$)
 - altered behaviour OR $\downarrow$ level of consciousness
 - re-presentation within 48 hours
 - unexplained pain/restlessness in children

2. Immediate management^{1,2,4,8}

- Perform standard clinical observations (full ADDS, MEWT, CEWT score or other local Early Warning and Response Tools)
- Check to see if ANY risk factors for sepsis are present

Risk factors for sepsis^{1,2,4}

- Age < 3 months
- Aboriginal and Torres Strait Islander, Pacific Islander or Maori
- Chronic disease or congenital condition
- Malnourished or frail
- Indwelling medical device
- Recent trauma or surgery, invasive procedure, wound within last 6 weeks
- Post partum/miscarriage
- IV drug use or alcoholism
- Immunocompromised, asplenia, neutropenia, unimmunised
 - if $T \geq 38.5^{\circ}\text{C} \times 1$ OR $38^{\circ}\text{C} \times 2$ one hour apart AND suspected neutropenia OR chemotherapy given within the past 2 weeks, suspect febrile neutropenia
- Represented within 48 hours

AND/OR

- There any reason to suspect an infection - respiratory tract, urinary, abdomen/GIT, skin, joint, prosthesis, CNS, meningitis, new onset confusion, family members suspect infection, other, source unclear
- If no risk factors are present in adults, there is a low risk of sepsis:
 - do thorough clinical assessment
 - consult MO/NP for advice
- In ALL children, and if there are ANY risk factors present in adults:
 - record weight - bare weight if < 2 years
 - assess against **Risk criteria for illness/sepsis** on following page

Risk criteria for illness/sepsis^{2,4}

Step 1. Check for ANY features of severe illness

Child < 16 years

- Needs O₂ to keep SpO₂ ≥ 92%
- Severe respiratory distress/tachypnoea/apnoea (CEWT respiratory score 3)
- Severe tachycardia or bradycardia (CEWT heart rate score 3)
- Hypotension (CEWT BP score ≥ 2)
- Lactate ≥ 2 if known
- Altered AVPU
- Non-blanching rash
- Hypothermia (CEWT temperature score 2)

≥ 16 years to adult

- Systolic BP < 90 mmHg (or drop > 40 from normal)
- Lactate ≥ 2 if known
- Non-blanching rash/mottled ashen/cyanotic
- RR ≥ 25 breaths/min
- Needs oxygen to keep SpO₂ ≥ 92%
- HR ≥ 130/min
- Change in mental status: GCS < 15
- Not passed urine in 18 hours
- Recent chemotherapy

Note: CEWT refers to the Queensland Children's Early Warning Tools (2017)

NO

**ANY features of
severe illness**

YES

**Assume patient HAS sepsis
or septic shock until proven
otherwise**
Consult MO urgently
See Step 3 on following page

Step 2. Check for ANY features of moderate illness

Child < 16 years

- Moderate respiratory distress/tachypnoea (CEWT respiratory score 2)
- Moderate tachycardia (CEWT heart rate score 2)
- Capillary refill ≥ 3 seconds
- Unexplained pain or restlessness
- Low BGL
- Pale or flushed/mottled/cold extremities
- Reduced urine output
- Parental/health care worker concern

≥ 16 years to adult

- RR 21-24/min
- Systolic BP 90-99 mmHg
- HR 90-129/min OR new dysrhythmia
- T < 35.5°C or ≥ 38.5°C
- Relatives concerned about mental health status
- Not passed urine in last 12-18 hours
- Acute deterioration in functional ability

NO

**ANY features of
moderate illness**

YES

Low risk for sepsis

- Complete history and examination
- Consult with MO/NP
- Reassess if deteriorates or as clinically indicated

Patient MAY have sepsis

- **Consult MO urgently**
- Targeted history and examination
- Take point of care lactate

Step 3: If ANY indications this is likely sepsis or septic shock^{2,4}

- Call for help
- **Consult MO urgently:**
 - senior medical officer to diagnose sepsis where possible
 - arrange early evacuation
 - use sepsis pathways if available
- **Maintain SpO₂ ≥ 94%** (88-92% if COPD). Give O₂ if needed. See [Oxygen delivery, page 64](#)
- **Insert 2 x IV cannula** - use the largest possible gauge given age and vascular status:
 - obtain intraosseous access if 2 failed attempts
- **Measure lactate**
- **Take bloods** unless this will delay antibiotics > 1 hour:^{1,2,4}
 - < 16 years:
 - blood cultures - aim for 2-6 mL (one aerobic bottle)
 - lactate/VBG and FBC. If possible add Chem20 or LFT, UEG, CMP, CRP
 - BGL
 - ≥ 16 years to adult:
 - blood cultures - 2 sets from 2 sites (2 sets of aerobic and anaerobic bottles)
 - lactate, FBC, UEC, BGL, LFT, lipase and VBG
 - if septic shock add coagulation studies
- **Check BGL and allergies**
- **Give IV/intraosseous antibiotics within 1 hour - do not delay:**
 - local patterns of resistance to be considered
 - target to source of infection if known
 - use sepsis clinical pathways for guidance
 - **note:** MRSA infection risks - chronic underlying disease (e.g. renal failure, diabetes), immunosuppression, chronic wounds or dermatitis, living in close quarters or communities with high MRSA prevalence, known colonisation with MRSA⁴

Empirical antibiotics - if not allergic MO/NP may order

- < 2 months:²
 - cefotaxime PLUS ampicillin
 - if at risk of MRSA ADD vancomycin
- 2 months to 16 years:²
 - cefotaxime
 - if at risk of MRSA ADD vancomycin
- If child has septic shock/critically ill REPLACE above with:^{2,11}
 - cefotaxime PLUS gentamicin PLUS vancomycin
- > 16 years to adult:^{4,12}
 - gentamicin PLUS flucloxacillin
 - if at risk of MRSA ADD vancomycin
 - if meningitis can not be excluded ADD ceftriaxone. See [Meningitis, page 91](#)
- **Additional considerations ALL ages**^{2,4,11,12,13}
 - during November to May (tropic wet season) - areas north of Mackay, Tennant Creek, Port Hedland:
 - > 16 years - MO may consider replacing antibiotic regimen above with meropenem AND vancomycin
 - if meningitis can not be excluded:
 - See [Meningitis, page 91](#) for empirical antibiotic choices

- if encephalitis suspected:
 - ADD aciclovir. See [Meningitis, page 91](#)
- administer antibiotics with shorter infusion times first
- **Commence IV/intraosseous fluids:**^{2,4}
 - use sodium chloride 0.9% or Hartmann's
 - < 16 years:
 - give rapid fluid bolus 10-20 mL/kg
 - observe for hepatomegaly (enlarged liver)
 - assess response
 - on MO/NP order may repeat up to 40-60 mL/kg within first hour
 - if hypoglycaemic MO/NP may order 2 mL/kg glucose 10%²
 - ≥ 16 years/adults:⁴
 - consider patient's weight, cardiac function, co-morbidities and current volume status
 - rapidly infuse bolus 250 mL-500 mL over 5 minutes if clinically indicated
 - assess response, give further bolus if indicated
 - further IV fluids on MO/NP orders (do not exceed 30 mL/kg without SMO input)

If timely IV/intraosseous access not possible:^{8,14}

- IM route can be used for most antibiotics
- See Guidelines for maximal amounts of solutions to be injected into paediatric muscle tissue below

Guidelines for maximal amounts of solutions to be injected into paediatric muscle tissue¹⁴

Muscle group	0 to 18 months	18 months to 3 years	3 to 6 years	6 to 15 years
Vastus lateralis	0.5 mL	1 mL	1.5 mL	1.5-2 mL
Deltoid	Not recommended	Not recommended if other sites are available 0.5 mL	0.5 mL	0.5 mL
Ventrogluteal	Not recommended	Not recommended if other sites are available 1 mL	1.5 mL	1.5-2 mL
Gluteus Maximus	Not recommended	Not recommended if other sites are available		
		1 mL	1.5 mL	1.5-2 mL

Volumes of up to 2.4 mL in one injection are used in exceptional circumstances with documented informed consent where the risk of muscle necrosis is discussed with the patient/carer

3. Clinical assessment

- Ask about recent history of:
 - illness, operations/hospitalisation, post-partum, skin infections
 - antimicrobial use within the previous 3 months⁸ - which one(s), what for
 - travel - where to/when
- Past history:
 - diabetes, immunosuppressive medications, chemotherapy
- Ask about/look for possible source of infection:^{1,2,4}
 - cough, sputum, breathlessness

- dysuria, frequency
- abdominal pain, distension
- cellulitis, septic arthritis, infected wound, device related infection
- neck stiffness, photophobia, non-blanching rash, new onset confusion, headache, vomiting, nausea.⁸ See [Meningitis, page 91](#)
- auscultate chest for:
 - air entry
 - crackles or wheezes - pneumonia is the most common cause of sepsis¹⁰
- Inspect all skin surfaces for:
 - bruising/bleeding
 - skin rash especially at pressure points and under clothing. Note: petechiae and purpura do not fade on pressure
- Check bowel sounds - paralytic ileus may be present
- **Note:** source might be unclear
- Urinalysis + MSU for MCS and β -hCG if possible
- Check vaccination status

4. Management^{2,4,8}

- Reassess and monitor response to resuscitation:
 - re-check lactate - aiming for $< 2 \text{ mmol/L}$
 - perform frequent:
 - standard clinical observations (full ADDS/MEWT/CEWT score or other local Early Warning and Response Tools) - aiming for systolic BP in adults $\geq 100 \text{ mmHg}$
 - capillary refill time
 - AVPU. See [Glasgow Coma Scale/AVPU, page 785](#)
 - monitor urine output aiming for:
 - $> 1 \text{ mL/kg}$ for < 16 years/children
 - > 0.5 to 1.0 mL/kg/hour for ≥ 16 years/adults
- Consider IDC as appropriate
- Monitor fluid balance
- **If no or limited improvement** MO may consider:^{2,4}
 - < 16 years old - inotropes (on intensive care specialist advice):
 - adrenaline (epinephrine) infusion
 - use 1 mL of $1:1000$ adrenaline (1 mg/mL). Mix with 49 mL glucose 5% for a final concentration 0.02 mg/mL
 - infuse at 0.05 to $0.5 \text{ microgram/kg/min}$
 - ≥ 16 years/adults - vasopressors for hypotension
 - noradrenaline (norepinephrine) 5 microgram/min
- Continue to monitor closely until evacuated
- Further doses of antibiotics required in 6-8 hours - consult with MO/NP if still waiting to be evacuated

MO will urgently seek specialist/RSQ advice if patient STILL has:

- Persistent tachypnoea, hypotension, tachycardia
- Reduced level of consciousness despite resuscitation
- Lactate ≥ 4 or not reducing or
- If patient critically ill at any time

Schedule	4	Ampicillin		Extended authority ATSIHP/IHW/IPAP
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	500 mg 1 g	IV Reconstitute 500 mg vial with 4.7 mL water for injections (OR 1 g vial with 9.3 mL) to give concentration of 100 mg/mL	Neonates and infants < 2 months 50 mg/kg to a max. of 2 g	stat IV Inject dose < 1 g over 3-5 minutes, otherwise over 10-15 minutes
		IM Reconstitute 500 mg vial with 1.7 mL water for injections (OR 1 g vial with 3.3 mL) to give concentration of 250 mg/mL		IM See <i>Guidelines for maximal amounts of solutions to be injected into paediatric muscle tissue table</i>
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, pain and inflammation at injection site				
Contraindication: Severe hypersensitivity to penicillins, carbapenems and cephalosporins. Do not mix with aminoglycosides e.g. gentamicin				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
2,15,16				

2,15,16

Schedule	4	Cefotaxime	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	1 g 2 g	IV/Intraosseous Reconstitute 1 g vial with 9.6 mL water for injections to give concentration of 100 mg/mL OR 2 g vial: add 9 mL water for injections to give concentration of 200mg/mL THEN Dilute DOSE with sodium chloride 0.9 % to concentration of 150mg/ mL or weaker	Infant and child up to 16 years 50 mg/kg to a max. of 2 g	stat IV/Intraosseous Inject slowly over at least 3-5 minutes IM Child <i>See Guidelines for maximal amounts of solutions to be injected into paediatric muscle tissue table</i> Adult Inject deep into gluteal muscle. If volume more than 4 mL divide and give in multiple injection sites
		IM Reconstitute 1 g vial with 3.6 mL water for injections to give concentration of 250 mg/mL		
Provide Consumer Medicine Information: May cause diarrhoea, nausea, vomiting, pain and inflammation at injection site, rash, headache and dizziness. Can cause severe colitis due to <i>Cl. difficile</i>				
Note: Rapid injection < 1 minute can cause life threatening arrhythmias. Cefotaxime can be given IM but it is extremely painful				
Contraindication: Severe hypersensitivity to penicillins, carbapenems and cephalosporins. Do not mix with aminoglycosides e.g. gentamicin				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

2,17,18

2,17,18

Schedule	4	Vancomycin	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	500 mg 1 g	IV/Intraosseous Reconstitute 500 mg vial with 10mL of water for injections (20 mL to 1 g) to give concentration of 50 mg/mL THEN Dilute DOSE in sodium chloride 0.9% to make concentration of at least 5mg/mL	> 1 month 15 mg/kg up to a max. 750 mg > 16 years to adult 30 mg/kg loading dose ‡ <i>use Actual Body Weight</i>	stat IV/Intraosseous Infuse over at least 60 minutes Maximum rate for doses over 500 mg is 10 mg/minute
Provide Consumer Medicine Information: ‡ See Therapeutic Guidelines (eTG) for subsequent dosing or dosing in obesity in adults Note: Cannot be given IM. Work out dose according to actual body weight. Give through securely fastened cannula as extravasation may cause tissue necrosis. Do not infuse faster than recommended rate - can cause severe reactions including profound hypotension and red-man syndrome. 'Red-man syndrome' 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: If 'red man syndrome' occurs decrease/cease infusion. Consult MO/NP. See Anaphylaxis, page 102				
2,4,19,20				

Schedule	4	Flucloxacillin	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	500 mg 1 g	IV/Intraosseous Reconstitute 500 mg vial with 10 mL OR 1 g vial with 15-20 mL water for injections	> 16 years to adult 2 g	stat IV/Intraosseous Inject slowly over 6-8 minutes
		IM Reconstitute 500 mg vial with 2 mL (1 g vial with 2.5 mL) water for injections OR lidocaine (lignocaine) 1%		IM Inject deep into large muscle. No more than 1 g in each site
Provide Consumer Medicine Information: May cause diarrhoea, nausea, pain and inflammation at injection site				
Note: Rapid IV administration may cause seizures				
Contraindication: Severe hypersensitivity to penicillins, carbapenems and cephalosporins				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
12,21				

Schedule	4	Gentamicin		Extended authority ATSIHP/IHW/IPAP
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	10 mg/mL 80 mg/2 mL	IV/Intraosseous Child Dilute with sodium chloride 0.9% to convenient volume (i.e. to 10mg/mL or weaker)	Term neonates ≤ 1 month 5mg/kg	stat
		Adult Dilute to 20 mL with sodium chloride 0.9% to enable slow injection if required	Child > 1 month to < 10 years 7.5 mg/kg up to max. 320 mg	IV/Intraosseous Child Infuse over 20-30 minutes Adult Inject slowly over 3-5 minutes
		IM	Child 10 years to < 16 years 6 mg/kg up to max. 560 mg OR if critically ill/septic shock 7mg/kg up to a max. 640 mg ≥ 16 years to adult 5 mg/kg IBW/AdjBW to a max. of 500 mg OR for septic shock 7 mg/kg IBW/AdjBW to a max. of 700 mg	IM Child See <i>Guidelines for maximal amounts of solutions to be injected into paediatric muscle tissue table</i> Adult Inject into a large muscle - no more than 4 mL at each site
Provide Consumer Medicine Information:				
*Note: Rapid IV administration may result in ototoxicity/vestibular toxicity. IV gentamicin is inactivated by cephalosporins and penicillins. Flush line well before giving gentamicin or administer at separate sites to prevent inactivation Adults - Gentamicin is dosed according to Ideal Body Weight (IBW) or actual body weight, whichever is less. Where actual body weight is > 20% of IBW, use Adjusted Body Weight (AdjBW). For adjusted dosing calculations or patients with known or likely pre-existing renal impairment see Therapeutic Guidelines (eTG) or QH <i>Aminoglycoside Dosing in Adults Guidelines</i> (Apr 2018): https://www.health.qld.gov.au/__data/assets/pdf_file/0019/713323/aminoglycoside-guidelines.pdf Gentamicin can be given as a single dose in adults with sepsis, regardless of age⁴ Child - use ideal body weight to calculate dose, unless actual body weight is lower. If greater than 20% over ideal body weight use ideal body weight. Determine ideal weight by using corresponding weight for height percentile on a growth chart. Growth charts available from http://www.rch.org.au/childgrowth/Growth_Charts				
Contraindication: Previous vestibular/auditory toxicity with aminoglycosides, Severe allergic reaction to aminoglycoside, myasthenia gravis. Use with caution if > 80 years, pre-existing vestibular/auditory impairment, renal impairment, other nephrotic agents, rapidly changing renal function				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

2,4,12,22,25

Schedule	4	Meropenem		Prescribing Guide
RIPRN and RN only. Must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	1 g 500 mg	IV/Intraosseous Reconstitute 500 mg vial with 9.6 mL water for injections (9.1 mL to 1 g vial) to give concentration of 50 mg/mL Shake well before use	> 16 years to adult 1 g	stat Inject over 5 minutes
Provide Consumer Medicine Information: May cause nausea, vomiting, headache, phlebitis of injection site. Can cause severe colitis due to <i>Cl. difficile</i>				
Note: Risk of seizures: use cautiously in patients with CNS infections, renal dysfunction or with history of seizure disorders				
Contraindication: Not for IM injection. Severe hypersensitivity to penicillins, carbapenems and cephalosporins				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

2,4,23,24

5. Follow up

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

6. Referral/consultation

- Urgent treatment and evacuation/hospitalisation required

HMP Meningitis - adult/child

Recommend^{1,2}

- Meningitis is a medical emergency - early recognition and treatment is imperative
- Meningococcal infection is a notifiable disease ① - **notify Public Health Unit within 6 hours**
- Suspect meningitis in a sick child with no obvious source of infection to explain their symptoms
- In a child with a fever and no identified cause, meningitis must be suspected
- Careful management of fluid and electrolyte balance is important in the treatment of meningitis. Discuss 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^{2,3,4}

- Meningitis involves inflammation of the meninges and spinal cord and can be caused by several types of infective bacterial and viral organisms
- Do not use hyponatraemic solutions e.g. glucose 4% with sodium chloride 0.18% or sodium chloride 0.45% which can increase the risk of cerebral oedema
- All patients with suspected meningitis need a lumbar puncture unless contraindicated. In rural and remote areas where expert clinicians may not be available, commence antibiotic treatment without a lumbar puncture
- Use the Queensland *Acute Management of Suspected Meningococcal Disease Clinical Pathway* at: <https://clinicalexcellence.qld.gov.au/resources/clinical-pathways/meningococcal-diseaseclinical-pathways> or local pathway as relevant

Related topics

[Fits/convulsions/seizures, page 109](#)

1. May present with^{5,6,7}

- Will usually have at least one of:
 - fever
 - neck stiffness or resistance - often not present in young children or infants who may present with exaggerated head lag
 - Note: may not complain of neck stiffness, but with passive or active flexion of the neck they cannot touch the chin to chest
 - altered mental status, confused, lethargic
- Other symptoms may include:
 - headache - typically severe and generalised
 - photophobia
 - irritability
 - vomiting and/or nausea
 - anorexia
 - positive Kernig's sign - resistance to extension of the knee when hip is flexed to 90° or positive Brudzinski's sign - reflex flexion of the hip and knee when the neck is passively flexed
 - shock
 - seizures
 - focal neurological deficit
 - petechial rash - does not fade on pressure

- In infant < 3 months of age look for:
 - bulging fontanelle
 - high pitched cry
 - poor feeding or vomiting
 - apnoea
 - seizures

2. Immediate management¹

- If fitting see [Fits/convulsions/seizures, page 109](#)
- **Consult MO/NP urgently**
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - central capillary refill time
- **Give O₂** to maintain SaO₂ ≥ 94%. See [Oxygen delivery, page 64](#)
- **Insert 2 x IV cannula** - use the largest possible gauge given age and vascular status:
 - consider intraosseous if IV unable to be obtained
- **Take bloods** unless this will delay antibiotics > 30 minutes:
 - meningococcal PCR (adult 4 mL in mauve top tube; child 1 mL in EDTA pink top tube)
 - FBC, coagulation tests, LFT, UE, glucose
 - blood cultures:
 - if < 16 years - aim for 2-6 mL (one aerobic bottle)
 - if > 16 years or adult - 2 sets from 2 sites (2 sets of aerobic and anaerobic bottles)
- **Check BGL:**
 - if required MO/NP may order glucose 10% 2 mL/kg¹
- Check allergies
- **MO/NP will order antibiotics** - give within 30 minutes - DO NOT DELAY
- **Commence fluid resuscitation** as clinically appropriate within 30 minutes:
 - give sodium chloride 0.9% 20 mL/kg fluid bolus
 - repeat on MO/NP orders if needed
- Arrange urgent evacuation
- Consider sepsis as a differential diagnosis. See [Sepsis/septic shock, page 80](#)

3. Clinical assessment^{4,5,6,7,8}

- Obtain a complete history of the presenting concern as able. In particular any:
 - headache, irritability, fever, rash, neck stiffness, lethargy, confusion
- Weigh - bare weight if < 2 years
- Perform physical examination:
 - inspect all skin surfaces for rashes 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
 - inspect and palpate the ears, nose and throat
 - palpate the fontanelle in infants - feel 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^{1,19}

- See the Qld *Acute Management of Suspected Meningococcal Disease Clinical Pathway* at: <https://clinicalexcellence.qld.gov.au/resources/clinical-pathways/meningococcal-disease-clinicalpathways> or local pathway as relevant
- Monitor clinical observations + BGL closely

Antibiotics - give IV within 30 minutes on MO/NP order:

- IM route can be used if timely IV/intraosseous access not possible
- If not allergic, MO/NP may order:¹⁹
 - for neonates and infants < 2 months:
 - ampicillin PLUS
 - cefotaxime
 - for children ≥ 2 months and adults:
 - ceftriaxone OR
 - cefotaxime
 - for adults only, dexamethasone BEFORE or with the first dose of antibiotic
 - if critically ill immunocompetent child ≥ 2 months MO/NP may ADD:
 - gentamicin PLUS
 - vancomycin
 - See [Sepsis/septic shock, page 80](#) for dosing
 - if herpes simplex encephalitis suspected MO/NP may ADD:
 - aciclovir
 - if immunocompromised, > 50 years old, history of heavy alcohol consumption, pregnant or debilitated, to cover Listeria MO/NP may ADD:
 - benzylpenicillin
- Further doses of antibiotics required in 6 hours if still waiting to be evacuated - consult with MO/NP

Schedule	4	Dexamethasone		Extended authority ATSIHP/IHW/IPAP
ATSIHP, IHW, IPAP must consult MO/NP and may only administer via IV route				
RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	8 mg/2 mL 4 mg/mL	IV/Intraosseous Dilute in 10 mL sodium chloride 0.9%	Adult 10 mg	stat IV/Intraosseous Inject slowly over 3-5 minutes
		IM		IM Inject into gluteal muscle
Provide Consumer Medicine Information: May cause transient perineal itching or burning				
Note: Give before or with first dose of antibiotic as benefit lost if given after first dose. Do not delay antibiotics if dexamethasone not available				
Contraindication: The vial formulation in patients with a known hypersensitivity to sulphites				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,19,12,13

1,19,12,13

Schedule	4	Ampicillin	Extended authority ATSHP/IHW/IPAP	
ATSHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Powder for injection	500 mg 1 g	IV Reconstitute 500 mg vial with 4.7 mL water for injections (OR 1 g vial with 9.3 mL) to give concentration of 100 mg/mL	Neonates and infants < 2 months 50 mg/kg to a max. of 2 g	stat IV Inject dose < 1 g over 3-5 minutes, otherwise over 10-15 minutes
		IM Reconstitute 500 mg vial with 1.7 mL water for injections (OR 1 g vial with 3.3 mL) to give concentration of 250 mg/mL		IM See <i>Guidelines for maximal amounts of solutions to be injected into paediatric muscle tissue table in Sepsis/septic shock, page 80</i>
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, pain and inflammation at injection site				
Contraindication: Severe hypersensitivity to penicillins, carbapenems and cephalosporins. Do not mix with aminoglycosides e.g. gentamicin				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
1, 15,16,19				

Schedule	4	Cefotaxime		Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP					
Form	Strength	Route of administration		Recommended dosage	Duration
Powder for injection	1 g 2 g	IV/Intraosseous Adult/2 g dose Reconstitute with 20 mL water for injections Child/part dose Reconstitute 1 g vial with 9.6 mL water for injections to give concentration of 100 mg/mL OR 2 g vial: add 9 mL water for injections to give concentration of 200mg/mL THEN Dilute DOSE with sodium chloride 0.9 % to concentration of 150 mg/mL or weaker		Neonate and child 50 mg/kg to a max. of 2 g Adult 2 g	stat IV/Intraosseous Inject slowly over at least 3-5 minutes IM Child See <i>Guidelines for maximal amounts of solutions to be injected into paediatric muscle tissue table in Sepsis/septic shock, page 80</i> Adult Inject deep into gluteal muscle. If volume more than 4 mL divide and give in multiple injection sites
		IM Reconstitute 1 g vial with 3.6 mL water for injections to give concentration of 250 mg/mL			
Provide Consumer Medicine Information: May cause diarrhoea, nausea, vomiting, pain and inflammation at injection site, rash, headache, dizziness. Can cause severe colitis due to <i>Cl. difficile</i> Note: rapid injection < 1 minute can cause life threatening arrhythmias. Reduce dose in renal impairment. Can be given IM but it is extremely painful. If IM is required ceftriaxone is the preferred agent Contraindication: Severe hypersensitivity to penicillins, carbapenems and cephalosporins. Do not mix with aminoglycosides e.g. gentamicin Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102					
1,17,19,23					

Schedule	4	Ceftriaxone		Extended authority ATSIHP/IHW/IPAP/RIPRN
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN must consult MO/NP unless circumstances do not allow, in which case may administer IM only and must consult MO/NP as soon as circumstances allow				
Form	Strength	Route of administration	Recommended dosage	Duration
Powder for injection	1 g	IV/Intraosseous Adult/2 g dose Reconstitute with 40 mL water for injections Child/part dose Reconstitute with water for injections to give concentration of 100 mg/mL: 500 mg vial with 4.8 mL 1 g vial with 9.6 mL 2 g vial with 19.2 mL Dilute DOSE further to concentration of 40 mg/mL If giving via infusion, dilute further in 40 mL sodium chloride 0.9%	Child ≥ 2 months 50 mg/kg to a max. of 2 g Adult 2 g	stat IV/intraosseous Inject over at least 3 minutes OR infuse over 30 minutes Note: Dose over 1 g should be given by infusion IM Child See <i>Guidelines for maximal amounts of solutions to be injected into paediatric muscle tissue table in Sepsis/septic shock, page 80</i> Adult Inject deep into large muscle. No more than 1 g in each site
		IM Reconstitute 500 mg vial with 1.8 mL OR 1 g vial with 3.6 mL of lidocaine (lignocaine) 1% (final concentration 250 mg/mL)		
Provide Consumer Medicine Information: May cause diarrhoea, nausea, vomiting, pain and inflammation at the injection site, rash, headache, and dizziness. Can cause severe colitis due to <i>Cl. difficile</i> Note: Rapid IV administration may result in seizures. Interacts with warfarin. Reduce dose in renal impairment Contraindication: Severe hypersensitivity to penicillins, carbapenems and cephalosporins. Incompatible with calcium containing IV fluids e.g. Hartmann's solution. Do not mix with aminoglycosides. Do not use in neonates Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,18,19,22

Schedule	4	Benzylpenicillin	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Powder for injection	600mg 1.2 g 3 g	IV Reconstitute with water for injections: 600 mg vial with 5 mL 1.2 g vial with 10 mL 3 g vial with 13 mL THEN dilute in 100 mL sodium chloride 0.9% and give via infusion	Adult 2.4 g	stat IV Infuse over at least 30 minutes IM Inject deep into large muscle. No more than 1 g in each site
		IM Reconstitute 600 mg vial with 1.6 mL water for injections (OR 1.2 g vial with 3.2 mL) to give a concentration of 300 mg/mL		
Provide Consumer Medicine Information: May cause diarrhoea, nausea, pain and inflammation at the injection site				
Note: Rapid IV administration may result in seizures. Max. daily dose of 6 g if renal impairment				
Contraindication: Severe hypersensitivity to penicillins, carbapenems and cephalosporins				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
19,20,21				

Schedule	4	Aciclovir		Prescribing guide
RIPRN and RN only. Must consult an MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Powder for injection	250 mg 500 mg	IV/Intraosseous Reconstitute with water for injections: 250 mg with 10 mL 500 mg with 20 mL to give a concentration of 25 mg/mL THEN Dilute dose with sodium chloride 0.9% to a max. concentration of 5 mg/mL (i.e. 250 mg to at least 50 mL or 500 mg to at least 100 mL) Shake to mix thoroughly	Neonates, infants and children < 12 years 20 mg/kg to a max. of 1000 mg/dose Note: dosing interval varies by age - seek specialist advice Child and adolescent 12-16 years 10 mg/kg to a max. of 1000 mg/dose Adult 10 mg/kg	stat IV/Intraosseous Infuse over at least 1 hour
Provide Consumer Medicine Information: May cause nausea, vomiting, diarrhea, hallucinations (high dose), headache, encephalopathy, injection site reactions				
Note: Monitor injection site closely - extravasation can cause severe inflammation and tissue necrosis. Stop the injection if redness or pain. Use in caution if neurological abnormalities. Adjust dose if renal impairment				
Contraindication: IM or IV injection. Allergy to aciclovir or valaciclovir				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,19,25,26

1,19,25,26

5. Follow up¹⁹

- 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
- Perform hearing test 3 months after discharge

6. Referral/consultation

- ③ For all suspected or confirmed cases of meningitis or meningococcal disease notify the local Public Health Unit within 6 hours
- Consult MO/NP as above

Foreign body airway obstruction (choking) - adult/child

Recommend¹

- 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 severe airway obstruction or an unseen positional foreign object
- In an unconscious patient, care of the airway takes precedence over any injury, including where there is a possibility of a spinal injury

Background¹

- Upper airway obstruction in the conscious patient may be due to inhalation of foreign body, trauma to the airway, anaphylactic reaction, angioedema, croup, epiglottitis or mass (tumour or abscess)
- Obstruction can be complete or partial. Presenting symptoms in adults are more subtle than in children
- 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

[Anaphylaxis, page 102](#)

[Button battery ingestion/insertion, page 680](#)

[Croup/epiglottitis, page 691](#)

[Traumatic injuries, page 163](#)

1. May present with^{1,2}

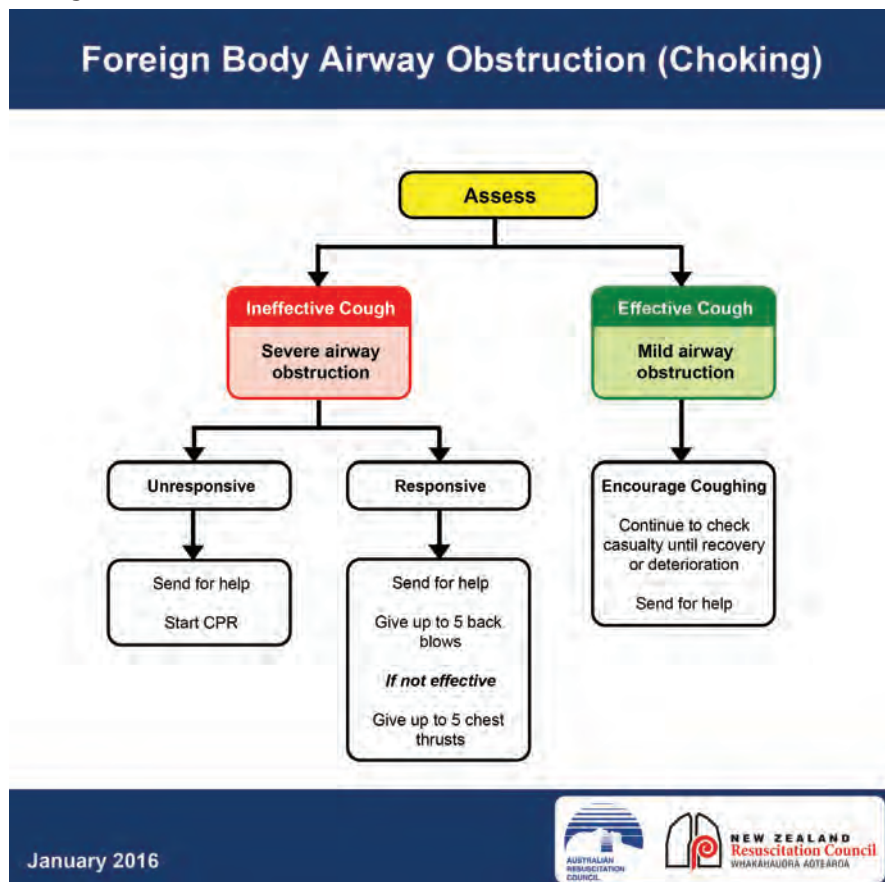
- Extreme anxiety, agitation, gasping sounds
- Shortness of breath
- Coughing or loss of voice (hoarseness)
- Clutching the neck with thumb and finger
- Stridor (high pitched noise caused by inspiration)
- Drooling
- Ineffective respiratory effort
- Cyanosis
- Collapse

2. Immediate management¹

- See **Choking flowchart** on next page
- If unconscious:
 - call for help
 - use a finger sweep if solid material is visible in the airway
 - start CPR. See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
 - urgently contact MO/NP
- If conscious assess for effective cough
- **If effective cough** (mild airway obstruction):
 - give reassurance
 - encourage coughing until foreign body is expelled
- **If ineffective cough** (severe airway obstruction):
 - call for help

- perform up to 5 sharp back blows
- use the heel of your 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 5 blows
- infants may be placed in a head downwards position prior to delivering back blows i.e. across your lap
- **If back blows are unsuccessful perform up to 5 chest thrusts:**
 - identify the same compression point as for CPR
 - thrusts are similar to chest compressions but sharper and delivered at greater intervals
 - place infant in a head downwards position on their back across your thigh
 - children and adults may be treated in sitting or standing position
 - with each chest thrust, check to see if the airway obstruction is relieved
- **If obstruction still not relieved:**
 - if person remains responsive, continue alternating 5 back blows with 5 chest thrusts
 - if loses consciousness, use a finger sweep if solid material is visible in the airway and start CPR
 - urgently contact MO/NP

Choking flowchart¹



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3. Clinical assessment¹

- Take emergency patient history - with attention to the circumstances which occurred leading to choking
- 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)
- Give O₂ to maintain SpO₂ ≥ 94%.³ See [Oxygen delivery, page 64](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)

4. Management¹

- Perform chest x-ray if indicated on MO/NP orders
- Prepare for evacuation to a facility with advanced airway management capability in cases of near choking or unseen positional foreign object
- 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
- If choking as a result of a button battery, see [Button battery ingestion/insertion, page 68o](#)

5. Follow up

- Advise patient to be reviewed the next day:
 - consult MO/NP if the patient has any symptoms e.g. an increased HR, increased temperature or any chest finding - evacuation may be required

6. Referral/consultation

- Consult MO/NP on all occasions of severe choking

HMP Anaphylaxis - adult/child

Recommend^{1,2,3}

- Adrenaline (epinephrine) is first line treatment in anaphylaxis and should be given without delay
- Anaphylaxis is potentially life-threatening and must be treated as a medical emergency
- Do not allow someone with suspected anaphylaxis to stand or walk - fatality can occur within seconds if a patient stands or sits suddenly
- People with diagnosed allergies e.g. nuts, honey bees and/or medicine, should avoid trigger agents/ confirmed allergens and have a readily accessible anaphylaxis action plan, medicine and medical alert device
- Always check for medic alert jewellery and accessories in emergency situations² - may look like normal jewellery or other accessory e.g. key ring, USB stick, shoe tag, anklet, watch, tattoo
- During severe anaphylaxis with hypotension, marked fluid extravasation into the tissues can occur - fluid resuscitation is important

Background

- Common causes of anaphylaxis:¹
 - food - especially nuts, eggs, cow's milk, wheat, seafood, fish, soy, sesame
 - medicine e.g. penicillin
 - venom from bites (ticks) or stings e.g. honey bees, wasps or ants
 - latex
- Antihistamines are not recommended in treating anaphylaxis³
- For further information see ASCIA Guideline: *Acute Management of Anaphylaxis*. Available at <https://allergy.org.au/hp/papers/acute-management-of-anaphylaxis-guidelines/>

Related topics

[Acute asthma, page 119](#)

[Croup/epiglottitis, page 691](#)

[Mild and moderate allergic reactions, page 320](#)

[Tick bites, page 302](#)

1. May present with^{1,4}

- Onset can range from minutes to hours after exposure to a substance
- **Consider anaphylaxis in ANY acute onset:**
 - hypotension or bronchospasm or upper airway obstruction - even if typical skin features are not present
 - illness with:
 - typical skin features - urticarial rash, erythema/flushing, and/or angioedema
 - PLUS involvement of respiratory, cardiovascular, or persistent severe gastrointestinal symptoms
- **Mild and moderate allergic reactions:²**
 - swelling of lips, face, eyes
 - hives or welts
 - tingling mouth
 - abdominal pain, vomiting - note: these are signs of anaphylaxis for insect allergy
 - See [Mild and moderate allergic reactions, page 320](#)

- **Anaphylaxis - ANY ONE of the following:**²
 - 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)
 - vomiting and/or abdominal pain - for insect stings/bite

2. Immediate management^{1,2}

- Prevent further exposure to allergen if possible:
 - do not delay adrenaline (epinephrine) administration to do this
 - stop infusion of medicine/blood product
 - flick out insect stings, freeze ticks with liquid nitrogen or ether containing spray (if available) and allow to drop off. See [Tick bites, page 302](#)
- Call for help
- Lay patient flat - do not allow them to stand or walk - can result in fatal hypotension
- If unconscious place in recovery position and maintain airway
- If breathing is difficult allow the patient to sit

Give IM adrenaline (epinephrine) into outer mid-thigh without delay

- repeat every 5 minutes as needed
- draw up using 1 mL syringe OR use autoinjector if available e.g. EpiPen®
- Give O₂ if available
- Urgently consult MO/NP
- **Note:** Give adrenaline (epinephrine) FIRST then asthma reliever if someone with known asthma and allergy to food, insects or medicine has sudden breathing difficulty (wheeze, persistent cough or hoarse voice) - even if no skin symptoms

Schedule	3	Adrenaline (epinephrine)			Extended authority ATSIHP/IHW	
ATSIHP and IHW may proceed with first 2 doses						
MID, RIPRN and RN may proceed						
Form	Strength	Route of administration	Recommended dosage			Duration
Injection	1:1,000 1 mg/mL	IM Deep injection into mid-lateral thigh Use 1 mL syringe with 21 G needle 25 mm length (not insulin syringe)	Adult* and Child > 12 years 0.5 mg/dose			stat Repeat every 5 minutes as required
			Child ≤ 12 0.01 mg/kg/dose to a max of 0.5 mg/dose			
			Dosage based on age and approximate weight			
			Age (years)	Weight (kg)	Volume 1:1,000	
			< 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	
OR if using autoinjector						
e.g. EpiPen Jr®	0.15 mg / 0.3 mL	IM Deep injection into mid-lateral thigh	10-20 kg - about 1-5 years 0.15 mg			
e.g. EpiPen®	0.3 mg / 0.3 mL		> 20 kg - about > 5 years 0.3 mg			
Provide Consumer Medicine Information: May cause restlessness, anxiety, headache and palpitations in conscious patients						
Note: If patient on beta blocker they may be resistant to adrenaline (epinephrine). Glucagon may be useful - consult MO/NP. Instructions for autoinjector on device labels. *Give pregnant women 0.3 mL of 1:1,000 adrenaline (epinephrine), however do not delay administration to check if pregnant						
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102						

1,2,5

1,2,5

3. Clinical assessment²

- Obtain emergency patient history - from patient, relatives or friends:
 - food, medicine, sting/bite, herbal medicines, other exposures in the previous 6-8 hours
 - known allergies and reaction
 - any previous episodes, treatment used and effect
 - current medications, use of an autoinjector e.g. EpiPen®

- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - check affected body systems - skin changes, face, throat, breathing, HR, neurological state
- Assess and monitor response to treatment:
 - simple palpable systolic BP is a reliable measure of initial severity and response to treatment
 - palpate radial or brachial pulse and determine pressure at which this disappears
 - may be more difficult in children
- Be alert to over treatment:
 - hypertension or pulmonary oedema - especially if respiratory distress or hypotension were absent initially
 - if patient is nauseous, shaky, vomiting, or has tachycardia but normal or ↑ systolic BP, this may be adrenaline (epinephrine) toxicity rather than worsening anaphylaxis

4. Management²

- See Immediate management
- **When skills and equipment are available:**
 - monitor HR, BP, SpO₂, ECG, conscious state
 - administer O₂ 6-8 L/min. See [Oxygen delivery, page 64](#)
 - provide airway support if needed
 - obtain IV access in adults and hypotensive children:
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- **If hypotensive:**
 - give rapid IV sodium chloride 0.9% 20 mL/kg
- **If inadequate response to adrenaline (epinephrine) or deterioration** MO/NP may consider:
 - adrenaline (epinephrine) infusion in consultation with emergency medicine/critical care specialist
- If adrenaline (epinephrine) infusion unavailable or ineffective MO/NP may order:
 - for upper airway obstruction:
 - nebulised adrenaline (epinephrine) 5 mL (5 ampoules of 1:1,000). See [Croup/epiglottitis, page 691](#)
 - for persistent wheeze:
 - salbutamol 8-12 puffs of 100 microgram using a spacer OR
 - 5 mg via nebuliser. See [Acute asthma, page 119](#)
 - oral prednisolone 1 mg/kg (maximum 50 mg). See [Acute asthma, page 119](#) OR
 - IV hydrocortisone 5 mg/kg (maximum 200 mg)
 - for persistent hypotension/shock:
 - sodium chloride 0.9% (maximum 50 mL/kg in the first 30 minutes)
 - if cardiogenic shock (especially if taking beta blockers) consider IV glucagon bolus
- **If airway not able to be maintained and SpO₂ falling:**
 - intubation may be required if skills/equipment available
 - prolonged attempts at intubation should be avoided
 - consider cricothyrotomy if trained
- **If overwhelming anaphylaxis (cardiac arrest):**
 - commence CPR. See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
 - prolonged CPR should be considered PLUS
 - aggressive fluid resuscitation AND IV adrenaline (epinephrine) bolus

Schedule	3	Adrenaline (epinephrine)	Prescribing guide	
RIPRN and RN only. Must be ordered by an MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	1:1,000 1 mg/mL	IV INFUSION only in separate IV line	1:1,000 (1 mL) Dilute in 1,000 mL sodium chloride 0.9%	Start infusion at: ~ 5 mL/kg/hour (~0.1 microgram/kg/minute) using a pump Titrate rate up or down according to response and side effects
Provide Consumer Medicine Information:				
Note: Monitor continuously - ECG, SpO ₂ , frequent BP to maximise benefit and minimise risk of adrenaline (epinephrine) toxicity e.g. nausea, shaky, vomiting, tachycardia, but with normal BP DO NOT GIVE IV bolus of adrenaline (epinephrine) unless in cardiac arrest situation - risk of cardiac ischemia or arrhythmia				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,2

1,2

Schedule	4	Hydrocortisone	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	100 mg Reconstitute with 2 mL of water for injections or sodium chloride 0.9%	IV	5 mg/kg to a max. of 200 mg	stat Inject over 30 seconds
Provide Consumer Medicine Information: May cause increased BGL and affect mood and sleep				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

2,3

2,3

When stable¹

- Monitor closely for at least 4 hours after last dose of adrenaline (epinephrine):
 - relapse/protracted and/or biphasic (two phase) reactions may occur
- BP, RR, conscious state 15 minutely for 2 hours then hourly
- Evacuation may be required - particularly if any of the following:
 - severe reaction e.g. required repeated doses of adrenaline (epinephrine) or IV resuscitation
 - has a history of asthma or severe/protracted anaphylaxis
 - has other concomitant illness e.g asthma
 - lives alone and is remote from medical care
 - presents for medical care late in evening
- If not evacuated, continue to manage as per MO/NP instructions
- Advise patient to avoid re-exposure of allergen (if known)
- If there is a risk of re-exposure e.g. stings, food, unknown cause:²
 - will require an adrenaline (epinephrine) autoinjector prescribed prior to discharge
 - provide education on how to use
- Provide patient with an *ASCIA Action Plan for Anaphylaxis* available at <https://www.allergy.org.au/hp/anaphylaxis/ascia-action-plan-for-anaphylaxis>
- Discuss medical alert jewellery with the patient
- Document allergy in clinical record

5. Follow up

- If not evacuated advise patient to be reviewed the next day, or earlier if they are concerned
- Advise patient to see MO/NP at next clinic

6. Referral/consultation

- Consult MO/NP on all occasions
- Will require referral to allergy specialist²
- ① Promptly 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/cdcg/index/adverse>. If practising outside of Queensland use 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/form/national-adverse-events-following-immunisation-aei-reporting-form>

Anaphylaxis management^{1,2,4}**Watch for ANY ONE of the following**

- Difficult/noisy breathing
- Wheeze or persistent cough
- Swelling of tongue
- Persistent dizziness or collapse
- Swelling/tightness in throat
- Pale and floppy (young children)
- Difficulty talking/hoarse voice
- Vomiting and/or abdominal pain - for insect stings/bites
- Any acute onset:
 - hypotension, bronchospasm or upper airway obstruction, OR
 - illness with skin features + respiratory/cardiovascular or persistent severe gastrointestinal symptoms

IMMEDIATE ACTION

- Call for assistance
- Lay patient flat - do not allow to stand
- If unconscious, place in recovery position, maintain airway
- If difficulty breathing, allow to sit

Give intramuscular ADRENALINE (EPINEPHRINE) without delay

Deep IM into mid-lateral thigh

Repeat 5 minutely as needed

- Remove allergen if still present
- CPR if needed

When able

- Monitor HR, BP, RR, SpO₂
- Give O₂
- Support airway
- IV access - adults + hypotensive children

If hypotensive

- Give IV sodium chloride 0.9% 20 mL/kg RAPIDLY

Adrenaline (epinephrine) doses

Deep IM into mid-lateral thigh

Age (years)	Weight (kg)	Adrenaline volume 1:1,000
< 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 MO/NP may consider

- Adrenaline (epinephrine) infusion - in consultation with emergency medicine/critical care specialist
- For upper airway obstruction - nebulised adrenaline (epinephrine) ± intubation/cricothyrotomy
- For persistent hypotension/shock - sodium chloride 0.9% (maximum 50 mL/kg in first 30 minutes)
- For persistent wheeze - bronchodilators, oral prednisolone or dexamethasone or hydrocortisone

HMP Fits/convulsions/seizures - adult/child

Recommend^{1,2}

- 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 < 6 months of age who present with convulsions and fever, may have a serious underlying medical condition
- Specialist advice is needed for prolonged seizures in children
- Fits lasting > 5 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

Background^{1,2}

- First seizure can occur at any age, but new onset epilepsy is more common in young children and elderly
- Most fits last < 2 minutes and are self-limiting requiring no drug treatment
- **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°C³
- Paracetamol has not been shown to reduce the risk of further febrile convulsions³
- 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
- In a patient with known epilepsy, they are at risk of seizures if they:
 - do not take epilepsy medications regularly
 - drink excess alcohol
 - are sleep deprived

Related topics

[Alcohol withdrawal, page 490](#)

[Hypoglycaemia, page 115](#)

[Meningitis, page 91](#)

[Preeclampsia/eclampsia, page 530](#)

[Toxicology \(poisoning and overdose\), page 259](#)

1. May present with^{1,2,4}

- Clinical signs of fits in children may be subtle. In infants:
 - flicking eye movements
 - smiling inappropriate for age

Generalised - tonic-clonic seizure (grand mal)

- 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 cannot remember the fit, although they may recall some warning signs (aura)
- May be:
 - drowsy, confused, incontinent or possibly agitated after the fit for about 10 minutes (postictal phase)
 - 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

- Impaired consciousness, but may remain standing/sitting, although behaving oddly. Usually lasts a minute or two
- Signs may include:
 - licking lips repetitively, or fidgeting with hands
 - focal jerking of one limb
 - head and eyes may turn to one side. May stare blankly
 - usually no memory of the event and may deny episodes are occurring

Febrile convulsions

- Common in young children 3 months to 6 years
- Mostly benign temperature $> 38^{\circ}\text{C}$
- Commonly associated with viral URTI, otitis media
- Prolonged febrile convulsions (> 5 minutes) need to be stopped urgently
- Fits in older children and adults cannot be put down to 'febrile convulsions', even if the patient has a temperature. Another cause should be considered

2. Immediate management^{2,4}

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Protect patient from injury, especially the head
- Turn onto side in recovery position
- Time the duration of the fit and note characteristics of fit
- If fitting e.g. jerking, is lasting > 5 minutes treat with midazolam^{2,4}
- After the seizure has stopped O_2 may be administered via Hudson mask to maintain $\text{SpO}_2 > 94\%$ adult or $> 95\%$ child. See [Oxygen delivery, page 64](#)
- If SpO_2 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^{2,4}

- 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
- Any febrile illness, alcohol use or sleep deprivation
- Consider possibility of alcohol or drug related seizure caused by withdrawal.² See [Alcohol withdrawal, page 490](#) or [Toxicology \(poisoning and overdose\), page 259](#)
- Consider eclampsia in pregnant women.¹ See [Preeclampsia/eclampsia, page 530](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
- Perform physical examination checking for any injury which may have occurred if patient fell or hit themselves during the seizure:
 - check for skin rashes
- MO/NP may order electrolytes, calcium and magnesium and serum anticonvulsant levels

4. Management^{1,2,4,5}

- Consult MO/NP
- Most seizures are brief and do not require treatment with medicines
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- If BGL < 4 mmol/L or < 3 mmol/L in children⁶ see [Hypoglycaemia, page 115](#)
- If BGL is within normal limits and/or fit continuing MO/NP may order another dose of midazolam
- If seizure continues in a child despite 2nd dose of midazolam, MO/NP may advise to give IV phenytoin or IV phenobarbital (phenobarbitone) 15-20 mg/kg^{1,2,4,6,7}
- Monitor for sepsis and shock in children.⁶ See [Sepsis/septic shock, page 80](#) and [Shock, page 77](#)
- If child is uncomfortable with febrile illnesses, once fit has finished, give oral (if fully conscious) or rectal paracetamol. See [Acute pain management, page 35](#) for doses
- 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
- Patient information sheets available at: <https://clinicalexcellence.qld.gov.au/resources/emergency-department-patient-information-sheets>
- Any patient who presents with their first fit/convulsion/seizure usually needs full investigation including EEG and CT scan

Schedule	4	Midazolam	Extended authority ATSIHP/IHW/RIPRN	
ATSIHP, IHW and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	5 mg/5 mL	IV/IM (ATSIHP and IHW may NOT administer IV)	Adult 10 mg Child 0.1-0.2 mg/kg to a max. of 10 mg	stat If IV inject slowly over at least 2-5 minutes
		Buccal Intranasal	Adult 5-10 mg Child 0.2 mg/kg to a max. of 10 mg	Further doses on MO/NP order
	Provide Consumer Medicine Information: May cause drowsiness or respiratory depression			
Administration advice: Buccal: Slowly drip into the patients' mouth between gums and cheek using a syringe or squeeze directly from the ampoule. Intranasal: use mucosal atomisation device (MAD) or 1-3 drops at a time into alternate nostrils until full dose is given (over about 15 seconds). IV: inject slowly over at least 2-5 minutes				
Note: Monitor for sedation and respiratory depression				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
1,3,8,9				

5. Follow up

- Advise to be reviewed the next day and next MO/NP clinic

6. Referral/consultation

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

Hyperglycaemia - adult/child

DIABETIC KETOACIDOSIS (DKA) AND HYPEROSMOLAR HYPERGLYCAEMIC STATE (HHS)

Recommend

- Check capillary blood 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 death^{1,2}

Background

- Hyperosmolar hyperglycaemia state (HHS) occurs primarily in type 2 diabetes. It is characterised by severe hyperglycaemia, hyperosmolality, dehydration and change in mental state with little or no ketoacidosis. HHS may occur:
 - as a result of infection, omitted antihyperglycaemic medicine, pancreatitis, myocardial infarction, stroke, or as a side effect of some drugs³
- Diabetic ketoacidosis (DKA) occurs primarily in type 1 diabetes mellitus.^{1,3,4,5} It results in four primary metabolic derangements - hyperglycaemia, severe dehydration, acidosis and hypokalaemia^{2,4}
- 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,^{1,3} insulin pump disconnection or malfunction
- See Queensland Health diabetes resources: <https://qheps.health.qld.gov.au/caru/networks/diabetes>

Related topics

[Fits/convulsions/seizures, page 109](#)

[Unconscious/altered level of consciousness, page 73](#)

1. May present with^{2,4}

- High BGL
- 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 54](#)
- Take emergency patient history if possible
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)

- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status.
 - one cannula for fluid ± potassium administration and the second for medicine i.e. insulin infusion¹
 - commence IV sodium chloride 0.9% 1000 mL - rate to be advised by MO/NP¹
 - MO/NP may advise immediate, aggressive fluid resuscitation^{5,3}
 - 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 BGL > 15 mmol/L:
 - MO/NP may advise a short acting IV insulin
 - 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^{3,5}

- Take comprehensive patient history when able with attention to:
 - current diabetes status
 - insulin
 - food intake
 - exercise
 - recent alcohol intake
 - chest pain
 - infections or possible injury
 - urine output, fluid intake
 - possible dehydration
- In patients without a history of diabetes, assess for history of polyuria, polydipsia and recent weight loss
- 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 urine:^{3,5}
 - record blood ketone level as a number (normal value < 0.6) e.g. '0.6' or '1.4'
 - record urine result as negative, +, ++
- Collect MSU for MCS
- 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 to appropriately equipped facility
 - potassium replacement will be needed early in treatment to prevent hypokalaemia. Potassium may initially be high or normal but will decrease when insulin commenced
- Observe closely and monitor patient's vital signs and conscious state
- Record fluid balance - all input and output
- Monitor BGL, blood gases (particularly pH) and electrolytes - initially every hour where possible
- In children and adolescents:
 - do hourly neurological observations for 24 hours
- Contact MO/NP immediately if confusion, irritability, headache is present or neurological changes occur

5. Follow up

- Advise to have:
 - minimum 3 monthly review by a Diabetes Specialist/Endocrinologist/Paediatrician. In children and adolescents, recommend at time of hyperglycaemia or as soon as possible afterwards
 - intensive one-on-one education by Diabetes Educator and Dietitian

6. Referral/consultation

- Consult MO/NP on all occasions

HMP Hypoglycaemia - adult/child

Recommend

- Check BGL in any patient with altered consciousness or a neurological abnormality

Background^{1,2}

- Hypoglycaemia or low BGL in diabetes, may occur:
 - in people with diabetes taking oral glucose-lowering tablets or insulin e.g. BGL < 4.0 mmol/L
 - as a result of heavy alcohol intake
 - in newborns (BGL < 2.8 mmol/L) and sick children
 - as a result of some rare medical conditions
- Hypothermia can prolong hypoglycaemia in the elderly³
- See Queensland Health diabetes resources: <https://qheps.health.qld.gov.au/caru/networks/diabetes>

Related topics

[Fits/convulsions/seizures, page 109](#)

[Diabetes in pregnancy, page 521](#)

[Immediate care of the newborn, page 558](#)

[Unconscious/altered level of consciousness, page 73](#)

1. May present with⁴

- BGL < 4 mmol/L
- Pale, sweating, tremor, rapid HR, palpitations
- Hunger, headache, dizziness, irritability, tingling of mouth or fingers
- Aggressive behaviour, may appear drunk
- Confusion, drowsiness, tiredness, anxiety, amnesia, unconscious, fitting or coma
- Loss of consciousness, seizures

2. Immediate management^{4,5}

- See [Fits/convulsions/seizures, page 109](#)
- If neonate see [Immediate care of the newborn, page 558](#)
- If decreased level of consciousness:
 - check BGL
 - do not give oral fluid or food
 - if patient **NOT malnourished** and/or **NOT suffering alcohol induced hypoglycaemia**:
 - give IV glucose OR
 - if IV access not available glucagon IM or subcut

- **if patient IS malnourished** and/or **suffering alcohol induced hypoglycaemia**:
 - do not give glucagon
 - give IV thiamine
 - THEN give IV glucose
 - **note:** if thiamine unavailable proceed with IV glucose and administer IV thiamine as soon as possible - high dose glucose in these patients can precipitate Wernicke's encephalopathy. Further doses may be required^{1,5,6}
- Consult MO/NP as soon as possible
- Recovery should be almost immediate or ideally within 6 minutes¹¹
- If no improvement within 10 minutes:
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status:
 - one cannula preferably into antecubital vein due to risk of thrombophlebitis
 - re-check BGL - if < 3 mmol/L:
 - for adult give IV 50% glucose 20 mL¹¹
 - for child MO/NP will order IV 10% glucose 2 mL/kg (maximum 100 mL) - give slowly over 15 minutes, until blood glucose concentration normalises (more than 4 mmol/L). MO/NP may repeat once if necessary. Follow by sodium chloride 0.45% with glucose 5% IV (maintenance fluids), at maintenance rate to prevent further hypoglycaemia. MO/NP may order increase of concentration of glucose in fluid if necessary to maintain blood glucose concentration above 4 mmol/L⁸
- Check BGL every 15 minutes until within normal limits

Schedule	Unscheduled	Glucose		
ATSIHP, IHW, IPAP must consult MO/NP				
RIPRN and RN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	50% in 50 mL	IV	Adult only 20 mL	stat Inject slowly 3 mL/min
Provide Consumer Medicine Information: May cause pain, vein irritation, phlebitis or venous thrombosis				
Note: Inject into large vein using small gauge needle				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

11,12,13,14

11,12,13,14

Schedule	3	Glucagon	Extended authority ATSIHP/IHW	
ATSIHP, IHW, RIPRN and RN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	1 mg	IM/Subcut Reconstitute with diluent provided	Adult/child > 25 kg 1 mg Child ≤ 25 kg 0.5 mg	stat Further doses on MO/NP order
Provide Consumer Medicine Information: May cause nausea, vomiting and allergic reactions				
Note: Response should occur within 10 minutes				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

7,8,11

7,8,11

Schedule	Unscheduled	Thiamine		
ATSIHP, IHW, IPAP must consult MO/NP				
RIPRN and RN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	300 mg/ 3 mL	IV dilute in 10-20 mL of sodium chloride 0.9%	Adult 300 mg	stat
		or IM undiluted		Inject IV dose slowly over 10 minutes
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

9,10,15

9,10,15

3. Clinical assessment

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

4. Management^{4,11}

- If pregnant, see [Diabetes in pregnancy, page 521](#)
- If BGL < 4 mmol/L and patient is conscious and able to swallow:
 - give rapidly absorbed forms of oral sugar (carbohydrate) such as:
 - 3 teaspoons or sachets of sugar either straight or added to a non-sweetened drink
 - ½ cup ordinary soft drink (not diet drink) or cordial or sweetened juice
 - 5-6 jelly beans or other chewable sweets
 - 2-3 sweet biscuits
 - in remote locations if none of the above available, consider using oral glucose tolerance test (OGTT) drink
- Follow with a sandwich, a piece of fresh or dried fruit or a meal
- Check BGL in 15 minutes:
 - if > 4.0 mmol/L, check again in another 15 minutes and if still > 4.0 mmol/L patient can go home, depending on cause, and in consultation with MO/NP
 - if < 4.0 mmol/L, repeat above treatment, check in 15 minutes and 15 minutes later and if > 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
- If known alcohol misuse, continue with oral thiamine 300 mg daily¹
- 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
 - end stage kidney failure
- Review signs and symptoms of hypoglycaemia with the patient⁴
- Review treatment of hypoglycaemia with the patient. Patients should know how to recognise and treat a 'hypo' themselves⁴

5. Follow up

- Advise patient to be reviewed the next day and at next MO/NP clinic

6. Referral/consultation

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

HMP Acute asthma - adult/child

Recommend¹

- Beware of the patient with asthma in distress who is unable to speak and without audible wheeze, this indicates severe/acute asthma
- Management is determined by assessment of severity of asthma episode. Asthma is less likely to be the cause of wheezing in children < 12 months of age
- Viral chest infections in infants may cause wheeze that may not respond to bronchodilators
- Air entry can often be unequal in asthma due to mucous plugging and does not always mean pneumothorax or pneumonia
- Patients, relatives and friends of people with asthma should know asthma first aid available from: <http://www.astmahandbook.org.au/acute-asthma>
- All patients with asthma require an *Asthma Action Plan* available from: <https://www.astmahandbook.org.au/management/action-plans>
- Antibiotics are rarely needed in asthma
- Peak flow monitoring chart available from: <https://www.nationalasthma.org.au/living-with-asthma/resources/health-professionals/charts/peak-flow-chart>

Related topics

[Anaphylaxis, page 102](#)

[Bronchiolitis, page 695](#)

1. May present with²

- Breathlessness, speaking in short sentences
- Wheeze/cough
- In distress
- Tiredness/exhaustion
- Cyanosis
- Symptoms continue despite reliever medications
- Cyanosis, impaired conscious state and a quiet chest indicate a life-threatening episode

2. Immediate management^{1,2}

- Take rapid history
- Sit up to assist with breathing
- Rapidly assess severity. See **Step 1**

Step 1: Rapid assessment of severity²

Mild/Moderate	Severe	Life-threatening
• Can walk, speak whole sentences in one breath • For young children, can move around and speak in phrases • SpO₂ > 94%	Any of the following: • Unable to speak in sentences • Obvious respiratory distress • Use of accessory muscles • Tracheal tug during inspiration or subcostal recession • SpO₂ 90-94%	Any of the following: • Drowsy • Collapsed • Exhausted • Cyanotic • Poor respiratory effort • Soft/absent breath sounds • SpO₂ < 90%

- **Give salbutamol immediately.** See **Step 2** for routes depending on severity
- Within minutes reassess for severity. See **Step 3**
- **If severe or life-threatening at any time:**
 - notify MO/NP immediately
 - arrange for urgent evacuation
 - prepare for rapid deterioration and possible cardiorespiratory arrest. See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- **Note:** If patient is not distressed, check spirometry (FEV) or peak expiratory flow rate (PEFR) before and after salbutamol is administered

Step 2: Give salbutamol**< 6 years²**

Mild/moderate	Severe	Life-threatening
• Give salbutamol 2-6 puffs via MDI • With spacer (plus mask for younger children)	• Give salbutamol 6 puffs via MDI • With spacer (plus mask for younger children) OR • Salbutamol 2.5 mg via intermittent O₂ nebulisation • Start O₂ and maintain SpO₂ ≥ 95%	• Give salbutamol 2 x 2.5 mg nebulises via continuous O₂ nebulisation • Maintain SpO₂ ≥ 95%

≥ 6 years²

Mild/moderate	Severe	Life-threatening
• Give salbutamol 4-12 puffs via MDI with spacer	• Give salbutamol 12 puffs via MDI with spacer OR • Salbutamol 5 mg nebule via intermittent nebulisation with O₂ in children; air in adults unless O₂ needed • Start O₂ and maintain SpO₂ 92-95% for adults and ≥ 95% for 6-12 year olds	• Give salbutamol 2 x 5 mg nebulises via continuous O₂ nebulisation • Start O₂ and maintain SpO₂: – 92-95% for adults and child > 12 years – ≥ 95% for 6-12 year olds

Schedule	3	Salbutamol	Extended authority ATSIHP/IHW	
ATSIHP and IHW may proceed with first dose then consult MO/NP				
RIPRN and RN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Metered dose inhaler (MDI)	100 microgram/dose	Inhalation With spacing device	Adult and child ≥ 6 years 4-12 puffs Child < 6 years 2-6 puffs	stat Then every 20-30 minutes for first hour if needed (or sooner if needed)
Provide Consumer Medicine Information: May cause tremor, palpitations and headache				
Note: Use with mask for young children				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
2,3				

Schedule	4	Salbutamol	Extended authority ATSIHP/IHW/RIPRN	
RN must consult MO/NP				
ATSIHP and IHW may proceed with first dose then consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Nebule	2.5 mg/2.5 mL	Inhalation	Adult and child ≥ 6 years 5-10 mg	stat
	5 mg/2.5 mL	Nebulised with air or O ₂ (at least 6 L/min)	Child < 6 years 2.5-5 mg	Then every 20-30 minutes for first hour if needed (or sooner if needed)
Provide Consumer Medicine Information: May cause tremor, palpitations and headache				
Note: Only give NEB if use of MDI via a spacer is inappropriate. Adults: drive nebuliser with air unless O ₂ needed. Children: use O ₂				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

2,3

Step 3: Reassess severity²

Criteria	Age group	Mild/Moderate (all of)	Severe (any of)	Life-threatening (any of)
Speech	< 6 years	Can talk or vocalise	#	Unable to vocalise due to dyspnoea
	≥ 6 years and adults	Can finish a sentence in one breath	Can only speak a few words in one breath	Can't speak
Posture	< 6 years	Can walk or crawl	Lethargic	Collapsed or exhausted
	≥ 6 years and adults	Can walk	Unable to lie flat due to dyspnoea. Sitting hunched forward	
Breathing	All ages	Respiratory distress is not severe	Paradoxical chest wall movement: chest sucks inward when breathing in and outward when breathing out OR Use of accessory muscles of neck or intercostal muscles or 'tracheal tug' during inspiration OR Subcostal recession	Severe respiratory distress OR Poor respiratory effort
Consciousness	All ages	Alert	#	Drowsy or unconscious
Skin colour	All ages	Normal	#	Cyanosis
Respiratory rate	< 6 years	Normal	Tachypnoea	Bradypnea (indicates respiratory exhaustion)
	≥ 6 years and adults	< 25 breaths/min	≥ 25 breaths/min	
Heart rate	< 6 years	Normal	Tachycardia	Cardiac arrhythmia OR
	≥ 6 years and adults	Adults: < 110 bpm Children: normal range	Adults: ≥ 110 bpm Children: tachycardia	Bradycardia (may occur just before respiratory arrest)
Chest auscultation	All ages	Wheeze OR Normal lung sounds	#	Silent chest OR Reduced air entry
SpO ₂	All ages	> 94%	90-94%	< 90% OR Clinical cyanosis

Not applicable - may be the same as moderate and does not determine severity category

3. Clinical assessment

- Monitor standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- **Obtain rapid patient history** (if time permits):
 - severity of this and previous episodes of asthma
 - previous admissions to ICU for acute episodes
 - medication history, in particular steroid use

4. Management

- **If no improvement or worsening after 1st salbutamol dose:**
 - consult MO/NP urgently
 - repeat salbutamol. See **Step 4** for when to give repeat doses

Step 4: Repeat salbutamol as per Step 2²

Mild/moderate	Severe	Life-threatening
• Repeat dose every 20-30 minutes for first hour or sooner as needed	• Repeat dose every 20 minutes for first hour (3 doses) or sooner as needed	• Continuous nebulisation until breathing difficulty improves • Then consider changing to MDI plus spacer or intermittent nebuliser (use doses as per Severe)

- **If continued poor response to salbutamol:**
 - add ipratropium bromide
 - MO/NP may consider add on treatment options i.e. Magnesium sulfate²
 - arrange urgent evacuation
 - prepare for rapid deterioration and possible cardiorespiratory arrest. See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- **In 1st hour for ALL adults and children aged ≥ 6 years** (regardless of severity of asthma):
 - start systemic corticosteroids:
 - oral prednisolone OR
 - if oral route not possible, IV hydrocortisone
- **If < 6 years:**
 - avoid systemic corticosteroids if mild/moderate wheezing responds to initial bronchodilator
 - if mild/moderate wheezing does NOT respond to initial bronchodilator treatment MO/NP may order:
 - oral prednisolone OR
 - IV methylprednisolone
- **Reassess response to treatment** 1 hour after starting bronchodilator.² As per **Step 2**
- Check for dyspnoea while supine in adults and children > 6 years
- MO/NP may consider chest x-ray to exclude pneumothorax
- Continue to manage in collaboration with MO/NP

If mild/moderate episode, no fever, symptoms resolve and patient responds well to treatment:

- Patient may return home after 1 hour of observation with advice to continue usual asthma medicines, including salbutamol, every 4 hours as needed

- Ensure:
 - all adults and children ≥ 6 years have oral prednisolone for 5 days
 - child has regular inhaled preventer if indicated
- Check and coach in correct inhaler technique
 - provide spacer if needed
- Ensure patient has an *Asthma Action Plan*, and
 - patients/carers are able to follow their Plan at home and/or supported at school
- Advise to return the following day for review

Schedule	4	Ipratropium bromide	Extended authority ATSIHP/IHW/IPAP/RIPRN	
RN must consult MO/NP				
ATSIHP, IHW and IPAP may proceed with first dose then consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Metered dose inhaler (MDI)	21 microgram/ dose	Inhalation Using spacing device	Adult and child ≥ 6 years 8 puffs Child < 6 years 4 puffs	stat Give dose every 20 minutes for 1 hour
Nebule	250 microgram/mL 500 microgram/mL	Inhalation Added to nebulised salbutamol	Adult and child ≥ 6 years 500 microgram Child < 6 years 250 microgram	Further doses on MO/NP order
Inhalation solution	250 microgram/mL			
Provide Consumer Medicine Information: May cause dry mouth, throat irritation, headache, taste disturbance and nausea.				
Note: Only give NEB if use of MDI via a spacer is inappropriate. Avoid getting mist into patients eyes. If using nebuliser, patient should close their eyes or wear eye protection				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

2,5

2,5

Schedule	Unscheduled	Magnesium sulfate	Prescribing guide	
RIPRN and RN only. Must be ordered by an MO/NP				
Use local protocols for administration of magnesium sulfate if available				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	10 mmol/5mL	IV	Adult and child ≥ 6 years 10 mmol	Infuse over 20 minutes
	Dilute in at least 7.5 mL of sodium chloride 0.9% to make 0.8 mmol/mL (or weaker)		Child > 2 years 0.1-0.2 mmol/kg to a max. of 10 mmol	
Provide Consumer Medicine Information: May cause nausea, vomiting and transient hot flushing				
Note: For life threatening acute asthma episodes where unresponsive to other treatment. Monitor for signs of magnesium toxicity: nausea, vomiting, flushing, hypotension, muscle weakness, muscle paralysis, blurred or double vision, CNS depression and loss of reflexes. Monitor BP, heart rate and respiratory rate every 5 minutes, and SpO ₂ continuously until stable (for at least 20 minutes), urine output and reflexes during treatment				
Contraindication: Heart block and hypermagnesaemia				
Management of associated emergency: Contact MO/NP. Cease infusion. Calcium gluconate 2.2mmol in 10 mL should be readily available in case of respiratory depression/overdose. See Calcium gluconate drug box in Preeclampsia/eclampsia, page 530 . Hypotension alone will generally respond to IV fluids and parenteral calcium is rarely necessary. Also see Anaphylaxis, page 102				

6,7

Schedule	4	Prednisolone	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed for adult and child ≥ 6 only				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	1 mg 5 mg 25 mg	Oral	Adult 37.5 to 50 mg	stat Then repeat once each morning for 5-10 days
Oral liquid	5 mg/mL		Child ≥ 6 years (and child < 6 years with severe wheeze) Initial dose 2 mg/kg to a max. of 50 mg Ongoing doses 1 mg/kg/dose to a max. of 50 mg/dose	Initial dose stat Then give ongoing dose once each morning on days 2 and 3
Provide Consumer Medicine Information: May cause increased BGL and affect mood and sleep. Take with food to help reduce stomach upset				
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, page 102				

2,8,9

2,8,9

Schedule	4	Hydrocortisone	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	100 mg	IV Reconstitute with 2 mL of water for injections or sodium chloride 0.9%	Adult 100 mg	stat then 6 hourly
			Child ≥ 6 years (and child < 6 years with severe wheeze) Initial dose 8-10 mg/kg to a max. of 300 mg Ongoing doses 4-5 mg/kg/dose to a max. of 300 mg/dose	Initial dose stat Then give ongoing doses Day 1: 6 hourly Day 2: 12 hourly Day 3: once
Provide Consumer Medicine Information: May cause increased BGL and affect mood and sleep				
Note: Inject over 30 seconds. 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, page 102				
2,10,11,12,15				

Schedule	4	Methylprednisolone sodium succinate	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	40 mg 500 mg 1 g	IV	Child < 6 years	stat
			Initial dose 2 mg/kg to a max. of 60 mg Ongoing doses 1 mg/kg/dose	Inject slowly over at least 5 minutes Then give ongoing doses Day 1: 6 hourly Day 2: 12 hourly Day 3: once
Provide Consumer Medicine Information: May cause disturbances in mood, sleep or behaviour				
Note: Rapid IV administration of high doses may cause arrhythmia, cardiovascular collapse or cardiac arrest				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
2,13,14				

5. Follow up

- If discharged, advise to be reviewed the next day, or sooner if wheeze returns:
 - if no wheeze present the next day advise to be reviewed at next MO/NP clinic
 - if patient returns earlier because they need salbutamol more than every 4 hours OR if wheeze on review, consult MO/NP
- Advise to be reviewed after 5 days to determine if corticosteroids need to be continued
- 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

6. Referral/consultation

- People with severe asthma require specialist referral

Drowning/submersion - adult/child

Recommend

- The aim of management is to reverse hypoxia - lack of O₂ to the brain³ and body tissues⁴
- Ventilation and oxygenation are priorities⁴
- Trauma, alcohol and drug intoxication, hypoglycaemia and seizures must be considered as precipitating events²

Background

- Drowning is a major cause of death in Australia. Death rates from drowning are higher in Aboriginal and Torres Strait Islander children and adolescents¹
- Drowning is a respiratory incident following submersion in a liquid, and are called fatal or non-fatal drownings^{2,3}
- Spinal 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 resuscitation³

Related topics

[Unconscious/altered level of consciousness, page 73](#)

[DRS ABCD resuscitation/the collapsed patient, page 54](#)

1. May present with^{4,5}

- History of submersion/immersion of face in water
- Cardiorespiratory arrest
- Respiratory arrest, distress, cyanosis, crackles or wheeze in the lungs (pulmonary oedema - fluid on the lung)
- Altered consciousness; unconscious
- Hypothermia
- Hypotension, shock
- Vomiting and coughing

2. Immediate management^{5,6}

- Remove from water as soon as possible (do not endanger your safety)
- **If unconscious and not breathing normally:**
 - commence basic life support. See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
 - do not stop CPR without consulting MO/NP:
 - CPR should continue if temperature is $< 32^{\circ}\text{C}$. See [Hypothermia, page 229](#)
 - where all attempts to increase temperature have failed consult with MO/NP before stopping CPR
 - vomiting and regurgitation often occur during resuscitation - roll onto side to clear airway, then reassess condition
 - do not empty a distended stomach by applying external pressure. Do not attempt to expel or drain clear water or frothy fluid that may accumulate in the upper airway during resuscitation
 - if breathing commences, place patient on their side with appropriate head tilt³
- **If coughing/has spontaneous return of breathing post drowning:**
 - give high flow O_2 via non-rebreathing mask. A Hudson mask is not sufficient. See [Oxygen delivery, page 64](#)
 - consult MO/NP urgently
 - remove all wet clothing and dry patient
 - keep patient warm with blankets and space blankets

3. Clinical assessment⁵

- 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:
 - start at the head and progress to the toes
 - do not let the patient get cold

4. Management^{5,6}

- Consult MO/NP
- Continue O_2 therapy, intubation may be required if patient is unconscious
- Encourage to cough and take deep breaths
- MO/NP may advise insertion of a NG tube to empty the stomach of swallowed water
- Always consider non-accidental injury where injury or presentation is inconsistent with history or is unexpected in children or other vulnerable people.² See [Child protection, page 760](#)
- Any patient who has lost consciousness, has chest symptoms or signs, or was submersed in contaminated water will need evacuation/hospitalisation because of a risk of developing respiratory distress syndrome (such as ARDS) and/or cerebral oedema
- If the patient did not lose consciousness, is asymptomatic, chest findings are normal⁶ they may be allowed home in consultation with the MO/NP:
 - in the company of a responsible adult
 - review in 6 hours

5. Follow up

- Advise to be reviewed the next day and in 2 days
- 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
- Non-fatal drownings are a notifiable event in some Australian jurisdictions ①

Cardiovascular emergencies

Chest pain assessment

Recommend¹

- The single most important consideration in assessment of people with chest pain, is to identify acute coronary syndrome (ACS) or another life threatening condition
- Chest pain assessment is time critical
- ECG Flash is available in some remote facilities to send difficult to interpret ECG traces directly to an on call cardiologist's mobile phone for interpretation and advice. See <https://qheps.health.qld.gov.au/caru/networks/cardiac/ecg-flash>
- Physical examination is often not helpful in distinguishing patients with ACS from those with other causes of chest pain⁴
- There is no evidence to support the use of a gastro-intestinal (GI) cocktail to assist in ruling out coronary ischemia e.g. 'pink lady' (oral viscous lidocaine (lignocaine), antacid ± anticholinergic).⁵ GI cocktails should not be used⁶

Related topics

[Acute coronary syndromes, page 135](#)

1. May present with

- Chest pain or discomfort
- Other symptoms may vary depending on cause, e.g:
 - jaw pain
 - arm pain
 - dyspnoea
 - diaphoresis
 - syncope
 - nausea
 - irregular heart rhythm
 - cough
 - fever
 - frothy sputum
 - palpitations

2. Immediate management

- Perform ECG - to be reviewed by MO/NP within 10 minutes of presentation
 - send to cardiologist using ECG Flash, if available at facility
- Obtain detailed history of the chest pain:^{2,3}
 - **Site** - retrosternal, (L) chest, epigastric, interscapular, jaw, neck, arm
 - **Onset** - when did it start, sudden or gradual onset
 - **Characteristics** - what is the pain like: discomfort, pressure, tightness, heaviness, cramping, band like, burning, ache, sharp, dull, stabbing, fullness, squeezing, tearing, ripping
 - **Radiation** - does it spread anywhere else - neck, jaw, shoulder, one or both arms, into hands and wrists, back
 - **Associated symptoms** - breathlessness, nausea, vomiting, sweating, dizziness/light headedness, syncope, fever, cough with purulent or pink frothy sputum or blood
 - **Timing** - is it still there, constant or intermittent, ever had this pain before, how often does it occur, how long did it last
 - **Exacerbating or relieving factors** - what brought on pain e.g. activity, foods, cold, stress, trauma. What makes it better/worse e.g. rest, medicines (GTN, antacids), eating, position changes, deep inspiration. Any analgesia taken
 - **Severity** - scale of 0-10, with 0 being none and 10 being the worst
- Always consider acute coronary syndromes with anyone who presents with chest pain.¹ See [Acute coronary syndromes, page 135](#)
- In the absence of ECG evidence of STEMI, always consider potentially life threatening conditions¹ e.g. aortic dissection, pulmonary embolism and tension pneumothorax

3. Clinical assessment

- Obtain past history, including:^{2,4}
 - heart disease, previous myocardial infarction
 - hypertension
 - diabetes
 - lung disease, kidney disease, cancer
 - dyslipidaemia
- Prior diagnostic studies e.g. stress test or coronary CT angiography
- Current medicines + ask if taking aspirin, warfarin
- Allergies
- Recreational drug use e.g. cocaine, amphetamines²
- Smoking status
- Exercise e.g. sedentary lifestyle
- Alcohol intake
- Diet
- Recent events e.g. pregnancy, trauma, major surgery or medical procedures, periods of immobilisation, long distance travel
- Family history of coronary artery disease²
- Perform physical examination, including:^{3,4}
 - standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
 - SpO₂
 - BP on both arms - if concern for aortic dissection
 - respiratory and cardiovascular examination. See [History and physical examination - adult, page 20](#)

- palpate the abdomen - acute abdominal problems can present as chest pain and vice versa.
See [Acute abdominal pain, page 238](#)
- Chest x-ray may be ordered by MO/NP to assist in differential diagnosis² e.g. pneumonia, pneumothorax, pericardial effusion
- Use differential diagnosis table as a general guide - this is not exhaustive of all causes of chest pain

Differential diagnosis - chest pain: Life threatening causes - may include:

Cause	Symptoms
Acute Coronary Syndromes² (ACS). See Acute coronary syndromes, page 135	• Usual presentation: – pressure-type chest pain – originating in retro-sternal area - may radiate to arms, neck, jaw – occurs at rest or with minimal exertion – duration ≥ 10 minutes • May be triggered by exertion, emotional stress, temperature extremes • Characteristics of pain: – heaviness – pressure – tightness – squeezing – burning • Atypical presentations - more common in older patients, women and patients with diabetes: – discomfort in jaw, neck, or arm – dyspnoea – vomiting – diaphoresis – unexplained fatigue

(continued)

Differential diagnosis - chest pain: Life threatening causes - may include: (continued)

Cause	Symptoms
Pulmonary embolism. ³ See Deep vein thrombosis (DVT) , page 155	• Sudden onset • Dyspnoea - most common symptom • Pleuritic chest pain • Cough • Symptoms of deep vein thrombosis (DVT) • Consider PE in:^{7,8} – pregnant/postnatal women – hospitalised within previous 3 months – a period of inactivity e.g. long-haul travel – history of cancer - other than skin cancer – bone fracture – HRT
Aortic dissection ^{2,3} (rare)	• Sudden onset of severe chest and/or back pain • Sharp, ripping, tearing, or stabbing • Can radiate anywhere in chest or abdomen • Pulse deficits i.e. impaired or absent blood flow to peripheral vessels • Commonly associated with hypertension or connective tissue disorder • May have syncope, hypotension, shock³ • May display difference between left and right arm systolic BP of > 20 mmHg³
Spontaneous pneumothorax ^{2,3} Tension pneumothorax - life threatening. See Chest injuries , page 171	• Sudden onset unilateral pleuritic chest pain • Dyspnoea • Tachycardia (common), tachypnoea, and hypoxia • Haemodynamic instability suggests tension pneumothorax
Pericardial tamponade ⁴	• Mild to severe symptoms • Cardiogenic shock

Non-immediate life threatening causes may include:

Cause	Symptoms
Musculoskeletal causes e.g. costochondritis, cervical radiculopathy, fibrositis ³	• Chest pain reproducible with palpation • Pain on inspiration or movement of chest or upper body • Localised tenderness
Trauma ³ e.g. rib fractures from repetitive strain of coughing, stress fracture, stress fractures from sports	
Pericarditis ⁴	• Typically, sharp and pleuritic pain • Improved by sitting up and leaning forward • Pericardial friction rub - superficial scratchy or squeaking sound: - heard best with the stethoscope over the left sternal border • New wide spread ST elevation or PR depression
Pneumonia ^{2,3} See Pneumonia - adult, page 329	• Localised pleuritic chest pain • Fever, crackles, productive cough • Increased RR • Night sweats, persistent sputum
Acute bronchitis See Upper respiratory tract infection (URTI) - adult, page 324	• Cough • Acute respiratory symptoms • No signs of pneumonia
Lung cancer ^{2,3}	• Chest pain, typically on side of tumour • Cough, haemoptysis • Dyspnoea, hoarseness • Smoking history
Gastrointestinal causes ^{2,3} e.g. gastro-oesophageal reflux disease (GORD), oesophageal pain, peptic ulcer, pancreatitis See Acute abdominal pain, page 238 See Alcohol related epigastric pain, page 247	• Heartburn, regurgitation, dysphagia, precipitated by meal, fatty foods, bending down, or lying down • Retrosternal without radiation • Prolonged epigastric pain, relieved by antacid or food • GORD may mimic angina

4. Management

- For all patients with suspected cardiac causes of chest pain. See [Acute coronary syndromes, page 135](#)
- Urgently contact MO/NP if severe or life-threatening symptoms
- Consult with MO/NP for all other presentations of chest pain

5. Follow up

- Be guided by MO/NP

6. Referral

- Always consult with MO/NP

HMP Acute coronary syndromes (ACS)

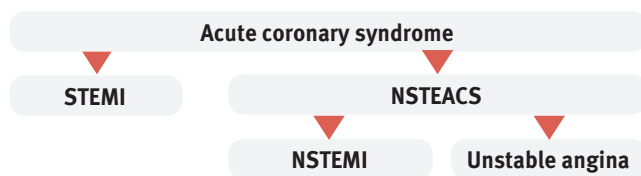
POSSIBLE CARDIAC CHEST PAIN, UNSTABLE ANGINA AND MYOCARDIAL INFARCTION

Recommend^{1,2}

- Have local cardiac clinical pathways readily available
- Queensland Health cardiac clinical pathways include:
 - possible cardiac chest pain
 - thrombolysis for STEMI
 - acute coronary syndrome (ACS)
 - see <https://clinicalexcellence.qld.gov.au/resources/clinical-pathways/cardiac-clinical-pathways>
- Ensure ECG reviewed within 10 minutes for early detection of ST elevation myocardial infarction (STEMI), to enable early reperfusion:¹
 - ECG Flash is available in some remote facilities to send difficult to interpret ECG traces directly to an on call cardiologist's mobile phone for interpretation and advice
- Elevated troponin levels alone (without cardiac symptoms) should not trigger the urgent treatment of ACS. Troponin will also be elevated in cases of sepsis⁶ (for example)

Background¹

- ACS includes myocardial infarction or unstable angina²
- Myocardial infarction can be ST elevation (STEMI) or non-ST elevation (NSTEMI)
- Patients without ST elevation are initially described as having NSTEACS (non-ST elevation acute coronary syndrome) - until investigated further
- In the acute management of patients with ischaemia, the use of oxygen, nitrates, beta blockers and opioid analgesia may have a role in short term symptom relief only - they are not an alternative to early re-vascularisation where clinically appropriate¹



Related topics

[Chest pain assessment, page 130](#)

1. May present with⁴

- Usual presentation:
 - pressure-type chest pain
 - originating in retro-sternal area - may radiate to arms, neck, jaw
 - occurs at rest or with exertion
 - duration ≥ 10 minutes

- May be triggered by exertion, emotional stress, temperature extremes
- Characteristics of pain:
 - heaviness
 - pressure
 - tightness
 - squeezing
 - burning
- Atypical presentations e.g. older patients, women, diabetes, renal failure, Aboriginal and Torres Strait Islander people:
 - discomfort in jaw, neck, or arm
 - dyspnoea
 - vomiting
 - diaphoresis
 - unexplained fatigue

2. Immediate management^{1,2,3}

- **Obtain rapid history** of chest pain if not already completed as per [Chest pain assessment, page 130](#)
 - site, onset, characteristics, radiation, associated symptoms, timing, exacerbating or relieving factors, severity
- **Do ECG - send for review by MO/NP within 10 minutes of first patient contact**
 - send to cardiologist using ECG Flash if available at facility
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) - monitor frequently +
 - SpO₂
- **Give aspirin** as soon as possible - if not contraindicated/already given
- **Give sublingual glyceryl trinitrate (GTN):**
 - repeat GTN every 5 minutes if no contraindications e.g. hypotensive
 - up to 3 doses
- **Insert 2 x IV cannula** - use the largest possible gauge given age and vascular status
- **Take blood:**
 - troponin levels - use point of care testing
- **If symptoms not relieved with GTN** or for ongoing chest discomfort at any time during initial management:
 - give IV fentanyl or morphine - titrate to pain. See [Acute pain management, page 35](#)
 - consider fentanyl as 1st option, as morphine may delay absorption of clopidogrel and ticagrelor⁵
- **Give antiemetic if needed.**⁷ See [Nausea and vomiting, page 48](#)
- **Continuous cardiac monitoring**
- If SpO₂ ≤ 93% or evidence of shock give O₂
 - use with caution if COPD - aim for 88-92%. See [Oxygen delivery, page 64](#)
- **Repeat ECG every 10-15 minutes** until pain free¹
- Continue to liaise with MO/NP
- MO/NP may order chest x-ray
- At any time, commence CPR if indicated. See [DRS ABCD resuscitation/the collapsed patient, page 54](#)

Schedule	2	Aspirin	Extended authority ATSIHP/IHW	
ATSIHP, IHW, RN and RIPRN can proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Dispersible tablet	300 mg	Oral	300 mg Chewed or dissolved	stat
Provide Consumer Medicine Information: May cause GI irritation or bleeding				
Contraindication: Allergy to aspirin or NSAID's, aspirin sensitive asthma, with or at risk of severe active bleeding				
Use in pregnancy: Avoid doses > 150 mg in pregnancy and breastfeeding				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

8

8

Schedule	3	Glyceryl trinitrate	Extended authority ATSIHP/IHW	
ATSIHP, IHW, RIPRN and RN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	600 microgram	Sublingual	300-600 microgram	stat
Spray	400 microgram/ spray		400-800 microgram	Repeat every 5 minutes up to 3 doses providing patient not hypotensive
Provide Consumer Medicine Information: May cause headache, flushing, palpitations, hypotension and fainting. Patient should get up gradually from sitting or lying				
Note: Ensure patient sitting down prior to giving. Do not use tablets from bottles that have been opened > 3 months. Prime the spray until an even spray is obtained before administering				
Contraindication: If patient has taken phosphodiesterase-5-inhibitors e.g. sildenafil (e.g. Viagra®), vardenafil (Levitra®) in the last 24 hours or tadalafil (e.g. Cialis®) in the last 48 hours				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

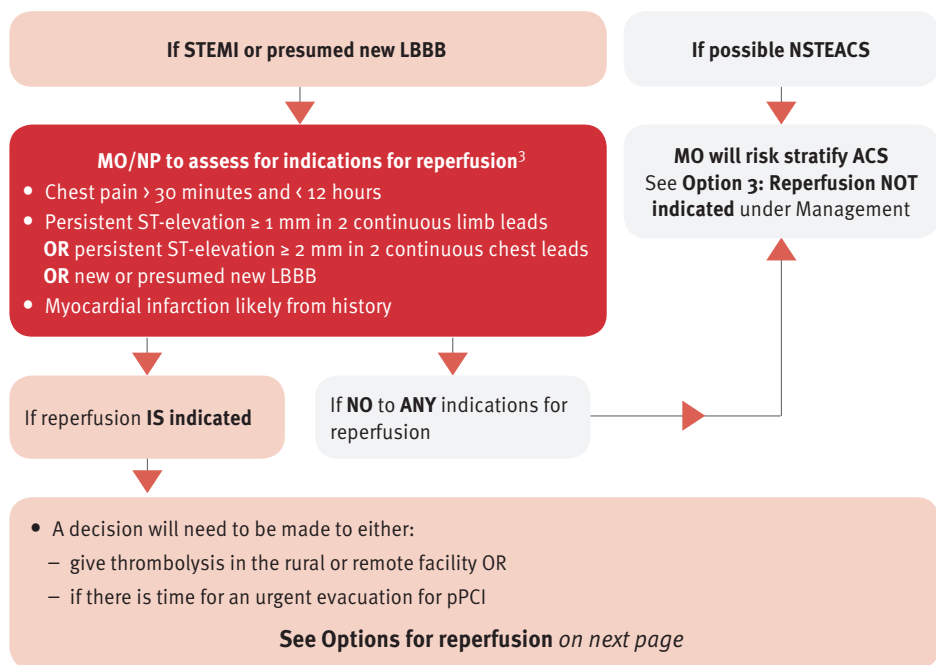
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1,9

3. Clinical assessment³

- Obtain past history and perform physical examination as per [Chest pain assessment, page 130](#)
- Early identification of STEMI or new left bundle branch block (LBBB) **OR** possible NSTEMIs are required to guide management
- Other critical causes of chest pain e.g. aortic dissection, pulmonary embolism must always be considered³
- MO/NP will make differential diagnosis
- MO/NP will assess for indications for reperfusion - **see following flow chart**

Assessment of indications for reperfusion



Options for reperfusion

- MO/NP to confirm reperfusion is indicated
- Options for reperfusion will depend on accessibility to cardiac catheter laboratory

Able to access appropriately equipped cardiac catheter laboratory **within 90 minutes** of first medical contact

Yes →

Urgent evacuation for Primary Percutaneous Coronary Intervention (pPCI) - see **OPTION 2: Urgent evacuation for pPCI** under Management

No

Thrombolysis - at rural or remote facility

Check for contraindications for thrombolysis¹⁰ if yes to ANY or unsure, MO/NP to seek specialist advice

Absolute contraindications

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

Relative contraindications

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

If NO contra-indications

- Immediately proceed to **OPTION 1: Thrombolysis at rural or remote facility**
- Aim to give ≤ 30 minutes of initial presentation¹

4. Management

- Management must be in consultation with MO/NP, who may seek specialist cardiology advice
- See Queensland Government **Acute coronary syndrome clinical pathway** (or local pathway as relevant)

Queensland Government clinical pathways available at
<https://clinicalexcellence.qld.gov.au/resources/clinical-pathways/cardiac-clinical-pathways>

OPTION 1: Thrombolysis at rural or remote facility¹⁰

- Aim to give ≤ 30 minutes of initial presentation¹
- See Queensland Government **Thrombolysis for STEMI clinical pathway** (or local pathway as relevant)
- Informed verbal consent required
- Ensure 2 x IV access still in situ
- Record baseline:
 - standard clinical observations
 - circulation observations i.e. for bleeding
 - neurological observations (GCS). See [Glasgow Coma Scale/AVPU, page 785](#)
- Weigh patient
- **Medications¹⁰ - give on MO/NP order ONLY:**
 - aspirin 300 mg - if not already given
 - clopidogrel 300 mg - orally
 - tenecteplase - IV bolus as per weight adjusted dose guide - consider $\frac{1}{2}$ dose if ≥ 75 years old
 - enoxaparin - if < 75 years old - loading dose 30 mg IV (if renal failure, use unfractionated heparin):
 - omit loading dose if > 75 years old
 - 15 minutes after loading dose, give 1 mg/kg subcut - maximum 100 mg

Schedule	4	Tenecteplase	Prescribing guide

RIPRN and RN only. Must be ordered by an MO/NP

Form	Strength	Route of administration	Recommended dosage				Duration
Injection (powder for reconstitution with diluent provided)	40 mg (8,000 units) with 8 mL diluent	IV	Body weight (kg)	units	mg	mL	stat
			< 60	6,000	30	6	Inject over 10 seconds
	50 mg (10,000 units) with 10 mL diluent	Reconstitute with diluent provided	≥ 60 to < 70	7,000	35	7	
			≥ 70 to < 80	8,000	40	8	Flush line before and after with sodium chloride 0.9%
		Swirl to dissolve do not shake	≥ 80 to < 90	9,000	45	9	
	Reconstituted strength 5 mg/mL 1,000 units/mL		≥ 90	10,000	50	10	

Provide Consumer Medicine Information: May cause bleeding at injection sites, intracerebral bleeding, internal bleeding e.g. GI, genitourinary, and transient hypotension

Note: If ≥ 75 years old, consider ½ standard dose to reduce risk of intracranial bleeding: MO/NP to consult cardiologist. Patient should be monitored by staff trained in advanced life support and where there is access to a defibrillator. Significant arrhythmias including VF can occur after reperfusion. Incompatible with glucose solutions

Contraindication: Severe active bleeding disorders or disease states with an increased risk of bleeding. Allergy to gentamicin

Management of associated emergency: Contact MO/NP. See [Anaphylaxis, page 102](#)

10,11,12,13

Schedule

4

Enoxaparin (Clexane®)

Prescribing guide

RIPRN and RN only. Must be ordered by an MO/NP

Form	Strength	Route of administration	Recommended dosage	Duration
Injection	60 mg/0.6 mL	IV	Adults < 75 years 30 mg Expel the air bubble and excess enoxaparin before injecting	stat Loading dose Flush line before and after injection with sodium chloride 0.9%
Provide Consumer Medicine Information: May cause bleeding at injection sites, intracerebral bleeding, internal bleeding (e.g. GI, genitourinary) and transient hypotension				
Note: If renal impairment or > 75 years seek MO/NP advice. Use Microbore® extension set (or similar) to administer enoxaparin using the pre-filled syringe (has a Y-injection port to put needle in). See QAS Procedure Priming of a Microbore extension set https://www.ambulance.qld.gov.au/CPPTable.html				
Contraindication: Severe hepatic impairment				
Management of associated emergency: Contact MO/NP. See Anaphylaxis, page 102				

14,15,16

- **Management post thrombolysis:**¹⁰
 - keep under direct observation until evacuated
 - continuous cardiac monitoring
 - be alert to reperfusion arrhythmias, including VF¹³
 - monitor frequently - standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - circulation and neurological observations - to detect bleeding¹
 - repeat ECGs at 30 minutes, 60 minutes and 90 minutes¹⁰ - to be reviewed by MO/NP
- Continuously liaise with MO/NP
- Will require evacuation to pPCI capable hospital¹
- **If failed reperfusion** i.e. unresolved pain and ST elevation has not reduced > 50% at 60-90 minutes:¹
 - MO/NP will urgently consult on-call interventional cardiologist for further advice

OPTION 2: Urgent evacuation for pPCI

- If STEMI + reperfusion indicated + ABLE to **access cardiac laboratory within 90 minutes**
- MO/NP will urgently:
 - contact on-call interventional cardiologist
 - arrange urgent evacuation +
 - order antithrombotic therapy as per Queensland Government **Possible cardiac chest pain clinical pathway** (or local pathway as relevant)
- MO/NP may order:
 - aspirin 300 mg - if not already given
 - ticagrelor 180 mg - or alternative if advised by interventional cardiologist
 - enoxaparin OR unfractionated heparin - to confirm with interventional cardiologist

- Continuous cardiac monitoring
- Frequent monitoring of standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Continue to liaise with MO/NP for further management until evacuation

OPTION 3: Reperfusion NOT indicated

- If NSTEMACS or STEMI + does not meet criteria for reperfusion:^{3,7}
 - MO/NP will risk stratify as per the Queensland Government **Possible cardiac chest pain clinical pathway** (or local pathway as relevant)
 - if MO/NP determines patient is high risk refer to Queensland Government **Acute coronary syndrome pathway** (or local pathway as relevant)
- Be guided by MO/NP for further management, which may include:⁷
 - evacuation to cardiac interventional facility
 - continuous cardiac monitoring
 - repeat ECGs
 - repeat troponin + ECG 6-8 hours after presentation (if using point of care testing) + chem20, FBC, COAGs, HbA1C
 - BGL
 - frequent monitoring of:
 - standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) + circulation and neurological observations
 - SpO₂
- **If assessed as low risk**, MO/NP may advise patient can be discharged home if:³
 - repeat ECG normal
 - troponin negative at 6-8 hours (using point of care testing)
 - no further chest pain

5. Follow up

- As directed by MO/NP

6. Referral/consultation

- Consult MO/NP on all occasions of chest pain
- May require further investigations e.g. angiography, echocardiogram, stress test

HMP Acute pulmonary oedema - adult

LEFT VENTRICULAR FAILURE/HEART FAILURE

Recommend¹

- Rapid assessment and stabilisation

Background²

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

Related topics

[Chest pain assessment, page 130](#)

1. May present with³

- Breathlessness - may start suddenly waking up at night, worse when lying down
- ↑ HR
- Ischaemic chest pain
- Cough, ± wheeze
- Pink frothy sputum in severe cases
- Crackles especially in lung bases
- Cyanosis
- Lethargy, confusion, anxiety
- Oedema of the ankles or sacrum and an enlarged liver may co-exist as a sign of right heart failure

2. Immediate management⁴

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Sit the patient upright
- Consult MO/NP urgently
- Give O₂ for all patients (except known COPD). See [Oxygen delivery, page 64](#)
 - 15 L/minute via non re-breather mask to maintain SpO₂ > 94%
 - If known COPD:
 - give O₂ 28% via venturi mask to maintain SpO₂ 88-92%
 - if no venturi mask available, give O₂ via Hudson mask 5 L/min, or nasal prongs 2 L/min
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Assess conscious state. See [Glasgow Coma Scale/AVPU, page 785](#)
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- Take bloods for UE and troponin level
- Do ECG - send to MO/NP within 10 minutes
- Cardiac monitor - continuously
- Administer sublingual GTN provided the systolic BP is greater than 100 mmHg

Schedule	3	Glyceryl trinitrate		Extended authority ATSIHP/IHW
ATSIHP, IHW, RIPRN and RN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	600 microgram	Sublingual	300-600 microgram	stat
Spray	400 microgram/ spray		400 microgram	Repeat every 5 minutes up to 3 doses providing patient not hypotensive
Provide Consumer Medicine Information: May cause headache, flushing, palpitations, hypotension and fainting. Patient should get up gradually from sitting or lying				
Note: Ensure patient sitting down prior to giving. Do not use tablets from bottles that have been opened > 3 months. Prime the spray until an even spray is obtained before administering				
Contraindication: If patient has taken phosphodiesterase-5-inhibitors e.g. sildenafil (e.g. Viagra®), vardenafil (Levitra®) in the last 24 hours or tadalafil (e.g. Cialis®) in the last 48 hours				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
9,10,11,12				

3. Clinical assessment^{3,5}

- Obtain patient history - include in history this episode and previous heart trouble:
 - angina, heart attack, heart failure
 - has patient had heart palpitations
- Look for evidence of acute ischemia, ST elevation (STEMI)
- If hypotension/shock or irregular HR (fast or slow) consult MO/NP urgently
- Current medicines
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note HR and rhythm
 - weight
- Perform physical examination:
 - general appearance - colour e.g. ashen, cyanosed, sweaty
 - auscultate the chest for air entry and added sounds - crackles or wheeze
 - are peripheries cool
 - inspect and palpate the ankles, front of legs, sacrum - for oedema

4. Management⁶

- Consult MO/NP urgently who may advise:
 - furosemide (frusemide) IV
 - transdermal GTN patch
 - GTN IV infusion
 - administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Prepare for evacuation
- MO/NP may consider CPAP/BiPAP⁷
- Intubation and ventilation may be needed if above not available or not successful

Schedule	4	Furosemide (frusemide)	Extended authority ATSIHP/IHW	
ATSIHP, IHW, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	20 mg/2 mL	IV/IM	Adult 20-80 mg	stat Give over 2-5 minutes
Provide Consumer Medicine Information: May cause dizziness, fainting and dehydration. Patient should get up gradually from sitting or lying position				
Note: High doses given at a rate faster than 4 mg/min can cause tinnitus, vertigo and deafness				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
				8,9,13

Schedule	4	Glyceryl trinitrate	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Patch	1 x Minitran 5 OR 5 mg = 1 x Nitro-Dur 5 OR 1 x Transiderm Nitro 25	Transdermal	Adult only 5-15 mg Applied for a maximum of 14 hours in a 24-hour period	stat
	1 x Minitran 10 OR 10 mg = 1 x Nitro-Dur 10 OR 1 x Transiderm Nitro 50			
Provide Consumer Medicine Information: May cause headache, flushing, palpitations, orthostatic hypotension, fainting and peripheral oedema. Apply to clean, dry skin on the chest area or upper arm. Dispose of patches safely				
Contraindication: If patient has taken phosphodiesterase-5-inhibitors e.g. sildenafil (e.g. Viagra [®]), vardenafil (Levitra [®]) in the last 24 hours or tadalafil (e.g. Cialis [®]) in the last 48 hours				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
10,11				

5. Follow up

- As per MO/NP instructions

6. Referral/consultation

- Consult MO/NP on all occasions

Cardiac arrhythmias - adult/child

Recommend¹

- Anyone who presents with an arrhythmia should be investigated for cause
- Opportunistically screen patients aged ≥ 65 for atrial fibrillation (AF) by pulse palpation, followed by ECG if irregular

Background²

- Aboriginal and Torres Strait Islander people have increased incidence of stroke, AF, rheumatic heart disease and other cardiovascular diseases
- 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 bradyarrhythmia and tachyarrhythmia are available from the Australian Resuscitation Council Guideline 11.9 - *Managing Acute Dysrhythmias* available at <http://resus.org.au/guidelines/>

Related topics

[Acute coronary syndromes, page 135](#)

1. May present with^{3,2,4}

- Symptoms may vary depending on cause - may include:
 - asymptomatic - incidental finding
 - chest pain
 - fast, slow or irregular HR/palpitations
 - heart failure
 - hypotension/shock
 - dizziness or lightheadedness
 - vertigo
 - syncope
 - fatigue
 - anxiety
 - shortness of breath

2. Immediate management²

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Give O₂ to maintain SpO₂ $\geq 94\%$. See [Oxygen delivery, page 64](#)
- Attach cardiac monitor
- Do ECG - send to MO/NP promptly
- If chest pain. See [Acute coronary syndromes, page 135](#)

3. Clinical assessment⁵

- Perform rapid assessment
- Obtain history of presenting concern

- Ask about:
 - contributing factors to this episode
 - previous episodes
 - current medications
 - illicit drug use
- Obtain past history including:
 - history of heart trouble
- Perform physical examination:
 - listen to the chest for air entry and added sounds - crackles or wheeze
 - inspect and palpate the ankles, front of legs and sacrum for oedema

4. Management^{2,4}

- Urgently contact MO/NP if:
 - haemodynamically unstable
 - history of heart problems
 - chest pain
 - drowsiness, confusion
 - altered level of consciousness
 - shortness of breath
 - systolic BP < 90 mmHg
 - HR < 40/min or > 150/min
- If symptomatic:
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
 - collect blood for FBC, UE and troponin levels
- Always consult MO/NP who may advise:
 - atropine for slow ± irregular heart beat
 - patients with bradyarrhythmia who do not respond to medicines, or who are at high risk of asystole, may require electrical pacing
 - other drug treatment for fast ± irregular heart beat
 - evacuation/hospitalisation
 - management of any underlying cause

5. Follow up

- If patient not evacuated/hospitalised advise to be reviewed next day
- Advise to see MO/NP at next clinic

6. Referral/consultation

- Consult MO/NP on all occasions

HMP Electrocution/electric shock - adult/child

Recommend¹

- The extent of burn after electric shock should not be underestimated. Skin findings can be misleading and significantly underestimate the degree of underlying tissue damage
- Always consider the possibility of cardiac arrhythmias
- Ears, eyes and mouth should always be checked

Background^{1,2,3,4}

- The electrical charge causes an entry wound (burn) that is often full thickness. There may be a similar exit (earthing) burn
- Arrhythmias can occur - including ventricular arrhythmias up to 8 hours following electrocution
- 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, sweating, immersion in water
 - electrical pathway across the heart - can cause cardiac arrest
 - prolonged exposure electrical current
 - electrical pathway crossing the brain - unconsciousness may occur

Related topics

[Traumatic injuries, page 163](#)
[Burns \(general\), page 217](#)

[DRS ABCD resuscitation/the collapsed patient, page 54](#)

1. May present with¹

- History of:
 - exposure to high or low voltage electricity - household or industrial
 - lightning strike
- Burns - major or minor
- Extensive/deep tissue damage - can lead to rhabdomyolysis and kidney failure
- Seizures
- Confusion, drowsiness
- Loss of consciousness
- Cardiac arrest
- Fractures/shoulder dislocation - due to falls or violent muscle contractions
- Cervical spinal cord injury
- Eye/ear complications
- Sublingual haemorrhage e.g. in children with burns at the mouth
- Compartment syndrome - if bone in path of the current, significant heat is generated and causes thermal injury to surrounding muscle

2. Immediate management^{3,4}

- Only approach patient or surroundings after power is turned off at mains
- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Assess conscious state. See [Glasgow Coma Scale/AVPU, page 785](#)
- Obtain rapid history:

- circumstances of injury
- type of electrical exposure - high or low voltage
- any CPR measures implemented
- Urgently consult MO/NP
- Give O₂ to maintain SpO₂ ≥ 94% or > 95% child. See [Oxygen delivery, page 64](#)
- Connect cardiac monitor
- Do ECG
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- IV fluid resuscitation may be required in high voltage injuries and significant underlying tissue destruction. See [Shock, page 77](#)

3. Clinical assessment^{1,2,3,4}

- Inspect skin for entry wound (burn) and exit (earthing) burn
- Examine the eyes. See [Assessment of the eye, page 358](#)
- Look for:
 - fixed or dilated pupils
 - cataracts, corneal burns, hyphema (pooling or collection of blood at front of eye)
 - fundoscopy examination (if skilled) - retinal detachment
- Check visual acuity
- Assess the ears:
 - using otoscope look for bloody drainage
 - ask about hearing loss, vertigo, tinnitus
- Examine the mouth:
 - look for sublingual haemorrhage - particularly in a child who may have put an electrical cord in mouth - may be delayed
- Examine extremities - look for:
 - fractures
 - muscle swelling
- Evaluate peripheral circulation
- Be alert to compartment syndrome (may occur over a few hours). See [Compartment syndrome, page 197](#)
- Urinalysis - checking for proteinuria/haematuria
- Check troponin + CK if available

4. Management^{2,3}

- Contact MO/NP urgently who will guide management
- Monitor and act on any changes in conscious state
- Continue to monitor urine for proteinuria/haematuria
- Continue cardiac monitoring
- Treat obvious burns. See [Burns \(general\), page 217](#)
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Prepare for evacuation
- 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 **after consultation with MO/NP**

5. Follow up

- If not evacuated, advise patient to be reviewed daily for 2-3 days for general assessment and wound care
- Advise to see MO/NP at next clinic

6. Referral/consultation

- Consult MO/NP on all occasions
- MO/NP will refer patients with suspected deep tissue electrical injury to specialist burns unit
- All survivors of high-voltage electrical injury need referral for ophthalmic and otic follow-up within 2-3 days to assess ocular and audio-vestibular complications

HMP Acute hypertensive crisis - adult

Recommend¹

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

Background²

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

Related topics

[Hypertension in pregnancy, page 526](#)
[Irukandji syndrome, page 306](#)

[Preeclampsia/eclampsia, page 530](#)
[Subarachnoid haemorrhage, page 157](#)

1. May present with³

- Dizziness/feeling faint
- Nausea and vomiting
- Confused, drowsy, unconscious, fitting
- Focal neurological symptoms e.g. weakness in a limb, facial paralysis
- Headache, visual disturbance
- Chest discomfort (angina/heart attack, or aortic dissection)
- 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 158](#)
- Acute head injury or trauma

- Asymptomatic
- Pregnancy
- Illicit drug use e.g. amphetamine, cocaine
- Irukandji jellyfish sting. See [Irukandji syndrome, page 306](#)

2. Immediate management²

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- If symptomatic (visual disturbance, heart failure) or BP > 220 mmHg systolic, consider immediate transfer - consult with MO/NP urgently
- If pregnant, see [Hypertension in pregnancy, page 526](#) or [Preeclampsia/eclampsia, page 530](#)

3. Clinical assessment³

- Obtain emergency patient history - previous medical history, including previous BP readings and episodes of acute hypertensive crisis and current medications
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note BP (with correct size cuff), record with patient lying and standing and on both arms
 - height and weight (if possible)
 - urinalysis
 - perform point of care testing for pregnancy for women of reproductive age
 - ECG - send to MO/NP
 - take blood for creatinine, electrolytes and troponin
- 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. Management³

Asymptomatic or minimally symptomatic patient e.g. mild headache

- Contact MO/NP who may order:
 - regular monitoring of BP
 - oral therapy such as ACE-Inhibitor e.g. Ramipril 2.5-10 mg OR
 - a calcium channel blocker (dihydropyridine) e.g. amlodipine 2.5-10 mg

Symptomatic patient¹ e.g. visual disturbance, heart failure or BP > 220 mmHg systolic

- Urgently contact MO/NP
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- MO/NP may order:
 - maximising of oral medicines as per asymptomatic patient above
 - IV GTN
 - **note:** sublingual or transdermal GTN can be considered in remote areas/low resource areas where IV GTN not available/practical, but strong evidence does not exist for efficacy
- MO/NP will determine target BP, but no more than 25% reduction in first 2 hours
- If significant concerns about aortic dissection, IV beta-blocker may be considered with or without IV GTN
- Urgent evacuation

- Hypertension may be due to other conditions e.g. intracranial haemorrhage, raised intracranial pressure, chronic kidney failure - manage as per MO/NP instructions

Schedule	4	Glyceryl trinitrate	Prescribing guide	
RIPRN and RN only. Must be ordered by an MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	50 mg/10 mL	IV Dilute to 500 mL in sodium chloride 0.9% to make a concentration of 100 microgram/mL	Commence at 10 microgram/minute Increase infusion by 5 microgram/minute every 5 minutes until target BP reached, up to a max. of 100 micrograms/minute	As advised by MO/NP
Provide Consumer Medicine Information: May cause headache, flushing, palpitations, orthostatic hypotension, fainting, peripheral oedema. Caution if patient moving from lying to sitting or to standing position. Ensure patient sitting down prior to giving				
Note: GTN is adsorbed onto some plastics, eg PVC. Use glass infusion bottle and polyethylene giving set. Do not stop infusion abruptly. Patient must have continuous cardiac monitoring during infusion				
Contraindication: Hypovolaemia, raised intracranial pressure, recent treatment with 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: Contact MO/NP. See Anaphylaxis, page 102				
1,4,5				

Schedule	3	Glyceryl trinitrate	Extended authority ATSIHP/IHW	
ATSIHP, IHW, RIPRN and RN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	600 microgram	Sublingual	300-600 microgram	stat
Spray	400 microgram/ spray		400 microgram	Further doses on MO/NP order
Provide Consumer Medicine Information: May cause headache, flushing, palpitations, hypotension and fainting. Patient should get up gradually from sitting or lying				
Note: Ensure patient sitting down prior to giving. Do not use tablets from bottles that have been opened > 3 months. Prime the spray until an even spray is obtained before administering				
Contraindication: If patient has taken phosphodiesterase-5-inhibitors e.g. sildenafil (e.g. Viagra®), vardenafil (Levitra®) in the last 24 hours or tadalafil (e.g. Cialis®) in the last 48 hours				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
4				

5. Follow up

- Ask patient to return for review next day if not evacuated/hospitalised
- Advise to see MO/NP at next clinic on all occasions where BP $\geq 140/90$ mmHg
- Offer advice and information about lifestyles factors contributing to hypertension. See *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 BP $\geq 160/110$ mmHg

HMP Acute lower leg ischemia - adult

Recommend^{1,2}

- Urgent evacuation for vascular assessment/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 atherosclerosis³

Related topics

[Cellulitis, page 401](#)

[Deep vein thrombosis \(DVT\), page 155](#)

[Compartment syndrome, page 197](#)

1. May present with²

- In affected limb - pain, pallor, lack of pulse, paraesthesia, paralysis
- Intense pain

2. Immediate management

- Contact MO/NP immediately to arrange evacuation for surgical management
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Rest the affected limb

3. Clinical assessment

- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note regularity of HR
- Neurovascular observations comparing affected limb with the other limb:
 - colour and warmth
 - active and passive movement
 - sensation
 - pulses

4. Management

- Consult MO/NP urgently who will:

- advise ongoing analgesia
- advise on heparinisation
- Ensure patient is nil by mouth
- Rest affected limb

5. Follow up

- As advised by discharging MO/NP

6. Referral/consultation

- MO/NP will notify the referring hospital of situation

HMP Deep vein thrombosis (DVT) - adult

Recommend^{1,2}

- Early initiation of anticoagulant medicine to lower risk of pulmonary embolism (PE) and death

Background^{1,2,3}

- Deep vein thrombosis is caused by a clot which obstructs blood flow in a deep vein, most often a leg
- DVT presents high risk for the development of thromboembolisms and subsequent PE
- Hospitalised patients are 100 times more likely to develop a DVT/PE than the rest of the community. 59-75% of DVT/PE occur as a result of hospital admission
- Most DVT/PE cases are not identified until up to 3 months after the patient is discharged

Related topics

[Cellulitis, page 401](#)

[Acute lower leg ischemia, page 154](#)

[Compartment syndrome, page 197](#)

1. May present with^{1,4}

- Often asymptomatic
- Symptoms include:
 - leg swelling, leg pain, tenderness in calf
 - unilateral leg tenderness
 - prominent superficial veins
- A DVT in the upper leg may have symptoms including:
 - swelling in thigh
 - severe pain in buttocks or groin
 - collateral superficial veins
 - discolouration and redness in leg
 - leg warm to the touch
- Symptoms of a pulmonary embolus (PE) including:⁵
 - rapid onset dyspnoea, tachypnoea
 - coughing up blood
 - low SpO₂
 - chest pain

- tachycardia
- low blood pressure
- collapse

2. Immediate management

- Contact MO/NP urgently to discuss anticoagulation and to arrange evacuation
- Rest the affected limb
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

3. Clinical assessment^{1,5}

- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note if any signs of respiratory distress, haemoptysis or chest pain. If present, perform ECG
- Compare affected limb with the other limb by inspection and measuring circumference, checking particularly for colour, warmth, swelling
- Obtain history, checking for risk factors for DVT including:
 - prolonged immobility such as bed rest, air travel, spinal cord injury, disabling stroke
 - hospitalisation in previous 3 months
 - recent surgery, including joint replacement surgery
 - bone fractures
 - previous history of DVT/PE, other venous disease
 - pregnancy
 - hormone replacement therapy
 - cancer

4. Management

- Prepare for evacuation
- Take blood for FBC and coagulation studies prior to anticoagulation
- The MO/NP will:
 - arrange evacuation/hospitalisation
 - order initial anticoagulation:^{6,7}
 - enoxaparin at 1.5 mg/kg daily or 1 mg/kg BD
 - patients with BMI > 35 or with renal impairment may require heparin infusion

5. Follow up

- As advised by discharging MO/NP
- May require anticoagulation for 6 weeks to 3 months, and longer for those at high risk of recurrence of DVT/PE

6. Referral/consultation

- As advised by discharging MO/NP

Neurological emergencies

Subarachnoid haemorrhage (spontaneous) - adult/child

Recommend

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

Background¹

- 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 outcome
- Beware of lowering an elevated BP if there is any neurological deficit

Related topics

[Acute and chronic headache, page 336](#)

[Meningitis, page 91](#)

[Transient ischaemic attack \(TIA\) and stroke, page 158](#)

[Unconscious/altered level of consciousness, page 73](#)

1. May present with^{2,3}

- 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 management³

- Lie patient at 30° and reassure
- Avoid hypoxia. Maintain SpO₂ ≥ 94%. See [Oxygen delivery, page 64](#)
- Perform rapid clinical assessment +
 - conscious state. See [Glasgow Coma Scale/AVPU, page 785](#)

3. Clinical assessment⁴

- Take rapid patient history
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Continue neurological examination including GCS and pupillary responses to identify deficits²
- Check neck for stiffness (put hand under the patient's head and gently flex neck or ask patient to put chin on chest)

4. Management³

- Consult MO/NP urgently
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status

- Nil by mouth³
- MO/NP may advise insertion of urinary catheter
- Arrange urgent evacuation/hospitalisation:
 - investigations may include non-contrast CT and/or lumbar puncture

5. Follow up

- As advised by discharging MO/NP

6. Referral/consultation

- Consult MO/NP urgently in all cases

Transient ischaemic attack (TIA) and stroke - adult

Recommend^{1,2}

- Acute stroke is a medical emergency. Appropriate initial management and rapid intervention can reduce disability and mortality
- 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
- Aboriginal and Torres Strait Islander people are at greater risk of cardiovascular disease
- See *Transient Ischaemic Attack (TIA)/Stroke Clinical Pathway*: <https://clinicalexcellence.qld.gov.au/resources/clinical-pathways/tia-stroke-clinical-pathways>

Related topics

[Acute and chronic headache, page 336](#)

[Unconscious/altered level of consciousness, page 73](#)

1. May present with³

- Neurological symptoms are sudden and 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:
 - confusion
 - sudden onset vertigo
 - nausea or vomiting
 - stupor or coma
 - difficulty swallowing
 - collapsed

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- If SpO₂ is > 95% on room air then DO NOT give O₂
- If hypoxic, give O₂ to maintain SpO₂ > 95%. See [Oxygen delivery, page 64](#)
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- Consult MO/NP as soon as possible

3. Clinical assessment^{1,2}

- Consider stroke mimics such as hypoglycaemia, meningitis, encephalitis, postictal state, migraine, hypotension⁴
- Obtain a complete history as able - ask family and friends if needed:
- This presentation:
 - date and time when signs/symptoms were first noted
 - how long symptoms lasted
 - when the patient was last known to be well
 - do they or did they have a headache
 - any dizziness
 - has their vision changed in one eye or both
 - any double vision
- Any past history of:
 - TIA/stroke
 - risk factors e.g. hypertension, diabetes, smoker, obesity, dyslipidaemia, illicit drug use
 - physical activity⁴
 - atrial fibrillation
 - current medicines including anticoagulant/antiplatelet medications
- Do ECG¹
- Perform full clinical assessment:
 - dysarthria - can the patient speak normally. Speech slurred/altered in any way
 - does the patient understand questions and obey commands
 - 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

- Assess the stroke risk of TIAs using the tool on the Queensland *Transient Ischaemic Attack (TIA)/Stroke Clinical Pathway*^a (or local stroke pathway). See <https://clinicalexcellence.qld.gov.au/resources/clinical-pathways/tia-stroke-clinical-pathways>

4. Management¹

- Consult MO/NP as soon as possible
- Arrange evacuation/hospitalisation:
 - the patient should be transferred to a suitably equipped and staffed facility as soon as possible for urgent CT or MRI (as soon as possible and within 24 hours)
- Collect blood:
 - FBC, UE, cholesterol levels
- Keep nil by mouth
- Do not give aspirin until CT/MRI has ruled out a haemorrhage
- Antiplatelet therapy (unless contraindicated) and statins are recommended for patients found to have an ischaemic stroke² and/or AF
- Antihypertensive therapy is recommended for patients with ischaemic/haemorrhagic stroke¹
- If ↓ BGL see [Hypoglycaemia, page 115](#)

Assessing urgency of transfer of TIA/stroke patient¹

Assess Risk Stratification using clinical history/examination and the Queensland TIA/Stroke Clinical Pathway

Risk	Recommended action
Patients at moderate/high risk or AF or carotid territory symptoms or crescendo TIA	Urgent* transfer to appropriate facility for urgent imaging and management, including possible thrombolysis
Patients classified as low risk : 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 up¹

- As advised by MO/NP
- May require rehabilitation program and post stroke care plan
- Community and carer support is essential during the recovery period and ongoing
- 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

HMP Delirium - adult

Recommend¹

- Delirium is a medical emergency and needs investigation for a medical cause
- Distinguish delirium from psychosis and dementia where the patient is alert and does not have a disturbance of consciousness
- Consider delirium where patients have altered behaviour and thinking and one or more of the following risks:
 - age ≥ 65 years (≥ 45 years for Aboriginal and Torres Strait Islander people)
 - history of cognitive impairment or dementia
 - severe medical illness
 - hip fracture
- Recommended resource: Delirium Clinical Care Standard available at: <https://www.safetyandquality.gov.au/our-work/clinical-care-standards/delirium-clinical-care-standard/>

Background¹

- 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 day
- Patients with delirium may be confused with patients with dementia
- Drug toxicity is a major cause of delirium^{2,3}

Related topics

Other drugs/substances, page 494
 Sepsis/septic shock, page 80
 Alcohol withdrawal, page 490

Acute severe behavioural disturbance, page 467
 Toxicology (poisoning and overdose), page 259

1. May present with²

- See Signs and symptoms of delirium, dementia and depression in [Behavioural and psychological symptoms of dementia \(BPSD\)](#), page 478
- Agitation and restlessness (hyperactive delirium)
- Quiet and withdrawn (hypoactive delirium)
- Symptoms develop over a short period of time and 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, euphoria, perplexity
- Hyperactivity, hypoactivity

2. Immediate management

- Ensure safety of patient, self and others

3. Clinical assessment^{1,4}

- The aim of clinical assessment is to determine the medical cause for the delirium. **Note:** there may be more than one cause, particularly with older people
- Recognised triggers include:
 - infections - urinary, respiratory, skin/soft tissue and CNS infections
 - fluid and metabolic disturbances - hypoglycaemia, hyperglycaemia, electrolyte abnormalities, dehydration
 - medicines including illicit drugs
 - alcohol and other drug intoxication and withdrawal (especially benzodiazepines)
 - kidney failure, liver failure and respiratory failure (hypoxia)
 - neurological events - cerebral haemorrhage, stroke, seizures
 - cardiac events - myocardial infarction, arrhythmias, heart failure
 - pain
- See [Acute severe behavioural disturbance, page 467](#) in particular:
 - medication history e.g. recent changes in medicine, new medicines, changes to dosage, including eye drops
- Obtain history, including recent behavioural changes such as:
 - confusion
 - worsened concentration
 - agitation, restlessness
 - sleepiness, altered levels of consciousness
 - less communicative or responsive than usual
 - difficulty meeting reasonable requests
 - alterations in mood
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
- Collect blood including BGL, FBC, UE, LFTs
- Urinalysis (dipstick)
- ECG

4. Management^{1,4}

- Consult MO/NP
- Maintain SpO₂ ≥ 94%. See [Oxygen delivery, page 64](#)
- If at all concerned do not leave the patient alone
- Attend to hydration, nutrition, ventilation, temperature control, skin care
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- 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
- The MO/NP may 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 [Acute severe behavioural disturbance, page 467](#)

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

Traumatic injuries

HMP Traumatic injuries - adult/child

Recommend

- Assess early for evacuation. See [Criteria for early notification of trauma for interfacility transfer \(inside front cover\)](#)
- Ideally one or more assistants are needed
- Consider DRS CABCD where the 'C' stands for life-threatening catastrophic haemorrhage which should be controlled before proceeding to Airway, Breathing, Circulation, Disability, and Exposure^{1,2}
- 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
- Check for medic alert jewellery: may look like normal jewellery or other accessory e.g. key ring, USB stick, shoe tag, anklet, watch, tattoo
- Always consider non-accidental injury where injury or presentation is inconsistent with history or is unexpected. See [Child protection, page 760](#)

Background¹

- The potential benefits of using a semi-rigid cervical collar in the pre-hospital setting do not outweigh harms such as increased intracranial pressure, pressure injuries or pain and unnecessary movement that can occur with fitting and applying the collar. Initial management should include manual support of the head in a natural, neutral position, limiting angular movement¹¹
- For further information on application of tourniquet for a traumatic injury, see the Australian Resuscitation Council Guideline '*First Aid Management of Bleeding*' <https://resus.org.au/guidelines/>

Related topics

[Abdominal injury, page 183](#)

[Chest injuries, page 171](#)

[Fractures, dislocations and sprains, page 185](#)

[Head injuries, page 175](#)

[Spinal injuries, page 180](#)

[Shock, page 77](#)

1. May present with

- History of trauma

2. Immediate management - primary survey and resuscitation - DRS CABCD

D - Danger - e.g. body fluids, traffic, perpetrators of crime

R - Response

S - Send for help

C - Catastrophic haemorrhage - control before proceeding to airway

- use direct pressure
- if unable to control catastrophic bleeding consider applying a tourniquet:
 - a constricting device (preferably wide) applied firmly to a limb above an injury or amputation and tightened to control life-threatening bleeding. Record application time⁷
- do not remove any penetrating foreign body e.g. knife. Pack around with gauze soaked in sodium chloride 0.9% and secure

A - Airway and cervical spine protection

- Assess airway patency:
 - observe for vocalisation, obstructed airway in an unresponsive patient, loose teeth or foreign objects, bleeding, vomitus/secretions, oedema³
- Listen for sounds of an obstructed airway:
 - snoring, gurgling, stridor³
- Establish clear airway:
 - use chin lift/jaw thrust as needed, remove loose or foreign bodies
 - suction if indicated - avoid stimulation of the gag reflex³
 - if unable to secure airway consider airway adjunct
 - consider performing needle cricothyroidotomy if unable to obtain airway using above measures
- If suspected cervical spine injury:
 - manually support the head in a natural, neutral position, limiting angular movement¹¹
 - QAS recommend using a soft collar.¹² Follow local policies or seek MO/NP advice for collar use as needed
- Check for wounds/signs of injury and trachea position - central or deviating

B - Breathing

- Assess effort and efficacy of breathing:
 - respiratory rate, rhythm, chest movements, use of accessory muscles and/or abdominal muscles, diaphragmatic breathing, tracheal deviation
 - auscultate - air entry equal
- Be aware of signs of tension pneumothorax:
 - unequal chest movement, trachea deviated away from the affected side, ↑ HR, ↓ BP, ↑ respiratory distress

Tension pneumothorax is a life-threatening emergency

- Consider needle decompression/needle thoracentesis.³ See [Chest injuries, page 171](#)
- If open or sucking chest wound:
 - apply a proprietary chest seal dressing - if not available apply an occlusive dressing, taped on three sides.^{4,5} See [Chest injuries, page 171](#)
- If flail segment:
 - provide adequate analgesia and position patient for comfort

- If unable to achieve effective breathing commence bag-valve mask ventilation or CPR as indicated
- Give O₂ to maintain SpO₂ ≥ 94%⁶, see [Oxygen delivery, page 64](#) (LMA or bag-valve mask may be required)
- Assess threats to breathing:
 - bleeding to upper airway, rib tenderness or visible flail segments, circumferential burns or airway burn

C - Circulation

- Control any external haemorrhage by direct pressure/pressure bandaging
- Check HR, and central capillary refill time
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status:
 - use intraosseous route if unable to obtain IV access. See [Intraosseous infusion, page 69](#)
- If shock evident (central capillary refill > 2 secs and/or tachycardia):⁸
 - give fluid bolus of sodium chloride 0.9% or Hartmann's solution 10-20mL/kg
- Attach cardiac monitor

D - Disability - basic neurologic evaluation

- **A** - alert, **V** - responds to verbal statement, **P** - responds to painful stimuli, **U** - unresponsive
- Check pupil size, equality, and reactivity
- If decreased level of consciousness continue to monitor for airway compromise
- Consult MO/NP as early as possible on completion of primary survey if there is concern over ongoing bleeding

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

- Assess against criteria for early notification of trauma for interfacility transfer. See [Criteria for early notification of trauma for interfacility transfer \(inside front cover\)](#)

3. Clinical assessment - secondary survey

- The secondary survey is a brief systematic process to identify ALL injuries:
 - provide appropriate interventions as injuries are identified³

E - Expose and examine - identify life-threatening injury/injuries

- Remove all clothing as you move down, maintaining privacy. Prevent hypothermia - cover patient with blanket after examination
- Search for and control sites of bleeding including pelvic fracture which may require a pelvic binder at this stage

F - Perform full standard clinical observations

- Full Q-ADDS/CEWT score or other local Early Warning and Response Tools
- Be alert, and respond, to abnormal observations/signs of shock - ↑ HR, ↓ BP, ↑ RR, ↓ SpO₂ and central capillary refill > 2 secs. See [Shock, page 77](#)
- Increasing respiratory distress and ↑ HR, with falling BP and falling GCS may indicate life-threatening tension pneumothorax:
 - consider needle decompression/needle thoracentesis.³ See [Chest injuries, page 171](#)
 - urgently contact MO/NP as able

- Perform neurological examination:
 - strength/movement of limbs, numbness/sensation, and evidence of urinary or faecal incontinence
- Continue to monitor:
 - BP, HR, RR/effort and efficacy of breathing
 - SpO₂
 - central capillary refill
 - BGL
 - conscious state. See [Glasgow Coma Scale/AVPU, page 785](#)
- Perform eFAST (Focused Assessment with Sonography for Trauma) ultrasound scan if suitably trained, equipment available, and clinically indicated

F - Family - consider the needs and involvement of the patient's family

G - Give pain relief. Get resuscitation adjuncts - use LMNOP mnemonic:³

- Laboratory studies/point of care testing as clinically indicated and available: arterial or venous blood gases, lactate, electrolytes, BGL, FBC, LFTs, group and hold
- **M**onitor cardiac rate and rhythm
- **N** - consider Naso or orogastric tube
- **O** - Oxygen to maintain SpO₂ ≥ 94%, pulse oximetry and capnography as indicated
- **P** - assess Pain and administer analgesia as clinically indicated.
See [Acute pain management, page 35](#). Opioid analgesia should only be given to patients with head injuries after discussion with MO/NP

H - obtain history from patient/witnesses - use SAMPLE mnemonic:

- **S** - Symptoms
- **A** - Allergies - check for medic alert jewellery: may look like normal jewellery or other accessory e.g. key ring, USB stick, shoe tag, anklet, watch, tattoo
- **M** - Medications + any anticoagulation/antiplatelet therapy
- **P** - Past medical and surgical history:
 - any conditions contributing to coagulopathy, alcohol misuse, previous hospitalisations or surgery
- **L** - Last oral intake/fasting status
- **E** - Events and factors related to the injury:³
 - time of injury
 - mechanism of injury - blunt or penetrating, velocity of patient or objects
 - any post traumatic loss of consciousness/duration of any altered level of consciousness from witnesses
 - anterograde or retrograde amnesia, and duration of any related amnesia
 - alcohol or drug consumption
 - social issues e.g. domestic violence
 - last menstrual period and possible pregnancy
 - check tetanus vaccination status. See [Tetanus immunisation, page 773](#)

H - Head to toe assessment³

- **General appearance:**³
 - body position, posture, any guarding or self-protection movements
 - position of limbs (flexion or extension), trunk, and head
 - unusual odours: alcohol, petrol, chemicals, vomitus, urine or faeces

- **Head and face** see [Head injuries, page 175](#)

Inspect:

- for deformities, wounds, abrasions, bleeding, bruising, swelling, haematomas, impaled object(s)
- position of the nasal septum, flattening or angulation of the nose, occlusion of nostrils, septal haematoma
- oral cavity for loose teeth, foreign material, wounds, signs of jaw fracture e.g. teeth do not meet properly on closure or unable to open mouth wide, see [Fractured mandible/jaw, page 191](#)
- ears, nose, or mouth for any signs of bleeding or CSF leakage (indicating skull fracture and laceration of the dura mater) - do NOT pack to stop drainage
- 'Battle sign' - bruising/haematoma behind the ear indicating base of skull fracture
- asymmetry of facial expression
- drowsiness, vomiting
- ask patient about headache, nausea

Palpate:

- depressions, deformity, boggy swelling of scalp, and areas of tenderness
- numbness of the cheek or teeth
- jaw fracture/mobility/pain, see [Fractured mandible/jaw, page 191](#)
- crepitus (subcutaneous emphysema)

- **Eyes**

Inspect:

- pupils - size, equality and reactivity to light
- any periorbital bruising (raccoon's eyes), subconjunctival haemorrhage, and/or oedema
- is patient wearing contact lenses
- ask patient to follow your moving finger in all directions (if conscious) - any restriction of eye movements
- gross visual acuity, any double or blurred vision - check light perception, hand motion, and counting fingers at one metre

Palpate:

- orbit - is there a palpable step, or numbness under the eye, see [Blunt eye injury, page 369](#)

- **Neck, trachea and cervical spine**

- ask patient if any neck pain or midline tenderness

Inspect for:

- bruising, swelling, wounds, impaled objects
- deformity (if sufficient assistants available)
- trachea midline or deviated, see [Chest injuries, page 171](#)
- the appearance of the external jugular veins

Palpate:

- neck while maintaining the inline immobilisation of the patient's cervical spine e.g. immobilised by an assistant
- Any:
 - signs of tenderness
 - crepitus indicating subcutaneous emphysema
 - step in spine
 - weakness, numbness, or pins and needles in arms or legs
- if any findings indicate spinal injury, see [Spinal injuries, page 180](#)

• Chest

Inspect:

- rate, depth, effort, use of accessory and/or abdominal muscles, diaphragmatic breathing, chest movement on respiration
- paradoxical breathing
- pain associated with breathing
- deformity, wounds, bruising, swelling, impaled foreign body, and scars
- check anterior and lateral chest walls including axillae (leave the posterior chest wall for the final part of the secondary assessment when all posterior surfaces are inspected if sufficient assistants available)

Palpate clavicles, sternum and ribs for:

- crepitus (subcutaneous emphysema)
- tenderness, deformities, bony crepitus:
 - the presence of local tenderness of ribs is adequate to diagnose possible fractured ribs
 - do NOT spring rib cage
 - if tenderness of sternum, consider underlying lung or cardiac injury - perform ECG if available, and consult MO/NP⁹

Percuss:

- assess resonance - dull, resonant or hyper-resonant

Auscultate for:

- bilateral/equal air entry, abnormal sounds (wheezes and crackles)
- heart sounds - murmurs, friction rubs, muffled sounds

- If any findings, see [Chest injuries, page 171](#)
- If significant chest injury suspected auscultate BP in both arms and note if difference > 10-15 mmHg⁹

• Shoulders

Inspect:

- any deformities, wounds, bruising, swelling, impaled foreign body

Palpate for:

- tenderness, deformity, swelling, bony crepitus or crepitus (subcutaneous emphysema)

Move to:

- identify pain or restricted range of motion

• Abdomen/flanks

Inspect:

- any wounds, bruising - 'seat-belt sign', distension, oedema, impaled foreign body, scars

Auscultate (before palpating) for:

- bowel sounds - present/absent

Palpate:

- all 4 quadrants gently. Start in an area where there is no complaint of pain or obvious injury
- any tenderness including rebound tenderness, guarding, rigidity, masses
- perform eFAST ultrasound scan if suitably trained and equipment available

- Urinalysis: test for blood if possible
- If any findings, see [Abdominal injury, page 183](#)

• Pelvis

Inspect:

- any wounds, bruising, deformity, swelling, impaled foreign body, scars, and irregular angulation

of the legs

Palpate for:

- tenderness and instability over the iliac crests and the symphysis pubis
- if a fractured pelvis is suspected, a pelvic binder should be applied and log roll should be avoided if possible, as it may exacerbate bleeding, see [Fractured pelvis, page 190](#)

• Perineum/genitalia

Inspect for:

- evidence of trauma - blood at the vagina, penis, urethra, and rectum
- faecal or urinary incontinence
- assess any pain and/or ability to void

• Limbs

Inspect:

- any open or closed wounds, bruising, deformity, swelling, impaled foreign bodies
- colour of limb

Palpate for:

- tenderness, deformity, bony crepitus
- pulses, warmth, sensation in all four limbs

Move to:

- assess movement and strength
- check joints for range of motion
- check previously applied splint(s) if present. Do not remove if appropriately applied and neurovascular function is intact

- If any findings, see [Fractures, dislocations and sprains, page 185](#)

I - Inspect posterior surfaces

- **Use caution** if there is evidence of head/cervical spine injury/pelvic fracture:

- log roll patient if clinically indicated with adequate assistance to inspect back
 - for log roll technique, see [Spinal injuries, page 180](#)
 - maintain cervical spine in-line immobilisation. Support extremities with suspected injuries and do not log roll the patient onto a side with an injured extremity

Inspect back, flanks, buttocks, and posterior thighs for:

- deformity, wounds, bruising, swelling, impaled foreign body, and scars

Palpate:

- any tenderness and deformity:
 - along the cervical, thoracic, and lumbar spine
 - all posterior surfaces
- posterior chest for crepitus (subcutaneous emphysema)
- assess sensation at the perineum. Ask patient to squeeze buttocks and feel for tightening. Perform PR exam if indicated after discussion with MO/NP^{3,10}

Auscultate posterior chest for:

- bilateral/equal air entry, abnormal sounds (wheezes, crackles, or friction rubs)

- Use other diagnostic tools such as x-ray and ultrasound as available in consultation with MO/NP

J - Jot it down

- document findings of assessment fully
- report abnormal findings to MO/NP

4. Management¹

- Keep patient nil by mouth and warm
- Reassess primary survey and manage any lifesaving interventions/management initiated in the primary survey
- Continue to monitor clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Insert indwelling urethral catheter if clinically indicated. Caution or contraindicated if suspected urethral injury and/or blood present at urethral meatus - if uncertain consult MO/NP:
 - measure urine output hourly
- If not already given - administer analgesia as clinically indicated. See [Acute pain management, page 35](#). Opioid analgesia should only be given to patients with head injuries after discussion with MO/NP
- Administer antiemetic as clinically indicated, see [Nausea and vomiting, page 48](#)
- Provide appropriate interventions as per findings of secondary survey
- Perform ECG
- If bloods not already taken - laboratory studies/point of care testing as clinically indicated and available: arterial or venous blood gases, lactate, UEC, BGL, FBC, LFTs, group, hold and cross match
- Consider gastric tube in discussion with MO/NP
- Give tetanus booster if indicated. See [Tetanus immunisation, page 773](#)
- Prepare patient for evacuation as indicated via air or road to facility with capability to address trauma and injuries in collaboration with MO/NP. See [Patient retrieval/evacuation, page 29](#)
- 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

5. Follow up

- Be guided by MO/NP

6. Referral/consultation

- Consult MO/NP as soon as possible with any findings from examination

HMP 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

Background

- Chest injuries include damage to the chest wall from:
 - rib fractures including flail segments
 - closed soft tissue injuries including costal cartilage
 - penetrating injuries with or without foreign body
 - open wounds and lacerations

Related topics

[Traumatic injuries, page 163](#)

1. May present with

- History of chest injury secondary to blunt or penetrating trauma

2. Immediate management - primary survey and resuscitation

- Follow **DRS CABCD**. See [Traumatic injuries, page 163](#)
- Begin secondary survey only after any life saving interventions/management initiated in the primary survey
- Assess against [Criteria for early notification of trauma for interfacility transfer \(inside front cover\)](#)

3. Clinical assessment - secondary survey

- Follow **EFGHIJ**. See [Traumatic injuries, page 163](#)
- Perform chest x-ray if available
- Perform eFAST ultrasound scan¹ if suitably trained and equipment available
- See **Differential diagnosis** table for potential injuries (on following page)

Differential diagnosis²

Non-penetrating causes (no open wounds)

Symptoms	Clinical observations	Consider
- Pain - Worsening shortness of breath (SOB)	Increasing respiratory distress, ↑ HR, ↓ BP, unequal chest movement, trachea deviated away from the affected side, ↓ air entry and hyperresonance on percussion noted on affected side, distended neck veins	Tension pneumothorax
- Pain - SOB – not worsening	Respiratory distress. May be unequal chest movement, ↓ air entry and ↑ percussion noted on affected side	Simple pneumothorax
- Pain - Coughing up blood - SOB	Respiratory distress and crackles in chest. Hypoxaemia and ↑ HR. Often associated with haemothorax and pneumothorax	Lung contusion
- Pain - SOB	Respiratory distress. Hypotension/shock. May be unequal chest movement, may be decreased air entry and dull percussion on affected side	Haemothorax
- Pain - SOB - Paradoxical movement of chest	Respiratory distress. In flail chest the paradoxical movement is where part of the chest wall moves in when the patient breathes in, and out when patient breathes out	Flail chest
- Pain worse on inspiration and coughing - SOB - Nil	Localised chest wall, swelling and tenderness	Broken rib

Penetrating (open) causes including gunshot and stab wounds

- Pain - SOB	An obvious wound to the chest with or without an object sticking out	Possible haemothorax or pneumothorax
- Pain - SOB	Chest wall opening through which air is sucking in. Cover with three sided occlusive dressing with opening on bottom	Open chest wound

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

4. Management³

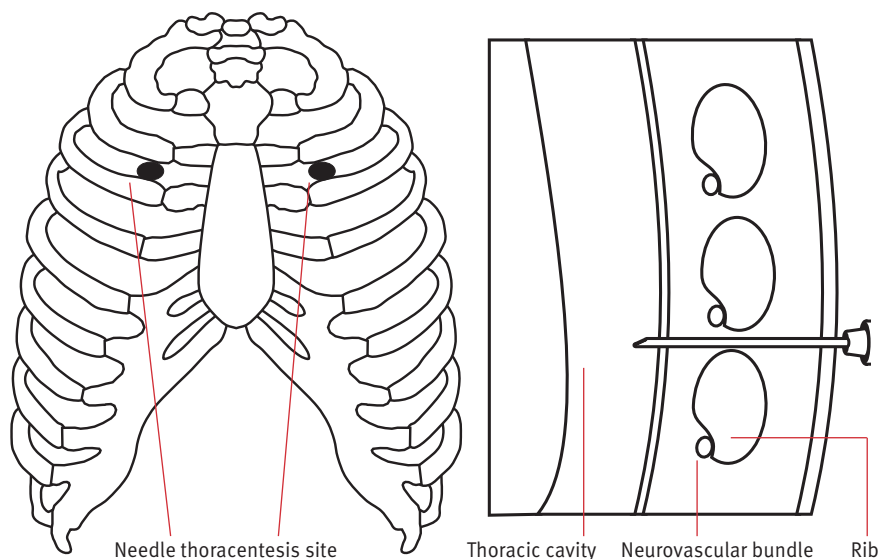
- Consult MO/NP in all cases
- Insert IV cannula if not already
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Administer antiemetic as clinically indicated. See [Nausea and vomiting, page 48](#)

Tension pneumothorax²

- Is a **life threatening emergency** and is a treatable cause of potential death in the severely injured patient:
 - perform immediate decompression by needle thoracocentesis
 - consult MO/NP as soon as circumstances allow

Needle thoracocentesis

- 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 3rd 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 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

Penetrating injuries/open pneumothorax/sucking chest wound³

- Do not remove any object sticking out of wound e.g. knife. Pack around with gauze soaked in sodium chloride 0.9% and secure
- Cover sucking chest wounds with a sterile occlusive dressing taped securely on three sides (opening at bottom) to provide a flutter-type valve effect or proprietary device designed for this purpose

- Consult MO/NP who may advise antibiotics and arrange evacuation
- MO/NP will insert a formal intercostal catheter prior to evacuation
- Keep patient nil by mouth
- Keep patient warm

Haemothorax

- Treat hypovolaemia. See [Shock, page 77](#)
- MO/NP will advise type, volume, and rates of further IV fluids
- If respiratory distress develops then treat as tension pneumothorax
- The MO/NP will insert a formal intercostal catheter prior to evacuation

Broken rib

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

Tenderness of sternum

- Consider underlying lung or cardiac injury. Perform ECG and consult MO/NP

Flail chest^{1,4}

- Give high flow oxygen. See [Oxygen delivery, page 64](#)
- Provide adequate analgesia and position patient for comfort
- 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
- Prepare patient for evacuation as indicated. See [Patient retrieval/evacuation, page 29](#)

5. Follow up

- MO/NP will advise ongoing management

6. Referral/consultation

- In all cases consult MO/NP

HMP Head injuries - adult/child

Recommend

- Assume all head injuries have an associated neck injury
- Consult MO/NP before administering opioids to patients with head injuries
- Be wary of the patient who appears to be intoxicated - a head injury may co-exist. Do not assume that physical signs are caused by intoxication alone. 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

Background

- Blows to the head can cause damage to the brain without signs of injury on the outside
- A significant brain injury can occur without loss of consciousness

Related topics

[Traumatic injuries, page 163](#)

[Fractured mandible/jaw, page 191](#)

1. May present with

- History of injury to head - could be blunt or penetrating trauma
- Headache, nausea and vomiting, visual disturbances
- Altered level of consciousness, confused, drowsy
- Neurological symptoms - weakness or numbness, pupil signs, lack of coordination
- Seizures

2. Immediate management - primary survey and resuscitation

- Follow **DRS CABCD**. See [Traumatic injuries, page 163](#)
- Assume cervical spine injury:
 - manually support the head in a natural, neutral position, limiting angular movement⁸
 - QAS recommend using a soft collar.⁹ Follow local policies or seek MO/NP advice for collar use as needed
- Consult MO/NP urgently if:
 - any altered level of consciousness or concerns of significant head injury
 - open/penetrating head injury
- Assess against [Criteria for early notification of trauma for interfacility transfer \(inside front cover\)](#)

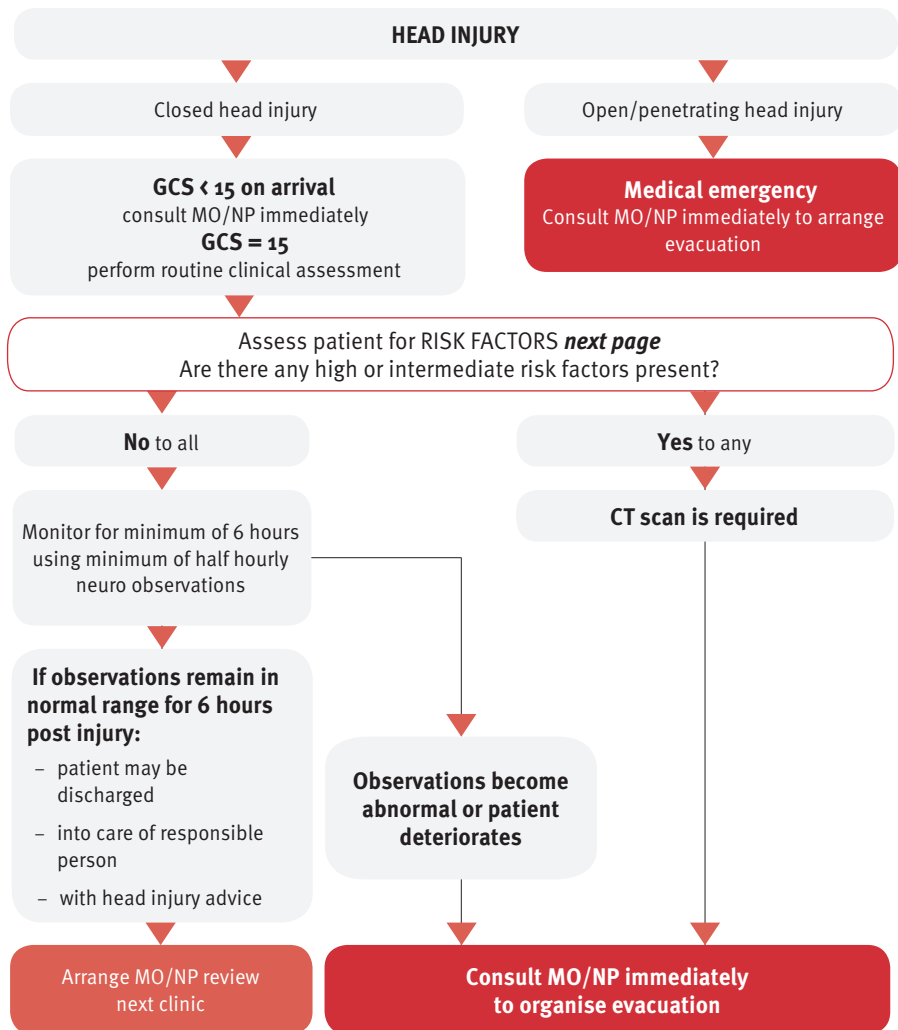
3. Clinical assessment - secondary survey

- Begin secondary survey only after initiating any life saving interventions/management in the primary survey
- Follow **EFGHIJ**. See [Traumatic injuries, page 163](#)
- Ask specifically about:
 - medical history - any previous neurological conditions or signs
 - follow the **Decision making for escalation and CT scanning** flowchart for assessment and classification of severity of head injury

- Recommend use of clinical pathways <https://qheps.health.qld.gov.au/caru/clinical-pathways/head-injury> if Queensland Health, or local pathways if available:
 - *Closed Head Injury Adult clinical pathway*
 - *Head Injury (Children) clinical pathway ≥ 14 years*
- Assess patient for risk factors and need for urgent CT scan:
 - see **Decision making for escalation and CT scanning** flowchart
- Children with closed head injury are assessed as high risk, intermediate, or low risk:
 - assessed as low risk or minor if:¹
 - no loss of consciousness
 - up to one episode of vomiting
 - stable, alert conscious state
 - may have scalp bruising or laceration
 - normal examination otherwise
- If the skin is broken, check tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)

4. Management

- Urgently contact MO/NP if:
 - open/penetrating head injury - will need urgent evacuation
 - if assessed as intermediate or high risk as per the Decision making for escalation and CT scanning flowchart
 - a drop of ≤ 2 in GCS since the last assessment interval
 - if there is a rapid deterioration in GCS of $> 2/15$, and/or if one pupil becomes fixed and dilated, suggestive of expanding intracranial haemorrhage:
 - MO/NP may order IV mannitol 20% or sodium chloride 3%¹⁰
- If GCS ≤ 8 , patient will need intubation and ventilation by MO/NP prior to evacuation:
 - these patients are unable to protect their airway and are at risk of obstruction and aspiration
 - provide airway, breathing and circulation support until MO/NP arrives
- Consult MO/NP:
 - if GCS < 15 (or falling GCS)
- In collaboration with MO/NP manage any:
 - fall in BP - maintain systolic BP $> 90\text{mmHg}$ ^{2,3}
 - alteration in condition
 - compound or basal skull fracture - the MO/NP will order antibiotics. See [Meningitis, page 91](#)
- Keep patient warm - prevent hyperthermia and hypothermia
- Administer analgesia and antiemetic as clinically indicated. See [Acute pain management, page 35](#) and [Nausea and vomiting, page 48](#)
 - consult MO/NP before administration of opioids in head injuries

Decision making for escalation and CT scanning^{4,6}

Head injury 'high risk' factors - adult⁶

Age > 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 ⁷	Multiple co-morbidities or combination of worrying factors
Dangerous mechanism of injury	

Head injury clinical features - child⁴	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 > 5 cm	Tense fontanelle in children < 1 year of age Penetrating injury Suspected depressed skull fracture

If assessed as low risk closed head injury

- Adults:
 - monitor clinical observations including GCS at a minimum of half hourly for 6 hours
 - if clinical observations remain normal the patient may be discharged in the care of a responsible person, with head injury advice sheet
- Children:
 - do hourly clinical observations including:
 - full CEWT score (or other local paediatric Early Warning and Response Tools)
 - GCS
 - pupillary size, equality, and reactivity
 - limb strength
 - pain assessment
 - sedation score⁴
 - observe for up to 6 hours or as clinically indicated
 - the child may be discharged into the care of parent/carer with head injury advice sheet if:
 - no significant persistent symptoms/signs
 - no concerns of non-accidental injury
 - no other clinical concerns and parental/carer concerns⁴
 - tolerating oral fluids¹
- Consider a longer period of observation if anti-emetics have been given¹
- If any signs of deterioration or any other concerns consult MO/NP

Head injury - advice sheet⁵

- Rest quietly for at least 24 hours
- Use 'ice packs' over swollen or painful areas. Wrap ice cubes, or ice pack in a towel first
- Use paracetamol for any headache. Do NOT use aspirin or anti-inflammatory pain reliever e.g. ibuprofen or naproxen which may increase risk of complications
- **Adults** - wake several times during the first night after the injury. Set the alarm. Ensure the patient walks (e.g. to the toilet) to assess their coordination - can they walk and talk
- **Children** - wake every 2 hours for the first 24 hours to check condition and reaction to familiar things
- **DO NOT:**
 - drive for at least 24 hours and only once you can concentrate properly
 - play sports for at least 24 hours
 - drink alcohol or take sleeping pills or recreational drugs for at least 48 hours
 - take sedatives or other medication unless instructed
 - be left alone for 24 hours
- **Return to the clinic immediately if the patient/you:**
 - vomits more than twice
 - have a headache that gets worse
 - 'black out', faint, is drowsy, cannot be woken or is not responsive
 - cannot remember new events, recognise people or places, or has increased confusion
 - acts strangely (has change in behaviour) or is saying things that don't make sense
 - has a seizure (fit) or any jerking of the body or limbs
 - cannot move parts of body or has lack of coordination
 - develops blurred vision or slurred speech
 - has continual fluid or bleeding from the ear or nose
 - carer is concerned

- Give written information: e.g. https://www.health.qld.gov.au/__data/assets/pdf_file/0021/648012/mild-head-injury-advice.pdf or as locally available

5. Follow up

- If patient not evacuated advise to be reviewed the next day and at the next MO/NP clinic

6. Referral/consultation

- Consult MO/NP as above
- Consider referral to occupational therapist for post traumatic amnesia test (PTA)

HMP Spinal injuries - adult/child

Recommend

- Suspect cervical spine (neck) injuries in anyone involved in a motor vehicle or motor bike accident, a dive into shallow water, fall from height, sudden acceleration/deceleration, fall in the elderly, anyone with a head or neck injury, or who has a history of paraesthesia (e.g. 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
- Do not leave patients on rigid spinal boards. Can cause neck, back, shoulder pain and conscious patients may attempt to move around to improve comfort. Paralysed and unconscious patients are at higher risk of pressure necrosis due to lack of pain sensation. Strapping can restrict breathing, and should be loosened if needed¹
- Padded spine board, air mattress or bead filled vacuum mattress may be more comfortable¹

Related topics

[Traumatic injuries, page 163](#)

1. May present with¹

- History of trauma - most common causes are:¹
 - motor vehicle or motor bike accident (occupant, rider or pedestrian)
 - industrial accident i.e. workplace
 - dive or jump into shallow water or being “dumped” in the surf
 - sporting accident e.g. rugby, falling from a horse
 - fall from greater than standing height e.g. ladder, roof
 - fall in the elderly
 - significant blow to head
 - severe penetrating wound e.g. gunshot
- Symptoms and signs depend on location of, and extent of injury. May include:¹
 - pain in injured region
 - tingling, numbness in the limbs and area below the injury
 - weakness or inability to move the limbs (paralysis)
 - nausea

- headache or dizziness
- altered or absent skin sensation
- head or neck in abnormal position
- signs of head injury
- altered conscious state
- breathing difficulties
- shock
- change in muscle tone, either flaccid or stiff
- loss of function in limbs
- loss of bladder or bowel control
- priapism (erection in males)

2. Immediate management - primary survey and resuscitation

- Follow **DRS CABCD**. See [Traumatic injuries, page 163](#)
- Assess against [Criteria for early notification of trauma for interfacility transfer \(inside front cover\)](#)
- Do not move patient unless absolutely necessary or on MO/NP orders and sufficient assistants available to immobilise spine and log roll patient. See **How to log roll** on following page
- Stabilise patient at the scene:
 - lie flat on back on a firm supportive surface
 - maintain cervical spine in-line immobilisation:¹
 - manually support the head in a natural, neutral position, limiting angular movement
 - QAS recommend using a soft collar⁶ - follow local policies or seek MO/NP advice for collar use as needed
 - avoid moving the remainder of the spine²
 - in healthy adults, padding under the head (approx. 2 cm) may optimise neutral position
- Consult MO/NP as soon as possible on completion of primary survey

3. Clinical assessment - secondary survey

- Only begin secondary survey after initiating any life saving interventions/management in the primary survey
- Follow **EFGHIJ**. See [Traumatic injuries, page 163](#)
- Obtain a thorough history of the traumatic incident³
- Check for numbness/sensation and note where the body level numbness or altered sensation starts
- Apply NEXUS Low-Risk Criteria rules to assist in determining if imaging is required

NEXUS Low-Risk Criteria^{3,4}

1	Midline cervical tenderness • Present if pain is elicited on palpation of the posterior cervical midline from the nuchal ridge to the prominence of the first thoracic vertebra, or if pain is reported on palpation of any cervical spinous process
2	Altered mental status • Glasgow Coma Scale ≤ 14 • Disorientation to time, place, person or events • Inability to remember three objects at 5 minutes • Delayed or inappropriate response to external stimuli
3	Focal neurologic deficit • Any patient-reported or examiner-elicited neurologic deficit
4	Evidence of intoxication • Recent history reported by the patient or an observer of intoxication or intoxicating ingestion • Evidence of intoxication on physical examination, such as odour of alcohol, slurred speech, ataxia, dysmetria, or other cerebellar findings • Behaviour consistent with intoxication • Tests of bodily secretions are positive for drugs (including but not limited to alcohol) affecting mental alertness
5	Painful distracting injury • Any condition thought by the clinician to be producing pain sufficient to distract the patient from a cervical spine injury. Examples may include: – any long bone fracture – a significant visceral injury – a large laceration, degloving injury, or crush injury – extensive burns – any other injury producing acute functional impairment
If none of these 5 criteria are present the patient is considered to be at low risk of cervical spine injury. Consult MO/NP for clearance of the cervical spine	

How to log roll^{1,5}

Used to move patient from a supine position onto their side, and then flat again, to examine the back and/or to place or remove a spine board

- Minimum of three, preferably five people are required
- One person takes the lead. They are positioned at the patient's head to provide manual in-line stabilisation to the cervical spine. This person gives instructions to the rest of the team
- Three people (if available) perform the roll:
 - position along the patient's body opposite to the direction that the patient's head is facing
 - one person positioned at the shoulders/chest; one at the hips; and one in control of the legs
 - perform the roll slowly maintaining spinal alignment, especially avoiding flexion and rotation, keeping the patient's nose in line with the umbilicus at all times

4. Management

- Consult MO/NP
- Administer analgesia and antiemetic as clinically indicated. See [Acute pain management, page 35](#) and [Nausea and vomiting, page 48](#)
- Keep nil by mouth
- Keep warm
- Prepare patient for evacuation
- Insert IDC as ordered by MO/NP
- If extended immobilisation, straighten bedding and remove debris from under patient
- Any patient who has **any** midline cervical spine pain or tenderness following injury requires radiological clearance

5. Follow up

- As advised by MO/NP

6. Referral/consultation

- Consult MO/NP with any findings above or if at risk of serious injury because of circumstances

HMP Abdominal injuries - adult/child

Recommend

- Urgently evacuate all patients with hypotension/shock and evidence of abdominal injury to a facility with appropriate surgical capability, as abdominal bleeding may be the cause

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
 - serious injury to abdominal viscera e.g. bowel perforation, bowel infarction
- eFAST 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 distracting injuries or more apparent external and orthopaedic injuries and can be missed¹
- The absence of abdominal pain does not rule out the presence of significant abdominal injury²

Related topics

[Traumatic injuries, page 163](#)
[Fractured pelvis, page 190](#)

[Chest injuries, page 171](#)

1. May present with

- History of isolated abdominal injury secondary to blunt or penetrating trauma, or as part of multiple trauma
- Increased HR, RR, hypotension/shock
- Back or shoulder pain
- Abdominal pain

2. Immediate management - primary survey and resuscitation

- Follow **DRS CABCD**. See [Traumatic injuries, page 163](#)
- Consult MO/NP as soon as possible
- Assess against [Criteria for early notification of trauma for interfacility transfer \(inside front cover\)](#)

3. Clinical assessment - secondary survey

- Only begin secondary survey after initiating any life saving interventions/management in the primary survey
- Follow **EFGHIJ**. See [Traumatic injuries, page 163](#)
- Perform point of care testing for pregnancy for women of reproductive age. Pregnant women with abdominal injuries are at high risk from placental abruption and should have an obstetric assessment as soon as possible
- Perform eFAST ultrasound scan if suitably trained and equipment available

4. Management

- Administer analgesia and antiemetic as clinically indicated. See [Acute pain management, page 35](#) and [Nausea and vomiting, page 48](#)
- Keep nil by mouth
- Keep warm
- MO/NP may advise to pass NG tube if easy and no signs of facial or basal skull fractures. Allow free drainage and aspirate periodically

Blunt or non-penetrating injury

- Consult MO/NP who will advise on any further IV fluids

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 on any further IV fluids and antibiotics, and arrange evacuation
- If not for evacuation the patient may be discharged after a clinically appropriate period of observation in consultation with MO/MP
- 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, or swelling of abdomen

5. Follow up

- Advise patient to be reviewed the next day
 - consult MO/NP if the patient has any symptoms, an increased HR, increased temperature or any

abdominal finding

6. Referral/consultation

- Consult MO/NP with any findings as above or if at high risk of serious injury because of circumstances

Fractures, dislocations and sprains

HMP Simple fracture of limbs - adult/child

Recommend¹

- Always consider non-accidental injury where injury or presentation is inconsistent with history, is unexpected or there is a high index of suspicion with signs and symptoms that may suggest abuse in children, elder abuse or domestic violence. See [Child protection, page 760](#)
- Always examine for fractures and other injuries thoroughly after a fall in the elderly
- Repeatedly monitor pulses and sensation distal to limb fractures, as blood or nerve supply may be damaged by the fracture
- The aim of management is adequate splinting and immobilisation to avoid long term disability

Background¹

- Significant blood loss into tissues can occur with pelvic or long bone fractures
- 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 the overlying skin is broken)

Related topics

[Compound fractures, page 189](#)

[Dislocations, page 194](#)

[Fractured mandible/jaw, page 191](#)

[Fractured pelvis, page 190](#)

[Sprains, page 195](#)

1. May present with¹

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

2. Immediate management¹

- Stop any external haemorrhage by pressure bandaging or direct pressure
- Immobilise the affected area
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- With long bone fractures, insert IV cannula. solution.
- Assess against [Criteria for early notification of trauma for interfacility transfer \(inside front cover\)](#)

3. Clinical assessment¹

- Obtain patient history including circumstances and method of injury +
 - medication history - ask about anticoagulant 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
 - if the limb is out of shape. Compare one side with the other
 - any wounds or swelling
 - colour of the whole limb, especially paleness or blue colour
 - 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
 - if the peripheral pulses are palpable. Is the limb warm
 - range of movement
 - joint function, above and below the injury site - compress gently from end to end - the patient may feel pain
 - 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

4. Management¹

- 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 on all occasions of suspected fracture
- Consult 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** on following page
- Elevate the limb - a sling for arm injuries, on pillows for leg injuries
- If patient requires surgical 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 197](#)
- X-rays (if available):
 - unless being treated at the local facility, the receiving hospital will perform all x-rays
 - only perform x-rays if it will likely change the diagnosis or treatment
 - x-rays of crush or impacted fractures may be difficult to identify on plain films
- Consider sprain (soft tissue) injury if no fracture. See [Sprains, page 195](#)
- After a fall on an outstretched hand, the scaphoid (of wrist) is particularly at risk. Fractures here are not often seen on wrist x-rays, and may not be visible for 7-10 days:
 - after such a fall, any tenderness of 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

- Advise patient that fractures take at least 4-6 weeks to heal
- Provide patient/carer with plaster advice information sheet

Splinting of limb injuries using plaster back slab^{1,2}

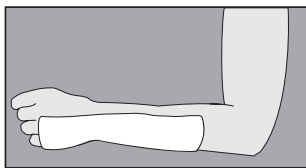
- A back slab is used:
 - as a temporary splint, usually for < 10 days
 - in acute trauma to immobilise an injured part of an arm or leg while also accommodating swelling. Crepe bandage should be tightened when swelling subsides or new splint applied for some soft tissue injuries
- Discuss positioning with MO/NP. Back slabs include:
 - long arm plaster back slabs are for injuries involving the elbow and forearm except for the end near the wrist
 - 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
 - **note:** 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

Materials

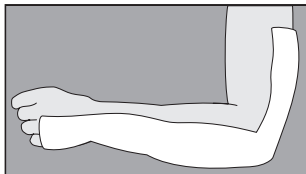
- Plaster of Paris of appropriate width e.g. 7.5 or 10 cm, for short arms/wrists, 15 or 20 cm for long arm/long leg. Plaster must not fully encircle the limb
- Non-compression cotton stockinette e.g. Protouch®
- Undercast cotton padding of appropriate size e.g. Webril®, Velband®
- Crepe bandage
- Sling

Technique

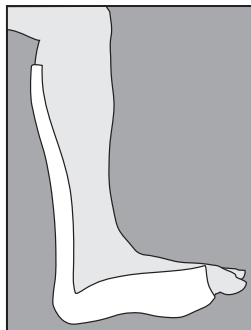
- Ensure rings and jewellery are removed from injured limb
- Measure and fit a length of non-compression cotton stockinette from half way up the middle finger to just below elbow. Width should be 2-3 cm more than the width of the distal forearm
- Wrap cotton padding over top for the full length of the 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 water 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 crepe bandage firmly around plaster back slab. Fold back cotton padding and non-compression cotton stockinette over the end of the plaster back slab
- Place arm in a sling



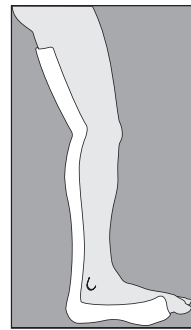
Short arm plaster back slab



Long arm plaster back slab



Short leg plaster back slab



Long leg plaster back slab

Plaster cast instructions for patient

- Plaster does not dry for 24-48 hours, so to prevent breaking during this time do not apply force to plaster
- Keep plaster clean and dry and cover with plastic bag during bath or shower
- Apply arm in a sling for at least 24 hours
- Elevate limb to the level of or above 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

5. Follow up¹

- Advise to be reviewed in 24 hours. Check colour, sensation and pain in limb:
 - if pain has not improved, a complication should be considered - consult MO/NP
- Advise patients with fractures who are not evacuated/hospitalised to see MO/NP within a week

6. Referral/consultation¹

- Consult MO/NP as above
- Stiffness of joints is a common problem with immobilisation in plaster/slings. Refer to physiotherapist where possible

HMP Compound fractures - adult/child

Recommend^{1,2,3}

- Reduce fracture as soon as possible
- Provide antibiotic cover to prevent infection in the bone

Background

- Compound or open fractures are those with direct communication between the fracture and the environment due to traumatic disruption of the intervening soft tissue and skin
- There does not have to be bone visible from the wound to be classified as a compound fracture

Related topics

[Simple fracture of limbs, page 185](#)

[Traumatic injuries, page 163](#)

1. May present with^{1,2,3}

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

2. Immediate management^{1,2,3}

- Stop any external bleeding by external pressure/pressure bandage
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Immobilise the affected area. Apply pelvic binding if required for pelvic fracture. See [Fractured pelvis, page 190](#)
- If pelvis or long bone fractures:
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
 - MO/NP may advise sodium chloride 0.9% or Hartmann's solution
- Assess against [Criteria for early notification of trauma for interfacility transfer \(inside front cover\)](#)

3. Clinical assessment

- Assess as for [Simple fracture of limbs, page 185](#)

4. Management^{1,2,3}

- See [Simple fracture of limbs, page 185](#) for general management of fractures
- Do not suture any wounds
- Clean wound(s) by irrigating copiously with sodium chloride 0.9%
 - cover with a sodium chloride 0.9% soaked dressing
- Check tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)
- Consult MO/NP who will advise:
 - X-ray if in doubt if there is a fracture underlying a wound
 - IV antibiotics (all compound fractures)
 - evacuation to an appropriate facility with surgical capability

5. Follow up

- As per MO/NP advice

6. Referral/consultation

- Consult MO/NP on all occasions

HMP Fractured pelvis - adult/child

Recommend^{1,2,3,4}

- Fractures of the pelvis take a large amount of force, and there are likely to be other internal and external injuries; examine thoroughly
- If unstable pelvic fracture, pelvic binding should be applied as soon as possible

Background

- Patients with unstable pelvic fractures may experience internal bleeding of over 2 L 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 fractures

Related topics

[Simple fracture of limbs, page 185](#)

[Traumatic injuries, page 163](#)

1. May present with^{2,3,4}

- As per [Traumatic injuries, page 163](#)
- History of trauma or 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^{1,2,4}

- Follow **DRS CABCD**. See [Traumatic injuries, page 163](#)
- Give O₂ to maintain SpO₂ > 94%. See [Oxygen delivery, page 64](#)
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status:
 - MO/NP may advise sodium chloride 0.9% or Hartmann's solution
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- If unstable pelvic fracture, wrap sheet or binder around pelvis, tighten and secure sheet e.g. with safety pins, sponge holding forceps. Apply early. This will help with pain on movement, decrease potential for further displacement and may reduce risk of haemorrhage
- Assess against [Criteria for early notification of trauma for interfacility transfer \(inside front cover\)](#)

3. Clinical assessment^{1,2,3,4}

- Obtain complete patient history including circumstances of injury
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - pay particular attention to signs of shock i.e. ↓ BP, ↑ HR, poor capillary refill. See [Shock, page 77](#)
- Perform physical examination:
 - palpate for signs of pelvic instability - tenderness of iliac crests, greater trochanters, symphysis pubis and irregular angulation of legs
 - inspect for blood at urethral opening especially in males
 - if possible collect urine and check for obvious blood and blood on dipstick
 - if experienced, perform a rectal examination if indicated

4. Management^{1,2,3,4}

- Consult MO/NP urgently if fractured pelvis suspected
- If stable pelvic fracture MO/NP may advise:
 - bed rest as pain symptoms dictate
 - attempt walking with aid as soon as comfortable
- If unstable pelvic fracture. MO/NP may advise:
 - x-ray if available
 - evacuation
 - catheterise patient if no bladder injury confirmed
 - apply pelvic binding if not already done

5. Follow up

- As per MO/NP advice

6. Referral/consultation

- Urgent consult with MO/NP as above

HMP Fractured mandible/jaw - adult/child

Recommend^{1,2}

- 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

[Head injuries, page 175](#)

[Trauma to teeth, page 338](#)

1. May present with^{1,2}

- As per [Traumatic injuries, page 163](#)
- History of punch/fight

- Any blow or trauma 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 or do not line up as usual (malocclusion)
- Broken/loose teeth

2. Immediate management

- Assess airway. See [Foreign body airway obstruction \(choking\)](#), page 99

3. Clinical assessment^{1,2}

- 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 is unable to maintain bite on tongue depressor (or similar object) whilst twisted, they are likely to have a fracture
- 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
- Any lacerations or bleeding inside or outside the mouth associated with a fracture should be considered a compound fracture. See [Compound fractures](#), page 189
- Check cervical spine for pain or tenderness. See [Spinal injuries](#), page 180
- Are there avulsed (torn away), displaced or broken tooth/teeth secondary to injury. Never discard tooth/teeth. See [Trauma to teeth](#), page 338

4. Management^{1,2,3}

- Consult MO/NP who will advise:
 - evacuation for surgery
 - diet - either nil to eat or drink, or clear fluids only, depending on severity and urgency of evacuation/surgery
 - antibiotic choice
- Administer analgesia as clinically indicated. See [Acute pain management](#), page 35
- If possible replace permanent teeth/tooth, wash if dirty without touching root. See [Trauma to teeth](#), page 338
- Check tetanus vaccination status and give booster if indicated. See [Tetanus immunisation](#), page 773
- If patient presents days after a history of trauma to jaw AND/OR a confirmed fracture with facial swelling, pain, redness and warmth, the MO/NO may order:
 - benzylpenicillin IV PLUS metronidazole orally OR
 - amoxicillin orally PLUS metronidazole orally

Schedule	4	Benzylpenicillin		Extended authority ATSIHP/IHW/IPAP
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	600 mg	IV	Adult 1.2 g qid Reconstitute the 1.2 g vial with 10 mL of water for injections then dilute with a further 10 mL of water for injections	Until surgical management is commenced. Max. 3 days
	1.2 g 3 g		Child 30 mg/kg qid to a max. 1.2 g/dose qid Dilute the dose to a max concentration of 60 mg/mL with a compatible fluid and infuse over at least 30 min	
Provide Consumer Medicine Information: May cause diarrhoea and nausea				
Note: Rapid IV injection of large doses may cause seizures				
Contraindication: Severe or immediate allergic reaction to a penicillin. Be aware of cross-reactivity between penicillins, carbapenems and cephalosporins				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

3.4.7

3,4,7

Schedule	4	Metronidazole	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg 400 mg	Oral	Adult 400 mg bd	Until surgical management is commenced. Max. 3 days
Oral liquid	200 mg/5 mL		Child > 2 years 10 mg/kg/dose bd to a max. of 400 mg/dose bd	
Provide Consumer Medicine Information: Avoid alcohol while taking and for 24 hours thereafter. Take tablet with food to reduce stomach upset. Take oral liquid 1 hour before food for better absorption. May cause nausea, anorexia, abdominal pain, vomiting, diarrhoea, metallic taste, dizziness or headache				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

3,5

Schedule	4	Amoxicillin		Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP					
RIPRN may proceed					
Form	Strength	Route of administration	Recommended dosage	Duration	
Capsule	250 mg 500 mg	Oral	Adult and child ≥ 12 years 500 mg tds	Until surgical management is commenced. Max. 3 days	
Powder for reconstitution to oral liquid	250 mg/5 mL 500 mg/5 mL		Child < 12 years 15-25 mg/kg/dose tds to a max. 500 mg/dose tds		
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea and candidiasis					
Contraindication: Severe or immediate allergic reaction to a penicillin. Be aware of cross-reactivity between penicillins, carbapenems and cephalosporins					
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102					

3,6

3,6

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
- Advise to be reviewed the 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

HMP Dislocations - adult/child

Recommend^{1,2}

- Realign/reduce dislocation as soon as possible as the limb will become compromised
- Minor dislocations may be realigned locally
- Dislocation is a complete disruption of a joint. It often results from injuries away from the affected joint e.g. elbow dislocation after falling on an outstretched hand

Related topics

[Simple fracture of limbs, page 185](#)

1. May present with

- History of injury
- Pain, swelling and deformity of the joint
- In upper limb dislocations, the patient often presents supporting the limb, unwilling to move the joint

2. Immediate management

- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

3. Clinical assessment^{1,2,3}

- 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^{1,2,3}

- Support the dislocated area using pillows, sling or bandaging if possible
- Consult MO/NP who will advise if dislocation can be realigned locally
- Keep patient nil by mouth until reduction is achieved
- Insert IV cannula
- 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
- After realignment patient's pain will lessen dramatically. This may accentuate sedation and respiratory depression caused by analgesics

5. Follow up

- If realigned locally advise to follow up as per MO/NP instructions
- Dislocations will require full review - refer to next MO/NP clinic

6. Referral/consultation

- Refer to Physiotherapist for dislocation exercise sheets/advice

HMP Sprains/soft tissue injury - adult/child

Recommend

- Distal fibula fractures are the most common ankle fractures in children. They are often misdiagnosed as an ankle sprain or are missed
- Sprain is a partial disruption of a ligament or capsule of a joint

Related topics

[Simple fracture of limbs, page 185](#)

1. May present with^{1,2,3}

- 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 185](#)

4. Management^{1,2,3}

- For mild and moderate sprains:
 - **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)
 - **R** Referral. For severe sprains refer to MO/NP/Physiotherapist
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- 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 Physiotherapist if available
- Avoid HARM (**H**eat, **A**lcohol, **R**unning, **M**assage) for 48 hours

5. Follow up

- For mild/moderate sprains advise to be reviewed in 48 hours and again in one week to check progress. Consult MO/NP if required
- If pain and swelling persist in a patient with a sprain beyond a week then suspect a fracture

6. Referral/consultation

- For all sprains refer to sprain exercise sheets or advice
- For severe sprains refer to MO/NP/Physiotherapist

HMP Compartment syndrome - adult/child

Recommend^{1,2,3}

- 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
 - altered level of consciousness

Background^{1,2,3}

- Compartment syndrome is caused by bleeding or oedema leading to increased pressure in a closed muscle compartment. The syndrome can lead to muscle necrosis, limb amputation, acute renal failure, nerve ischaemia and death
- Compartment syndrome can be caused by crush injuries, fractures, snakebite, electric shock, burns, exercise and hyperthermia
- Most common in the forearm or leg compartments but can also occur in the foot, thigh and gluteal region

Related topics

[Burns \(general\), page 217](#)

[Compound fractures, page 189](#)

[Simple fracture of limbs, page 185](#)

[Traumatic injuries, page 163](#)

1. May present with^{1,2,3}

- Pain disproportionate to injury
- Severe pain on distal movement of limb e.g. great toe
- Crush injury to arm or leg
- Lower limb (tibial) fractures
- Persistent deep ache or burning
- Paraesthesia i.e. numbness, burning sensation, tingling, prickling, itching. Onset within 30-120 min of injury

2. Immediate management^{1,2,3}

- Remove any items encircling the limb e.g. bracelets, socks, clothing, watch band
- Consult MO/NP urgently
- Splint limb without applying any circumferential casts, splints or dressings that may increase compartment pressure
- Rest, ice and elevate the limb
- Insert IV cannula

3. Clinical assessment^{1,2,3}

- See [Simple fracture of limbs, page 185](#)
- Look for any signs of compartment syndrome which may include:
 - muscle compartment feels tense
 - unable to actively extend the great toe
 - severe pain on passive stretching of muscles within the compartment by examiner
 - in the arm, movement of any finger causes severe pain

- peripheral pulses may or may not be palpable
- altered sensation distal to injured area

4. Management

- Consult MO/NP urgently
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Arrange urgent evacuation for surgical release

5. Follow up

- As per MO/NP advice

6. Referral/consultation

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

Acute wounds

HMP 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
- Lidocaine (lignocaine) with adrenaline (epinephrine) should not be used on fingers or toes in patients with, or at risk of, peripheral vascular disease.¹ This includes Aboriginal and Torres Strait Islanders and people with a diagnosis of diabetes
- Never shave/cut eyebrow when repairing wound

Background²

- The aim of wound care is to achieve healing without infection, scarring and deformity
- **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 3-5 days to allow for proper cleaning, usually seen in dirty or complex wounds. Delayed primary closure involves debridement before closure. Any necrotic tissue in a wound will delay its healing
- **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

Related topics

[Bat bite/scratch, page 215](#)
[Burns \(general\), page 217](#)
[Cellulitis, page 401](#)

[Chronic wounds, page 427](#)
[Human \(tooth-knuckle\) and animal bites, page 212](#)
[Water related wounds, page 209](#)

1. May present with³

- Laceration
- Large tissue defect
- Burns
- Secondary to blunt or sharp trauma

2. Immediate management

- Control any major bleeding by applying direct pressure and/or pressure bandaging:
 - consider using a tourniquet in cases of uncontrolled, catastrophic limb haemorrhage and consult MO/NP as soon as possible after applied.⁴ See [Traumatic injuries, page 163](#)
 - suturing the wound or using hair as a tie is very effective at stopping bleeding, especially small scalp wounds
- If blood loss is heavy or continuing or there is hypotension/shock:
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
 - commence sodium chloride 0.9% or Hartmann's solution 10-20 mL/kg
 - MO/NP will advise quantities and rate
 - see [Shock, page 77](#) for further management

3. Clinical assessment³

- Take patient history including:
 - mechanism of injury
 - when did the injury happen
 - type of injury/wound
 - time until presentation (will impact on the management and healing of the wound)
 - where did the injury occur - dirt, oil, water, other environmental hazards
- Does the patient have:
 - peripheral vascular disease
 - diabetes
 - history of smoking
 - history of taking steroid medicines which may affect healing
 - bleeding disorder
- In medication history ask about:
 - aspirin, warfarin/other anticoagulants
 - tetanus vaccination status. See [Tetanus immunisation, page 773](#)
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination

Assess wound

- Site of injury
- Try to determine the direction of entry. This will help track the wound
- 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
- Clean wound thoroughly:
 - use sodium chloride 0.9%. If there is a lot of dirt, grass or contamination, running tap water is very effective
- 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 e.g. knives, bottles, glass, spears, arrows
 - a limb going through glass such as windscreen injuries
- 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
- X-ray may be indicated if:
 - in doubt whether there is a fracture underlying the wound. If fracture, treat as a compound fracture, see [Compound fractures, page 189](#)
 - to help localise a foreign body. Metal, bones and most glass are radio-opaque. However, some glass, wood, grass, plastic or stone may not be. '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 available, consider USS with a small parts probe
- If wound 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 171](#) and/or [Abdominal injury, page 183](#)
- Document findings carefully

4. Management⁵

- If wound tetanus prone, check vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)
- Consult MO/NP if damaged or divided tendons, nerves and vessels, or fracture suspected. Will need evacuation/surgery
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- If indicated, instil local anaesthesia, usually after basic wound cleaning:
 - 1% lidocaine (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% lidocaine (lignocaine) with adrenaline (epinephrine) is useful as the anaesthesia lasts longer and the adrenaline cuts down bleeding. Do not use on fingers and toes of people with or at risk of peripheral vascular disease¹

- If a result of a bat bite, see [Bat bite/scratch, page 215](#)
- If fish hook, see **Removal of small embedded fish hook** in this topic
- For ring removal, see **Removal of a tight ring** in this topic
- If blood under nail, see **Subungual (under the fingernail or toenail) haematoma** in this topic

Antibiotics

- Are not needed for recent clean wounds, especially if cleaned properly
- Should be used for:
 - compound fractures. See [Compound fractures, page 189](#)
 - wounds that have been sustained in sea water, fresh water or mud. See [Water related wounds, page 209](#)
 - bites. See [Human \(tooth-knuckle\) and animal bites, page 212](#)
 - established infection. See [Cellulitis, page 401](#)

Preparation for wound repair³

- Remove rings, watches etc. from the affected limb
- Use a sterile field
- Clean the wound thoroughly (as described above):
 - use sodium chloride 0.9% or tap water if a lot of contamination. Antiseptic can be used for the surrounding skin
- 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

Schedule	4	Lidocaine (lignocaine)	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	1% 50 mg/5 mL	Subcut	Adult and child ≥ 12 years or > 50 kg up to 3 mg/kg to a total max. of 200 mg Child < 12 years up to max. of 3 mg/kg	stat
Provide Consumer Medicine Information: Report any drowsiness, dizziness, blurred vision, vomiting or tremors				
Note: Use the lowest dose that results in effective anaesthesia				
Management of associated emergency: Ensure resuscitation equipment readily available. Consult MO/NP. See Anaphylaxis, page 102				

6,7,8

6,7,8

Schedule	4	Lidocaine (lignocaine) + Adrenaline (epinephrine)	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	Lidocaine (lignocaine) 1% (200 mg/20 mL) + Adrenaline (epinephrine) 1:200,000 (100 microgram/20 mL)	Subcut	Adult and child > 12 years up to 7 mg/kg to a total max. of 200 mg Lidocaine (lignocaine) 1%	stat
Provide Consumer Medicine Information: Report drowsiness, dizziness, blurred vision, vomiting, or tremors, anxiety, pallor, tachycardia, hypertension, sweating or arrhythmias				
Note: Use with caution near terminal arteries in fingers, toes, ears and nose; avoid in Raynaud's phenomenon or peripheral vascular disease. Use the lowest dose that results in effective anaesthesia				
Management of associated emergency: Ensure resuscitation equipment readily available. Consult MO/NP. See Anaphylaxis, page 102				

8,9

Options for wound treatment and closure³

- Do not close wounds that are:
 - over 8-12 hours old. Consult MO/NP
 - dirty, contaminated or infected
 - over compound fractures
 - tooth/knuckle injuries or bites. See [Human \(tooth-knuckle\) and animal bites, page 212](#) and [Bat bite/scratch, page 215](#)
 - marine or have occurred in water e.g. coral cuts, stingray wounds. See [Water related wounds, page 209](#)
- After repairing the wound, elevation will lessen pain, swelling and risk of infection
- 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:**
 - use for larger wounds and areas with high skin tension or mobile parts of body e.g. over joints
 - sutures cause a normal pink foreign body inflammation around the wound. This is lessened with synthetic sutures
 - do not suture a wound that needs a lot of tension to bring it together e.g. where there has been tissue loss. Clean and consult MO/NP
- Skin glue**¹¹ (tissue adhesive) e.g. Dermabond® or Histoacryl®:

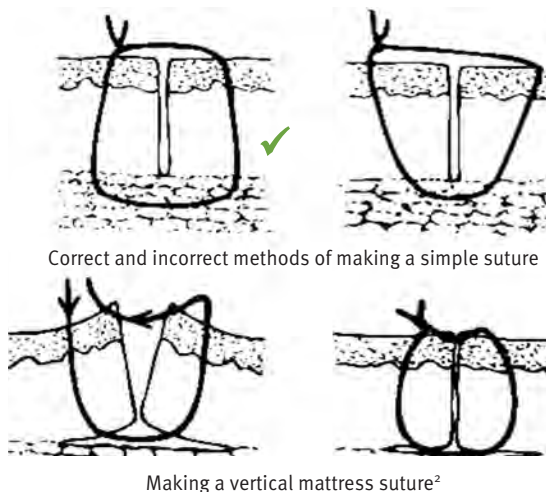
- can be used successfully to close superficial, smooth and clean wounds
- typically used in areas where:
 - 5/0 or 6/0 non-absorbable sutures are used e.g. face, torso and extremities
 - the wound is less than 3 cm in length with edges easily held together
- should not be used in the following:
 - around eyes
 - mucosal surfaces, mucocutaneous junctions, hands, feet, or joints
 - areas where wound is under tension
 - areas of high or prolonged moisture or dense hair
 - in patients who have:
 - peripheral vascular disease
 - diabetes
 - prolonged corticosteroid use
 - a sensitivity to formaldehyde
- see **Application of skin glue** in this topic
- **Staples:**
 - used for rapid closure particularly in extensive wounds. Align wound edges, staple across wound. Not recommended for face, neck, hands or feet. Staple remover needed to extract staples

Suturing¹⁰ see Image 1. Suturing

- 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
- 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 using sodium chloride 0.9%
- 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
- 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 it. Consult MO/NP

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. Consider Steristrips[®] after removal

Image 1. Suturing

Correct and incorrect methods of making a simple suture

Making a vertical mattress suture²

Special sites¹⁰

- Face:
 - only repair 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 in a functional position of minimal flexion (if the finger is in this position, the wound edges will stay together and it will heal)
 - review in 2-3 days

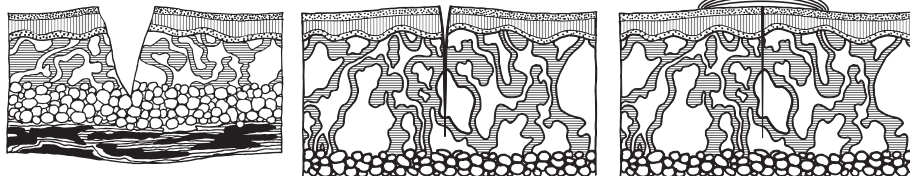
- Finger tips:
 - cuts to the finger tips often leave a flap of skin, which may or may not come off
 - skin flap not lost:
 - reapply the flap over the wound and secure it loosely with Steristrips®
 - cover with a non adherent dressing, and bandage the finger to keep it straight
 - review in 2-3 days. 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 consider x-ray to look for an underlying fracture
- 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 for transport. The amputated part should not get wet or frozen
 - consult MO/NP who will arrange evacuation to an appropriate facility
 - don't forget to send the amputated part with the patient

Application of skin glue. See Image 2. Skin glue

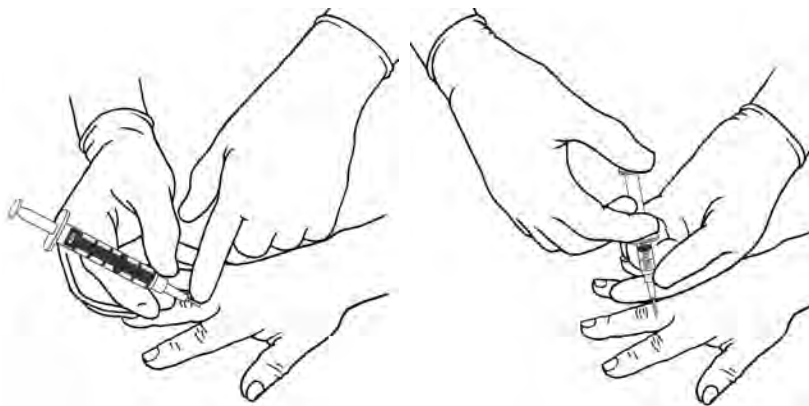
- **Note:** skin glue should never be placed in the wound or subcutaneously as it can cause necrosis or foreign body reaction and tattooing. Avoid contact around eyes. Eye should be padded to avoid any glue dripping in the eye or onto the eye lashes
- Approximate the skin edges (no dead space) and paint the wound line with a small amount of glue
- Topical application of lidocaine (lignocaine) can reduce painful stinging by skin glue in children¹²
- 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 days

Image 2. Skin glue

Clean and dry wound

Ensure edges are
precisely opposedApply glue in multiple thin layers,
allowing time for drying between
each application**Digital nerve block.**¹³ See Image 3. Digital nerve block

- Digital nerves run along each side of the phalanx. By infiltrating lidocaine (lignocaine) around the nerves, the digit is anaesthetised. Thumbs and great toes can be more difficult to anaesthetise
- Technique:
 - use 1% plain lidocaine (lignocaine). Never use lidocaine (lignocaine) with adrenaline (epinephrine)
 - use a sterile field
 - clean the digit with alcohol antiseptic
 - infiltrate the lidocaine (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 lidocaine (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

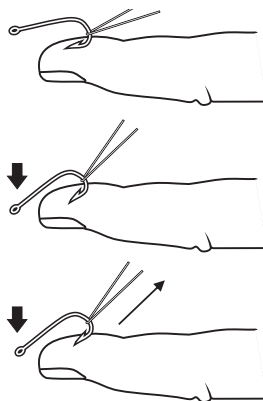
Image 3. Digital nerve block

Removal of small embedded fish hook¹

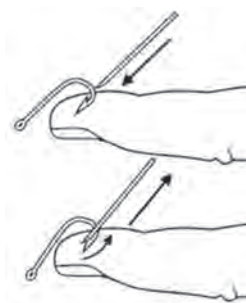
- Large hooks may require surgical intervention. Consult MO/NP
- If ocular involvement consult MO/NP immediately

Method 1

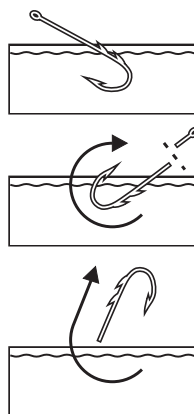
- A length of string or fishing line tied in a loop is looped around the bend in the hook as shown
- A quick, firm tug on the loop of string is necessary to dislodge the hook:
 - in most cases local anaesthesia is unnecessary
 - local anaesthesia may be necessary if the hook is awkwardly placed e.g.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

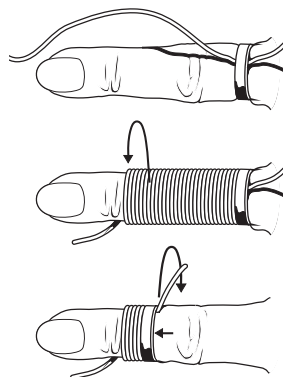
**Method 3**

- 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 out



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

**Subungual (under the fingernail or toenail) haematoma¹**

- 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
- 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

Subungual haematoma - procedure to release blood to relieve pain¹

- 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
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- 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 blood separates the nail from the sensitive bed underneath, so the process will be painless
- The nail should be painted or irrigated with Betadine® daily, then covered with a simple dressing for a few days

5. Follow up

- Advise to have wound reviewed after 1-2 days (or as clinically indicated) and again after 5-7 days

6. Referral/consultation

- Consult MO/NP as above and if any wound is not healing

HMP Water related wounds - adult/child

Background^{1,2}

- Wounds sustained in fresh, brackish (estuaries, mangrove swamps) or salt water, including water in swimming pools and aquariums, are prone to complicated infections by a wide range of organisms
- Wounds can be caused by animals, plants or inanimate objects in water or mud e.g. coral cuts, fish bites, fish spines, boat propellers, or from animals and objects that have been immersed such as shellfish/prawn/crayfish shells, crocodile bites, aquarium objects
- People with cancer and liver disease are more likely to develop an infection. 75-90% of wounds occur in men and this prevalence is not explained by predominance in water related activities

Related topics

[Acute wound\(s\), page 198](#)

[Cellulitis, page 401](#)

[Fish stings, page 310](#)

[Sea urchin injuries, page 314](#)

[Stingray injuries, page 312](#)

[Toxinology \(bites and stings\), page 292](#)

1. May present with^{1,2}

- Cut/laceration(s) from objects in water and mud or that have been in water
- Fish stings
- Foreign body - embedded stingray barb, fish spine (from bullrout, catfish, stonefish), glass
- Fever, cellulitis, abscess, ulceration, necrosis

2. Immediate management^{1,2,3}

- Wound with bleeding, multiple puncture sites, severe pain, redness and swelling may be an envenomation, which may require resuscitation. See [Toxinology \(bites and stings\), page 292](#)

3. Clinical assessment^{2,4}

- See [Acute wound\(s\), page 198](#) for assessment
- Patient history to include:
 - recent travel
 - occupational exposures to water and mud e.g. fishing/aquaculture industry
 - home exposure such as hobbies, surfing, fish ponds, aquariums
 - recent sporting activity on muddy field

4. Management^{1,2}

- 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
 - large wounds
 - patient has liver disease, cancer, diabetes or is immunocompromised³

- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
 - for pain associated with penetrating wounds from water creatures, see [Fish stings, page 310](#), [Stingray injuries, page 312](#) and [Sea urchin injuries, page 314](#) for alternative options
- Collect wound swab for MCS. For technique see [Chronic wounds, page 427](#)
- Thorough wound cleaning and care is essential. See [Acute wound\(s\), page 198](#):
 - irrigate, clean, debride as needed³
 - may require incision of wound and removal of foreign body
 - do not suture, allow to heal by secondary intention
- Check tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)
- For mild infection of coral cuts:
 - treat with antibiotics as per impetigo.¹ See [Impetigo, page 392](#)
- For mild infection of other water related wounds:
 - treat with antibiotics as per cellulitis.¹ See [Cellulitis, page 401](#)
- For more severe infections in water related wounds:
 - consult MO/NP who may order:
 - more than one antibiotic³
 - doxycycline if wound occurred in brackish or salt water
- For a contaminated wound infection and if pathogen is identified:
 - consult MO/NP who may order:
 - ciprofloxacin PLUS clindamycin
 - ± doxycycline
 - other antibiotics as per sensitivities from pathology
- Close supervision is required as infection may spread rapidly. Instruct patient to return if any signs of infection - redness, swelling, increase in pain

Schedule	4	Doxycycline	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	50 mg 100 mg	Oral	Adult 200 mg first dose then 100 mg bd Child > 8 - 18 years 2 mg/kg/dose bd to a max. 100 mg/dose bd	14 days
Provide Consumer Medicine Information: May cause diarrhoea, nausea, vomiting, epigastric burning and photosensitivity. Take with food or milk. Do not lie down for an hour after taking. Do not take iron, calcium, zinc, or antacids within 2 hours of taking. Avoid sun exposure				
Contraindication: Severe or immediate allergic reaction to tetracyclines or treatment with oral retinoids. Children < 8 years of age. After 18 weeks of pregnancy				
Use in pregnancy: Safe in the first 18 weeks of pregnancy				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,8,9

1,8,9

Schedule	4	Ciprofloxacin	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	250 mg 500 mg 750 mg	Oral	Adult and child ≥ 12 years 500 mg bd Child < 12 years 12.5 mg/kg/dose bd up to a max. of 500 mg/dose bd	14 days
Provide Consumer Medicine Information: Take 1 hour before, or 2 hours after meals. Drink plenty of fluids. Avoid dairy products, zinc, iron or calcium supplements within 2 hours of taking dose as they reduce absorption. May cause rash, itch, nausea, vomiting, diarrhoea, abdominal pain, dyspepsia and increase effects of caffeine and alcohol. May cause dizziness or faintness. Avoid driving or operating heavy machinery if affected. Stop taking and notify health professional if any tendon soreness or inflammation, or numbness or tingling in your fingers or toes occurs. Avoid sun exposure				
Note: Can cause severe colitis due to <i>Cl. difficile</i> . If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to to ciprofloxacin or other quinolones				
Pregnancy: Not recommended. Reserve for severe or life-threatening infections				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
1,4,5				

Schedule	4	Clindamycin	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP, RIPRN and RN 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/dose tds	14 days
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, vomiting and abdominal pain. Take with a full glass of water				
Note: Can cause severe colitis due to <i>Cl. difficile</i> There is no oral liquid for children. A 50 mg/mL solution can be made: • dissolve contents of 1 capsule in 2 mL water • draw this solution into a syringe and make the volume up to 3 mL (if necessary) • discard any excess solution so that the correct dose remains in the syringe • mix the dose in juice or soft food to disguise the taste before giving it				
Contraindication: Allergy to clindamycin or lincomycin				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,6,7

5. Follow up¹

- 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
- Ask patient to return for 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

HMP 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
- If there is a damage to bones, joints or tendons then there is a high risk of infection causing osteomyelitis or septic arthritis or amputation
- If there is tendon involvement or bony tenderness consider a fracture to be present and consult MO/NP

Related topics

[Acute wound\(s\), page 198](#)

[Bat bite/scratch, page 215](#)

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 215](#)

2. Immediate management

- Attend to any bleeding. See [Acute wound\(s\), page 198](#)

3. Clinical assessment

- See [Acute wound\(s\), page 198](#) for assessment

4. Management¹

- 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 hours¹
- High risk wounds:
 - consult MO/NP for all 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 patient¹
- 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
- Check tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)
- Collect wound swab for MCS. For technique see [Chronic wounds, page 427](#)
- Thorough wound cleaning is essential. See [Acute wound\(s\), page 198](#)
- 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:
 - amoxicillin + clavulanic acid
 - if lack of adherence is anticipated or delay in commencing oral antibiotics treat with IM procaine benzylpenicillin followed by amoxicillin + clavulanic acid as above
 - if allergic to penicillin, treat with metronidazole plus doxycycline

Schedule**4****Amoxicillin + clavulanic acid****Extended authority**

ATSIHP/IHW/IPAP/RIPRN

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN 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
Powder for reconstitution to oral liquid	125 mg/5 mL + 31.25 mg/5 mL OR 400 mg/5 mL + 57 mg/ 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/dose bd (Calculate dose based on the amoxicillin component)	

Provide Consumer Medicine Information: Take with food. May cause rash, diarrhoea, nausea and candidiasis. Can cause severe colitis due to *Cl. difficile*

Contraindication: Severe or immediate allergic reaction to a penicillin. Be aware of cross-reactivity between penicillins, carbapenems and cephalosporins. Avoid in women with premature rupture of the membranes as there may be an increased risk of neonatal necrotising enterocolitis

Management of associated emergency: Consult MO/NP. See [Anaphylaxis, page 102](#)

1,2,3,4

Schedule	4	Procaine benzylpenicillin (procaine penicillin)	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (pre-filled syringe)	1.5 g/3.4 mL	IM	Adult 1.5 g	stat
			Child 50 mg/kg to a max. of 1.5 g	
Provide Consumer Medicine Information: May cause diarrhoea, nausea and pain at injection site				
Note: Stop injection immediately if patient shows signs of severe pain. See Administration tips for benzathine benzylpenicillin, page 787				
Contraindication: Severe or immediate allergic reaction to a penicillin. Be aware of cross-reactivity between penicillins, carbapenems and cephalosporins				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,5,6

1,5,6

Schedule	4	Metronidazole	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg 400 mg	Oral	Adult 400 mg bd	5 days
Oral liquid	200 mg/5 mL		Child > 1 month 10 mg/kg/dose bd to a max. of 400 mg/dose bd	
Provide Consumer Medicine Information: Avoid alcohol while taking and for 24 hours thereafter. Take tablet with food to reduce stomach upset. Take oral liquid 1 hour before food for better absorption. May cause nausea, anorexia, abdominal pain, vomiting, diarrhoea, metallic taste, dizziness or headache				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,7,8

1,7,8

Schedule	4	Doxycycline	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	50 mg 100 mg	Oral	Adult 200 mg first dose then 100 mg daily Child > 8 - 18 years 4 mg/kg (to max. 200 mg) first dose then 2 mg/kg daily to a max. 100 mg daily	5 days
Provide Consumer Medicine Information: May cause diarrhoea, nausea, vomiting, epigastric burning and photosensitivity. Take with food or milk. Do not lie down for an hour after taking. Do not take iron, calcium, zinc, or antacids within 2 hours of taking. Avoid sun exposure				
Contraindication: Severe or immediate allergic reaction to tetracyclines or treatment with oral retinoids. Children < 8 years of age. After 18 weeks of pregnancy				
Use in pregnancy: Safe in the first 18 weeks of pregnancy				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
1,9,10				

1,9,10

5. Follow up

- Advise to 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 bites that are not healing
- Consider referral to Physiotherapist for hand therapy

HMP Bat bite/scratch - adult/child

AUSTRALIAN BAT LYSSAVIRUS AND OTHER RABIES VIRUS EXPOSURES/INFECTION

Recommend

- 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 requires an urgent medical response

Background

- '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 indistinguishable¹
- 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
- Australian Bat Lyssavirus has an incubation period of 20 days to 27 months²

1. May present with

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

2. Immediate management¹

- 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 available

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
- 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 urgently
- 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 regimen 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: <https://immunisationhandbook.health.gov.au/>
- Do not suture wound
- Check tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)

5. Follow up

- See Referral/consultation

6. Referral/consultation

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

HMP Burns (general) - adult/child

Recommend^{1,2}

- Always consider non-accidental injury where presentation is inconsistent with history, is unexpected, or signs and symptoms may suggest abuse in children, elder abuse or domestic violence. See [Child protection, page 760](#)
- Burns with no splash marks and with defined lines around perineum, feet or hands in children may indicate non-accidental injury
- Keep the patient with major burns warm with space blanket, especially children
- Use cool running tap water (never ice or iced water) for 20 minutes to stop burning, effective up to 3 hours following the burn
- 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 change to an antimicrobial dressing
- For immediate assistance with burns:
 - in North Queensland, for children email photos of burns to NQBurns@health.qld.gov.au
 - in Queensland, for adults contact Royal Brisbane and Women's Hospital switchboard ☎07 3646 8111 and ask for Registrar on call and email burns photos to burns@rbwh.com.au
 - in New South Wales ☎02 9767 5000 and page the Burns Registrar who will provide further direction
 - in Victoria contact the Adult Burns Unit at the Alfred Hospital on ☎03 0976 2000 who will provide further direction

Related topics

[Electrocution/electric shock, page 149](#)
[Chemical burns, page 225](#)

[Major burns, page 222](#)
[Minor burns, page 224](#)

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 for 20 min if within 3 hours of burn

Administer analgesia as clinically indicated

Assess total body surface area burnt

See Assessment of % total body surface area (TBSA) - 'Rule of nines'

Do the patient's burns meet referral criteria³

• 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

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
- Queensland Children's Hospital Brisbane
☎ 07 3068 1111

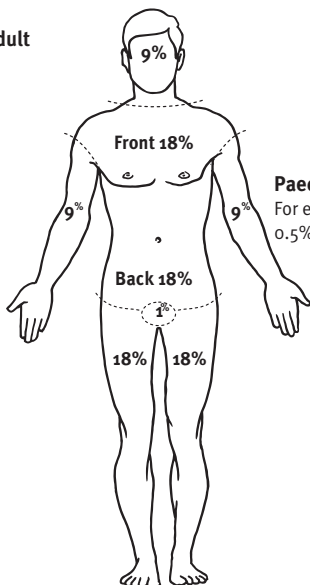
No

Minor burn:

- Assess burn wound
- Apply appropriate dressing
- Arrange follow up dressing and review
- Give analgesia as required

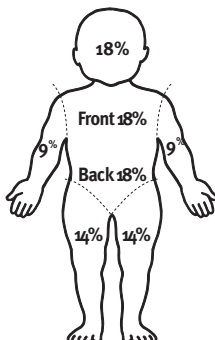
Assessment of % total body surface area (TBSA) - 'Rule of nines'¹

Adult



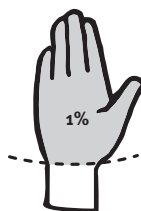
Paediatric

For every year of life after 12 months take 1% from the head and add 0.5% 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)	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)	Epidermis and upper dermis, most adnexal structures intact	Pink	Hyperaemic	Painful ++ hypersensitive	Yes (hours)	Within 2-3 weeks by re-epithelialisation from epidermal elements in dermis, minimal scarring
Mid - deep dermal burn (mid - deep partial thickness)	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 2-3 weeks high risk of hypertrophic scarring
Full thickness	Epidermis, dermis and cell adnexal structures destroyed	White/ charred	Nil	Nil	No blistering (epidermis destroyed)	No healing granulation and wound contraction leads to chronic ulceration

Burns dressings⁴

Type of dressing	Product/what	Function/why	Indication/when	Application/how	Note/precaution
Antimicrobial/antiseptic	Silver sulfadiazine 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 with caution in children/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 • Do not use where compliance is a concern
	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 dressings ⁴					
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 sulfadiazine 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 sulfadiazine - Cut Bactigras® to size of wound with clean scissors. - Place Bactigras® on wound. - Smear Silver sulfadiazine cream over the top of the Bactigras® - Cover with melolin and heavy crepe bandage. - Bactigras® and Silver sulfadiazine cream are changed daily	Do not apply coarse weave Vaseline gauze directly to an open wound as it may stick to wound

HMP Major burns - adult/child

1. May present with^{1,2,3}

- 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^{1,2,3}

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- **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. See [Traumatic injuries, page 163](#)
- 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 SpO₂ > 94%. See [Oxygen delivery, page 64](#)
- 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 urgently
 - consider intubation early as swelling may occur and compromise airway
- If cervical spine cleared, raise head of bed to reduce swelling
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- 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 burns
- Consult MO/NP as soon as possible as patient may require intubation and fluid resuscitation¹
- Insert 2 x IV cannula. Use the largest possible gauge given age and vascular status, through unburnt skin if possible but if necessary through a burnt area:
 - if IV access is unable to be established use intraosseous infusion. See [Intraosseous infusion, page 69](#)

3. Clinical assessment^{1,2,3}

- 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 Q-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. Do not count areas that are only erythematous (red) without blisters or loss of skin. See [Burns \(general\)](#), page 217
- 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)
- Carefully inspect the mouth, nose and auscultate the chest for air entry and added sounds to determine if respiratory tract burns
- If able to, photograph burn wounds and send by email once discussed with relevant MO/NP
- Burns are tetanus prone wounds. Check tetanus vaccination status and give booster if indicated. See [Tetanus immunisation](#), page 773

4. Management^{1,2,3}

- Consult MO/NP who will arrange retrieval
- Fluid resuscitation in patients with 10-15% burns and above:
 - commence 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: $3\text{-}4 \text{ mL} \times \text{weight (kg)} \times \% \text{ TBSA}$, given in first 24 hours (over and above maintenance fluids for children)
 - 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
 - MO/NP may request that the patient be catheterised
 - measure urine output hourly
- 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
 - antibiotics are not indicated for clean burns unless there is evidence of cellulitis or gross contamination

5. Follow up

- Transfer to Burns Unit
- Speech Pathologist is required for ongoing management of patients with respiratory burns
- Physiotherapy support is required to encourage exercise and full range of movement of burned body area. Physiotherapy exercise sheets available at: <https://metronorth.health.qld.gov.au/rbwh/healthcare-services/burns>

6. Referral/consultation

- Consult MO/NP as above

HMP Minor burns - adult/child

1. May present with^{1,2}

- Epidermal burns - painful, skin intact, red - sun, flash, minor scald
- Superficial to mid dermal burns - blistered, painful, pale pink/red, raw, brisk capillary return - scald, minor flame contact
- **Note:** the depth of a partial thickness burn may take up to 7-10 days to declare itself as superficial or deep

2. Immediate management^{1,2}

- Cool with running water for at least 20 minutes within the first 3 hours of injury
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

3. Clinical assessment

- See [Burns \(general\), page 217](#) and [Major burns, page 222](#)

4. Management^{2,3}

- Clean with sodium chloride 0.9% or clean water and mild soap
- Remove all foreign matter, loose and non viable skin and tissue
- Debride blisters if > 2.5 cm or over joints
- For superficial or mid-dermal burns use:
 - silver sulfadiazine cream based dressing where wound care adherence is a concern OR
 - an antimicrobial/antiseptic based dressing e.g Mepilex Ag® or Acticoat® (if dressing can be kept moist as per directions)
- Switch to a simple low adhesive paraffin dressing once the risk of infection is reduced e.g. Xeroform® or Bactigras®
- See [Burns \(general\), page 217](#)

Schedule	4	Silver sulfadiazine	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Cream	1%	Topical	Adult and child > 2 month Apply a 3-5 mm thick layer	3 days max. after burn
Provide Consumer Medicine Information: May cause burning, itch, rash. Avoid contact with eyes				
Note: Discard tube 7 days after opening				
Contraindication: Premature infants, babies < 2 months, or in last month of pregnancy				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

4,5

4,5

5. Follow up

- Advise patient to have wounds reviewed depending on the appropriate regime for the dressing used
- If patient develops a fever, wound increases in pain, redness, swelling and purulent exudate, collect wound swab for MCS. See [Chronic wounds, page 427](#) for technique. Consult MO/NP
- Advise to see next MO/NP clinic for any burns not healed in 10 days

6. Referral/consultation

- Consult MO/NP as above

HMP Chemical burns - adult/child

Recommend¹

- Irrigate with copious amounts of water
- 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: 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 \(general\), page 217](#)
[Major burns, page 222](#)

[Minor burns, page 224](#)

1. May present with²

- History of exposure to chemical agent
- Visible burns
- Pain may be extreme and out of proportion to burn appearance due to deeper tissue toxicity
- Hypotension/shock
- Cardiac arrest may follow absorption of hydrofluoric acid by the skin (with little or no skin changes) from as little as a 2% body surface area burn with concentrated 70% hydrofluoric acid solution (due to low serum calcium, low serum magnesium or high serum potassium)

2. Immediate management¹

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Irrigate with copious amounts of water
- Any dry chemical e.g. cement or lime should be brushed away and contaminated clothing removed before irrigating with copious amounts of water

- Use PPE i.e. gloves, plastic apron and goggles to prevent contact with chemical
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

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 [Burns \(general\), page 217](#), [Major burns, page 222](#) and [Minor burns, page 224](#)

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 burns²

- 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. Maintain PPE standards
- Weak acid that penetrates tissues very well and binds to calcium and magnesium
- Covering the burn with gauze soaked in calcium gluconate 2.2 mmol in 10 mL solution will neutralise the acid. Alternatively combine 10 mL of calcium gluconate 2.2 mmol in 10 mL solution with 30 mL of water soluble gel e.g. KY® jelly and apply
- Calcium chloride solution should not be used as it may cause tissue necrosis
- If point of care testing available, check potassium, calcium and magnesium
- All patients should be initially observed for 6 hours after exposure. Asymptomatic patients with a normal serum calcium concentration can be discharged
- Contact Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Bitumen burns^{3,4}

- Irrigate with copious amounts of water
- Do not remove bitumen. Cold bitumen will form a waterproof, sterile layer which will prevent the burn from drying out
- Seek specialist advice before actively removing bitumen
- Extensive and full thickness bitumen burns - refer to a Burns Unit. Active removal of bitumen 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
- Specialist burn unit may advise removal of small bitumen areas using a hydrophobic solvent e.g. Orange oil (De-Solv-It®), paraffin, or other oil

5. Follow up

- See [Major burns, page 222](#) and [Minor burns, page 224](#)

6. Referral/consultation

- Consult MO/NP as above

Environmental emergencies

HMP Decompression illness (DCI/bends) - adult/child

Recommend¹

- Always keep patient flat if decompression illness (DCI) suspected
- 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
- It is important that any patient evacuated is transported at an altitude of < 300 metres/1,000 ft (road or helicopter) or by an aircraft capable of pressurising the cabin to the equivalent of sea level³
- Recompression (in a hyperbaric chamber) is the universally accepted standard for the treatment of DCI²

Background¹

- DCI is caused by nitrogen bubble formation in the blood or tissues due to the changes in pressure while diving
- Early onset of symptoms or altered level of consciousness indicates serious decompression illness
- Aspirin², glucocorticoids and lidocaine (lignocaine)³ are controversial and should only be ordered by a Hyperbaric Consultant on specialist advice

Related topics

[Drowning/submersion, page 128](#)

[Traumatic rupture of the eardrum, page 728](#)

1. May present with⁴

- 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 disturbances

2. Immediate management⁴

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- 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 128](#) and/or [Traumatic injuries, page 163](#)
- **Lie patient flat.**⁴ 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
- Give high flow 100% O₂ and continue until patient reaches hyperbaric chamber or ordered by MO/NP. See [Oxygen delivery, page 64](#)
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- If required, give IV sodium chloride 0.9% at least 10-20 mL/kg over 30 minutes on MO/NP instruction. Avoid using solutions containing glucose³
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Consult MO/NP urgently

3. Clinical assessment^{3,4}

- Obtain rapid patient history
- Recent dive history: number over recent days, duration, bottom time (the time from beginning descent to beginning direct ascent), depth, decompression stops, speed of ascent, date and time of dive(s), surface interval between dives, time interval between completing the dive and onset of symptoms
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
- Examine the nervous system including mini-mental state examination to assess cognitive function. Available from: <https://qheps.health.qld.gov.au/mentalhealth>

4. Management³

- 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, correct hypothermia if present.³ See [Hypothermia, page 229](#)
- Oral clear fluids as advised by MO/NP, if no altered level of consciousness
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
 - nitrous oxide/O₂ mix (Entonox[®]) must NOT be used for DCI
- Administer antiemetic as clinically indicated. See [Nausea and vomiting, page 48](#)
- Indwelling catheter (IDC) if required
- If seizure occurs see [Fits/convulsions/seizures, page 109](#) for medication

5. Follow up

- All patients with symptoms after SCUBA diving should see a 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 728](#)

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
- Hyperbaric Medicine Unit, The Townsville Hospital ☎ 07 4433 2080 or 07 4433 2095 or after hours on 07 4433 1111

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

Background¹

- 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
- Observe for hypotension (resulting from reflex vasodilation during the warming process)
- 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

[Drowning/submersion, page 128](#)
[Traumatic injuries, page 163](#)

[Toxicology \(poisoning and overdose\), page 259](#)
[Unconscious/altered level of consciousness, page 73](#)

1. May present with^{1,2,3}

- The clinical condition of the patient is more important than the measured temperature when considering hypothermia⁴
- Mild hypothermia - rectal temperature 32-35°C:
 - tachycardia, tachypnoea
 - environmental exposure - wet, windy
 - patient - shivering, pale, skin cool to touch
 - impaired coordination
 - slurred speech
 - confused or apathetic
- Moderate to severe hypothermia - rectal temperature 29-32°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 $< 29^{\circ}\text{C}$:
 - cardiac arrhythmias
 - severe hypotension
 - cardiac arrest
 - fixed dilated pupils
 - patient appears dead
 - weak slow pulse
 - loss of reflexes

2. Immediate management^{1,3,4}

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Remove from cold environment, wet clothing (if there is a dry blanket or warm cover available), contact with cold surfaces, windy environment
- Dry patient if wet
- Apply insulation between body and the environment e.g. blanket, space blanket
- Provide head covering

3. Clinical assessment²

- 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 Q-ADDS/CEWT score or other local Early Warning and Response Tools) + rectal temperature if rectal probe available:
 - ECG and ongoing monitoring
 - BGL
- Bloods for UE
- Perform physical examination:
 - is skin cold, patient shivering
 - examine for injuries and signs of infection, malnutrition, pressure areas

4. Management^{1,2}

- Consult MO/NP
- If conscious and tolerated, give warm caloric oral fluids (not alcohol)
- External warming:
 - passive (rewarming rate $0.5\text{--}2^{\circ}\text{C}/\text{hour}$ achieved):
 - 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 warming for moderate to severe hypothermia (rewarming $2^{\circ}\text{C}/\text{hour}$ achieved):
 - use heat sources such as Bair Hugger[®] or Warm Touch[®] blankets where available
 - mild hypothermia requires passive warming with blankets, head covering, space blanket⁴
- Aim to warm $0.5\text{--}2^{\circ}\text{C}/\text{hour}^2$

- MO/NP may order glucose 10% IV commenced at 100 mL/hour (3-5 mL/kg/hour for children) through large peripheral vein - aim for BGL between 5.5-11 mmol/L¹
- In severe hypothermia, admission to a high dependency unit is necessary^{1,2}

5. Follow up

- Consult with MO/NP prior to discharge, despite temperature

6. Referral/consultation

- Consult MO/NP as above

HMP Heat exhaustion/heat stroke/hyperthermia - adult/child

Recommend¹

- Immediate management for heat stroke. True heat stroke is a medical emergency and multi-organ failure is common
- 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 develop. Fluids should not be withheld

Background

- Normal ranges of temperature - adult:
 - oral $36.8 \pm 0.7^{\circ}\text{C}$
 - axilla generally $0.5\text{--}1.0^{\circ}\text{C}$ lower
 - rectal generally $0.5\text{--}1.0^{\circ}\text{C}$ higher
- **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)

Related topics

[Fits/convulsions/seizures, page 109](#)
[Hypoglycaemia, page 115](#)

[Toxicology \(poisoning and overdose\), page 259](#)
[Unconscious/altered level of consciousness, page 73](#)

1. May present with^{2,3}

Heat exhaustion	Heat stroke
• Temperature typically $< 40^{\circ}\text{C}$ • Headache, nausea or vomiting • Collapse • Postural dizziness • Pale cool/moist skin • Muscle cramps • Profuse sweating	• Core temperature of $\geq 40^{\circ}\text{C}$ • Confused, drowsy, seizures, altered consciousness, altered neurological signs • 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^{1,4}

Heat stroke - core temperature of $\geq 40^{\circ}\text{C}$

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Rapidly reduce core temperature:^{1,3,4}
 - place patient in a 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. $\text{SpO}_2 > 94\%$
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- Connect to cardiac monitor
- Control shivering - can cause an increase in core temperature:
 - treat by covering patient with a sheet until it stops^{1,3,4}
 - midazolam IV (0.01 mg/kg for adult and child).³ **Note:** this is a small dose of only 0.5-1 mg for an adult
- Check BGL - if $< 3 \text{ mmol/L}$. See [Hypoglycaemia, page 115](#)
- Insert indwelling catheter

Schedule	4	Midazolam	Extended authority RIPRN	
RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	5 mg/5 mL	IV	Adult and child 0.01 mg/kg	stat MO/NP may order further doses at 5 minutely intervals until shivering is suppressed
Provide Consumer Medicine Information: May cause drowsiness or respiratory depression				
Note: Caution calculating and measuring low dose. Monitor for sedation and respiratory depression				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

3,5,6

3. Clinical assessment^{1,5}

- 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)
 - BGL
 - skin - moist and cool or hot and dry

- observe colour of urine and urinalysis for blood and/or myoglobin. If positive could be red blood cells (bleeding) or rhabdomyolysis (muscle breakdown)
- Perform physical examination
- Perform point of care testing for UEC if possible, take blood for LFT⁴
- Perform ECG and monitor

4. Management^{2,3}

Heat exhaustion - Temperature $< 40^{\circ}\text{C}$

- Remove patient from hot environment/trigger
- Remove excess clothing
- Lie in supine position, ideally with legs elevated
- Specific cooling is not required
- Give oral fluids e.g. water or Gastrolyte®/Hydralyte® if available, unless vomiting is present
- MO/NP may order IV fluids if dehydrated,⁴ but rarely needed
- Monitor temperature
- Consult MO/NP

Heat stroke - Core temperature of $\geq 40^{\circ}\text{C}$

- 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^{1,5}
- Consult with MO/NP prior to discharge, despite temperature
- Give patient education on prevention of heat-related illness

5. Follow up

- As per MO/NP advice

6. Referral/consultation

- Consult MO/NP as above

Ears, nose and throat (ENT) emergencies

HMP 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 < 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 151](#)

Related topics

[Head injuries, page 175](#)

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 54](#)
- 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
- If blood loss is heavy or continuing, or there is increased HR or hypotension/shock
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
 - commence IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate. See [Shock, page 77](#)

3. Clinical assessment

- Obtain complete patient history - include past episodes of epistaxis, history of upper respiratory tract infection, history of bleeding disorders. 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 antiplatelets and/or anticoagulants
- Perform standard clinical observations (full Q-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

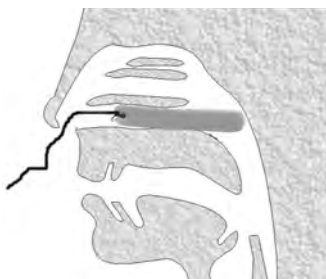
- Consult MO/NP for:
 - all epistaxis post surgery
 - patients with bleeding disorders e.g. haemophilia, von Willebrand's disease
 - bleeding does not stop with simple measures
- If bleeding continues or you suspect blood is coming from the posterior part of the nose, consult MO/NP who will likely advise posterior nasal packing:
 - patients should only be discharged with nasal packing following advice from the MO/NP
 - if discharged with nasal packing, MO/NP will order a penicillin or first-generation cephalosporin to prevent sinusitis
 - remove anterior pack next day. If bleeding recurs, consult MO/NP and replace with fresh packing
- When bleeding has stopped instruct the patient not to sniff, blow or pick their nose for 10 days¹
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Advise patients to avoid using aspirin, aspirin-containing products, and NSAID for analgesia. Consult MO/NP if on these medicines for cardiac disease or TIA
- Evacuation/hospitalisation is necessary if the bleeding does not stop

Anterior nasal packing

- A nasal tampon may be used. Always wear gloves, mask and goggles
- Consult MO/NP before proceeding to insert nasal tampon. Lidocaine (lignocaine) + phenylephrine spray may be used to anaesthetise the nasal cavity

Nasal tampon

- Merocel[®] nasal tampons are the easiest to use.³ However a Kaltostat[®] pack can also be used



- Apply lubricant jelly to the nares to facilitate placement. Do not apply to tampon as it will cause the tampon to expand
- 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 removing³
- Complications include septal haematomas 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. Lidocaine (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. A Rapid Rhino[®] inflatable tamponade is an alternative to a Foley catheter if available
- 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

Schedule	2	Lidocaine (lignocaine) + phenylephrine	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Spray	Lidocaine (lignocaine) 5% + phenylephrine 0.5%	Intranasal	Adult and child ≥ 12 years up to a max. 5 sprays/nostril Child ≥ 2 years 2-4 years 1 spray/nostril 4-8 years 2 sprays/nostril 8-12 years 3 sprays/nostril	stat
Provide Consumer Medicine Information: Numbness of tongue or mouth; risk of trauma from hot drinks or biting. Do not eat or drink for two hours after. Bitter taste for 1-2 minutes				
Notes: Use a new nozzle attachment for each patient.				
Contraindication: Pregnancy and children < 2 years				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

2

2

5. Follow up

- Advise to be reviewed the next day or as clinically indicated
- Advise patients to avoid alcohol and hot drinks until review
- Advise patients to avoid aspirin, aspirin-containing products and NSAID. If patient is on regular anticoagulation and/or antiplatelet therapy consult MO/NP
- Advise to see MO/NP at next clinic 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

HMP Acute abdominal pain - adult/child

Recommend

- Consider ectopic pregnancy in all women of child bearing age who present with abdominal pain and/or vaginal bleeding¹
- Consider testicular torsion in pre-pubescent boys (8-12 years) and in post-pubescent boys (>12 years)²
- Patients with abdominal pain should be given adequate analgesia. Adequate analgesia can aid diagnosis and does not conceal signs of acute abdomen³

Background

- It is not necessary for the RN/IHW/ATSIHP 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

Related topics

[Acute retention of urine - adult, page 256](#)

[APSGN, page 700](#)

[Bowel obstruction, page 252](#)

[Ectopic pregnancy, page 511](#)

[Low abdominal pain in female, page 635](#)

[Renal colic, page 254](#)

[Testicular/scrotal pain, page 257](#)

[Upper gastrointestinal bleeding, page 249](#)

1. May present with⁴

- Abdominal pain
- No appetite, nausea, vomiting
- Can't pass wind, constipation
- Vomiting blood (haematemesis) or passing blood or tar-like (melaena) bowel motions. See [Upper gastrointestinal bleeding, page 249](#) and [Rectal bleeding, page 251](#)
- Fever, sweats, rigors
- Jaundice
- Abdominal wall pain/lump
- Scrotal pain. See [Testicular/scrotal pain, page 257](#)
- Abdominal distension or mass
- Inability to pass urine
- Vaginal bleeding
- Increased HR
- Hypotension/shock

2. Immediate management

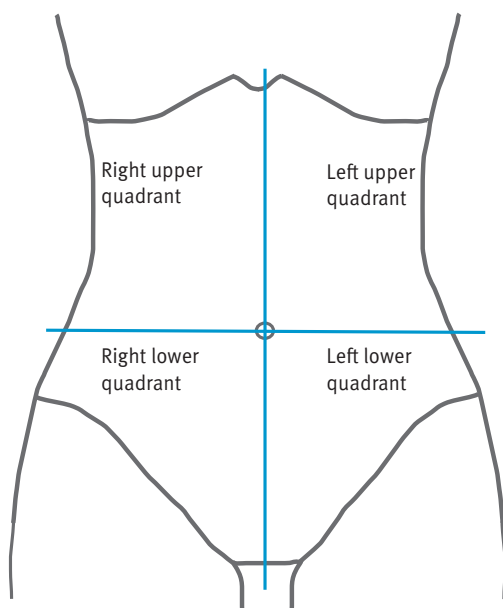
- Perform rapid clinical assessment
- If hypotension/shock:
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status. See [Shock, page 77](#)
 - commence IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate
 - consult MO/NP urgently who will advise further management and arrange evacuation

- Give nil to eat or drink

3. Clinical assessment

- If severe acute abdominal pain, assessment may be easier after analgesia is given
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- 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 Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - urinalysis
 - perform point of care testing for pregnancy for women of reproductive age. If positive see [Vaginal bleeding in early pregnancy, page 513](#) and consider possibility of tubal/ectopic pregnancy. See [Ectopic pregnancy, page 511](#)
 - BGL
- Assessment of the pain:⁵
 - check pain scale (0-10), how severe is the pain
 - where is the pain. Does it radiate, if so, where to, e.g. 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:
 - no appetite, nausea, vomiting
 - last bowel movement, any blood observed or black and tar-like stools (melaena)
 - diarrhoea, constipation
 - fever, sweating, rigors
 - blood, cloudy or offensive urine, burning or pain on passing urine
 - jaundice
 - arthralgia
 - recent weight loss
- Perform physical examination:
 - inspect abdomen for:
 - distension
 - symmetry
 - scars
 - colour and pigmentation
 - inspect the:
 - hernial areas
 - scrotum in a male
 - auscultate (listen with stethoscope):
 - for bowel sounds. Absence or faint tinkling suggests bowel obstruction. See [Bowel obstruction, page 252](#)

- to the chest for air entry and added sounds (wheezes and crackles). Pneumonia and heart attack can present with abdominal pain
- percuss (tap):
 - all four quadrants (right lower quadrant, right upper quadrant, left upper quadrant and then left lower quadrant)
 - is there dullness over liver, stomach, intestines, spleen, bladder.
 - ask the patient to sit up if possible and check kidney area
- palpate:
 - gently commencing at a site far removed from the indicated site of pain
 - where is the maximal tenderness
 - any:
 - guarding
 - masses
 - rebound tenderness
 - 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. See [Upper gastrointestinal bleeding, page 249](#)



Causes of acute abdominal pain⁴

Right hypochondriac

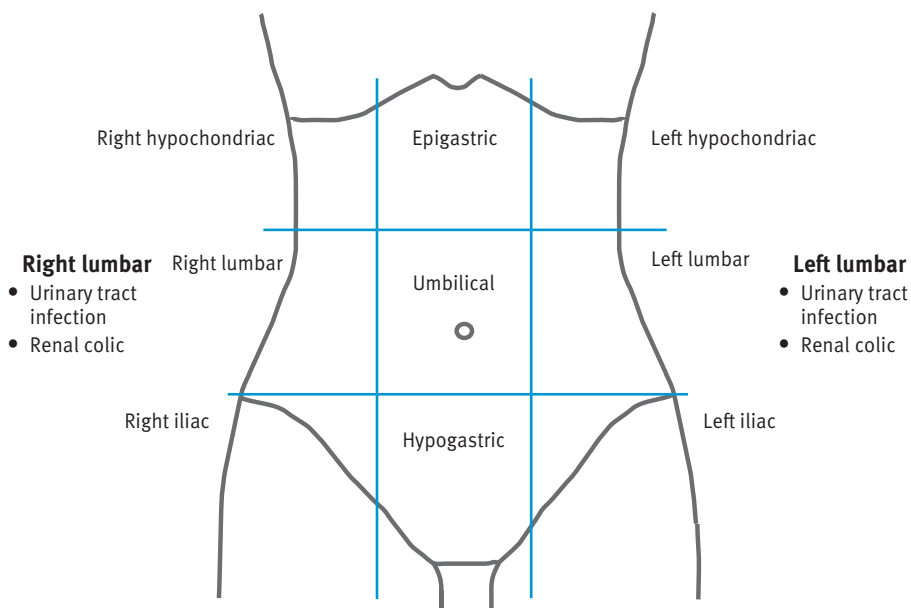
- Gall bladder - biliary colic or cholecystitis
- Hepatitis - alcoholic or infective
- Pneumonia
- Liver abscess/tumour - rare

Epigastric

- Gastritis or gastric/duodenal ulcer
- Pancreatitis
- Heart attack
- Ruptured aortic aneurysm

Left hypochondriac

- Pneumonia
- Pancreatitis
- Ruptured spleen



Right 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

Left iliac

- Diverticulitis
- Tubal/ectopic pregnancy
- Ovarian cyst
- PID
- Irreducible or strangulated hernia
- Testicular torsion

Hypogastric

- Urinary tract infection
- Large bowel obstruction
- Acute retention of urine
- Uterine fibroid complication
- PID
- Tubal/ectopic pregnancy
- 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 2 x IV cannula - use the largest possible gauge given age and vascular status
 - consult MO/NP urgently
 - MO/NP will advise further management and arrange evacuation to a facility with appropriate surgical capability
- Do 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 nil to eat or drink
- MO/NP may advise:
 - NG tube. Allow free drainage and aspirate periodically
 - catheter
- Administer antiemetic as clinically indicated. See [Nausea and vomiting, page 48](#)

5. Follow up

- If in consultation with MO/NP, patient not evacuated/hospitalised and allowed home, advise to be reviewed next day
- Advise to see MO/NP at next 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
- Dehydration may be associated with hyperglycaemia^{1,2}
- 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

[Acute gastroenteritis/dehydration - child, page 730](#)
[Heat exhaustion/heat stroke/hyperthermia, page 231](#)

[Shock, page 77](#)
[Giardiasis, page 738](#)

1. May present with³

Possible Complications

- Hypovolemic shock
- Electrolyte imbalance
- Acute renal failure

Gastroenteritis signs and symptoms

- Acute diarrhoea - passing of three or more abnormally loose or watery stools in the preceding 24 hours
- Vomiting
- Cramping abdominal pain
- Fever

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 pressure

2. Immediate management

- Perform standard clinical observations (full Q-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 of adult dehydration flowchart** on following page
 - altered level of consciousness
 - hypotension
 - tachycardia
 - decreased urine output (oliguria)
 - high-output diarrhoea (frequent and substantial volumes)
 - visible blood in stool
- If severe dehydration:
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
 - consider intraosseous access if unable to obtain IV access. See [Intraosseous infusion, page 69](#)
 - commence sodium chloride 0.9% as per **Management of adult dehydration flowchart** on following page

3. Clinical assessment

- Obtain a complete past history in particular note current diabetes status and medications. Include history of presenting concern and any environmental exposure e.g. exertion in high ambient temperature and high humidity
- Perform standard clinical observations (full Q-ADDS score or other local Early Warning and Response Tools) +
 - assessment of dehydration status. See **Management of adult dehydration flowchart** on following page
 - BGL^{1,2} - see [Hyperglycaemia, page 113](#) or [Hypoglycaemia, page 115](#)
 - in cases of hyperthermia perform urinalysis observing for blood
- For gastroenteritis also include:
 - 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 MCS and OCP, PCR 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 *Campylobacter*⁴

4. Management

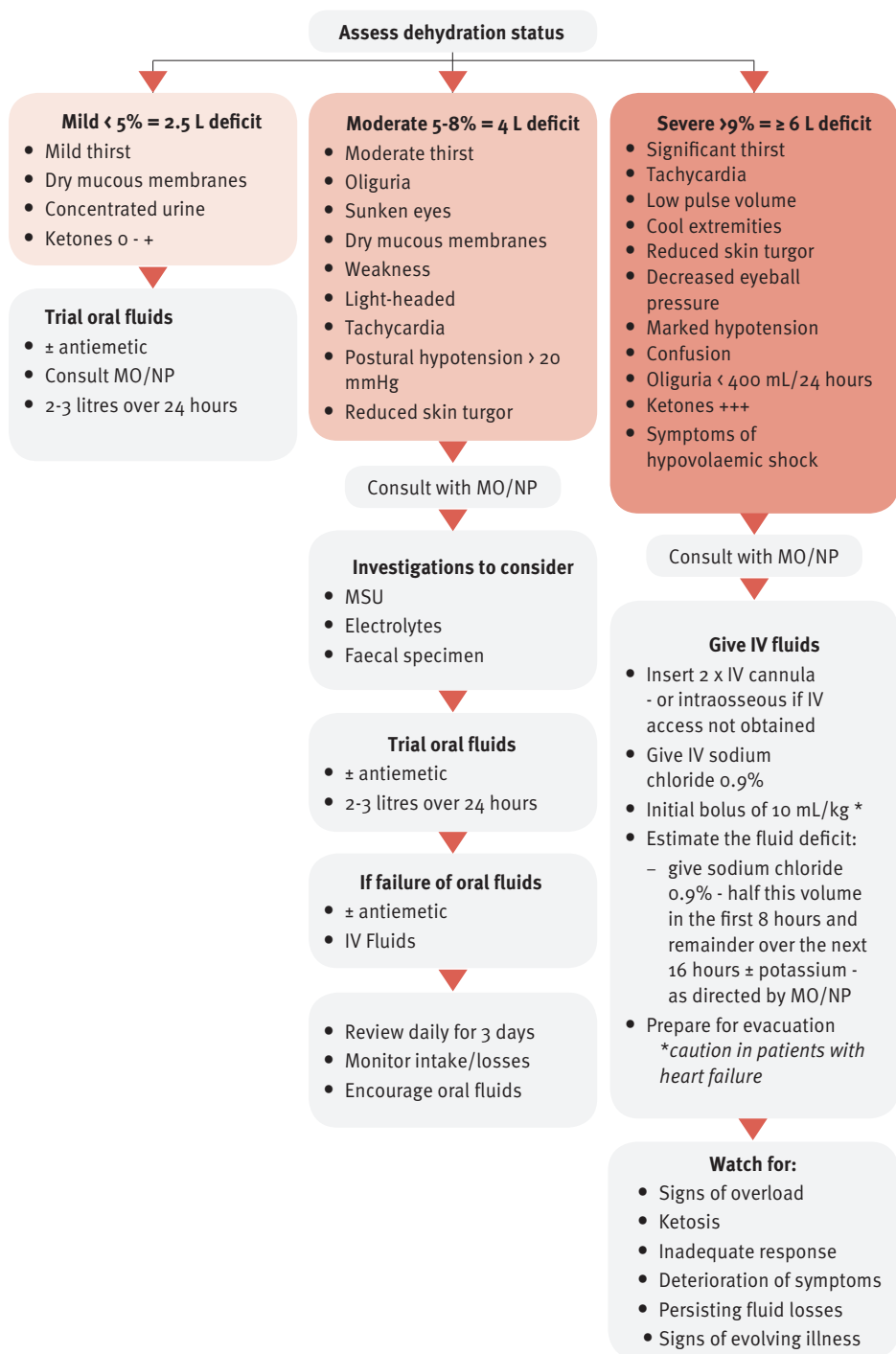
- Consult MO/NP:
 - for all cases of moderate/severe dehydration and as per **Management of adult dehydration flowchart** for complicated gastroenteritis
 - prior to discharge in cases of moderate/severe dehydration

For gastroenteritis

- Maintain hydration/rehydrate
- Continue normal diet as tolerated, or clear fluids if vomiting^{3,5}
- Advise:
 - to eat foods with sodium and/or potassium such as canned soups, salted crackers, bananas, and potato (mashed, hot chips, or crisps)⁶
 - to avoid caffeine, milk and lactose containing products³

If dehydrated. Use the **Management of adult dehydration flowchart** to guide rehydration

- Initiate rehydration (oral whenever possible):
 - use oral rehydration solutions (ORS)
 - recommend 2-3 litres over 24 hrs - frequent small volumes may be better tolerated
 - intermittent vomiting does not preclude use of ORS⁷
- If commercial ORS not available use the following recipe:
 - 1 level teaspoon of salt, 8 level teaspoons of sugar, 1 L of clean drinking water⁷
- Avoid drinking either diluted or undiluted fluids with high sugar content e.g. soft drinks, sports and energy drinks, cordials and fruit juice⁸
- If unable to rehydrate orally then IV fluids may be required. Commence sodium chloride 0.9%. See **Management of adult dehydration flowchart**
- Consult MO/NP who may order Hartman's Solution
- 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
- 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

Management of adult dehydration flowchart^{8,9,10}

5. Follow up

- Advise patient to be reviewed the next day
- Review results of MCS and OCP and treat appropriately

6. Referral/consultation

- Consider notification to your Public Health Unit; refer to the Communicable Diseases website: <http://disease-control.health.qld.gov.au/Condition/704/gastroenteritis>

HMP Alcohol related epigastric pain - adult

Recommend

- Don't jump to conclusions as to the cause of the epigastric pain in a person who drinks alcohol

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 disease¹
- Epigastric pain associated with alcohol usually occurs during or soon after heavy alcohol intake
- 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
- There is no evidence to support the use of a gastro-intestinal (GI) cocktail to assist in ruling out coronary ischemia e.g. 'pink lady' (oral viscous lidocaine (lignocaine), antacid ± anticholinergic) GI cocktails should not be used⁴

Related topics

[Acute abdominal pain, page 238](#)

[Acute coronary syndromes, page 135](#)

[Chest pain assessment, page 130](#)

[Upper gastrointestinal bleeding, page 249](#)

1. May present with²

- Epigastric and/or right upper quadrant and/or left upper quadrant pain
- Lack of appetite, nausea, vomiting
- Vomiting blood (haematemesis) or passing tar-like bowel motions (melaena)
- Increased HR
- Hypotension/shock

2. Immediate management

- Perform rapid clinical assessment
- If hypotension/shock, insert 2 x IV cannula - use the largest possible gauge given age and vascular status:
 - commence IV sodium chloride 0.9% or Hartmann's solution. MO/NP will advise quantities and rate. See [Shock, page 77](#)
 - consult MO/NP urgently who will advise further management and arrange evacuation

3. Clinical assessment

- See [Acute abdominal pain, page 238](#) to guide assessment
- Include in history taking:
 - 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 Q-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, RR, T	• Patient moving about, restless with aggravating pain • HR slightly ↑ • BP slightly ↑	• Patient keeping still and very distressed with pain • HR ↑ • BP ↑ or ↓ (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
- Do ECG
- Check BGL

Mild

- Give antacid e.g. Gastrogel® or Mylanta® (dose according to label) and/or antiemetic as clinically indicated. See [Nausea and vomiting, page 48](#)
- Take bloods for LFT if not done in the last 3 months
- If doesn't respond to antacid and/or antiemetic within 30 minutes, consider as moderate or severe

Moderate

- Consult MO/NP who may advise:
 - clear fluids only
 - analgesia as clinically indicated. See [Acute pain management, page 35](#)
 - ranitidine, omeprazole, hyoscine butylbromide (Buscopan®)
 - take blood for LFT, lipase (more specific for pancreatitis than amylase)
 - observe and consult MO/NP within 4-6 hours of progression
- If pain does not respond regard as severe

Severe

- Consult MO/NP who may advise:
 - give nil to eat or drink

- apply high flow O₂ via non-rebreather mask. See [Oxygen delivery, page 64](#)
- insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- MO/NP may advise IV fluids
- take blood for FBC, UE, LFT, lipase
- test urine
- analgesia as clinically indicated. See [Acute pain management, page 35](#)
- proton pump inhibitor (PPI)
- evacuation/hospitalisation

5. Follow up

- If chronic alcohol misuse patient to have oral thiamine 300 mg daily³
- 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 490](#)
- If allowed home, request patient to return for 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
- Advise to see MO/NP at next clinic

6. Referral/consultation

- Consult MO/NP as above
- Consider referral for chronic alcohol misuse

HMP Upper gastrointestinal bleeding - adult

Recommend¹

- Endoscopy is needed urgently for unstable patients, and within 24 hours for other patients with upper GI bleed
- Upper GI bleeds can be dramatic and are difficult to manage. Apart from IV fluids, including early blood if available, the best treatment option is usually to evacuate urgently

Background

- Most common causes 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 238](#)
[Button battery ingestion/insertion, page 680](#)

[Rectal bleeding, page 251](#)

1. May present with²

- Burning pain in epigastrium or retrosternally
- Vomiting up blood (haematemesis)
- Passing black tar-like bowel motions (melaena)

- Fresh blood in the bowel motion (haematochezia)
- Hypotension/shock

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Perform rapid clinical assessment
- Give O₂ to maintain SpO₂ ≥ 94%. See [Oxygen delivery, page 64](#)
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- If hypotension/shock or large haematemesis or melaena:
 - consult MO/NP urgently
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
 - MO/NP may advise IV fluids. In an adult the aim is to keep:
 - HR < 120/min
 - systolic BP > 90-100 mmHg
 - urine output > 0.5 mL/kg/hour
 - see [Shock, page 77](#)

3. Clinical assessment

- See [Acute abdominal pain, page 238](#) to guide assessment, 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
 - melaena
 - bright blood, with or without bowel motion
 - current medicines especially aspirin or NSAID, anticoagulants
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - continue to monitor
 - cardiac monitoring
- Rectal examination as appropriate
- Take bloods for FBC, UE, INR

4. Management¹

- Consult MO/NP who may advise:
 - metoclopramide - If haematemesis small or 'coffee ground' only in vomitus
 - a Proton Pump Inhibitor (PPI) such as omeprazole, esomeprazole or pantoprazole
 - evacuation/hospitalisation once haemodynamically stable
- MO/NP may consider referral for endoscopy

5. Follow up

- If not evacuated, advise patient to be reviewed the next day
- Advise to see MO/NP at next clinic

6. Referral/consultation

- Consult MO/NP on all occasions

HMP Rectal bleeding - adult

Recommend

- Screening for 50-75 year olds for colorectal cancer with faecal occult blood test (FOBT) every 2 years¹

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 238](#)

[Upper gastrointestinal bleeding, page 249](#)

1. May present with²

- Bright red blood from rectum
- Bright red clots or burgundy clots
- Melaena
- Anaemia
- Anorexia/vomiting
- Weight loss
- Ineffective urge to pass a bowel motion
- Abdominal pain
- Fever
- Obvious worm infestation
- Diarrhoea/constipation

2. Immediate management

- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- If passing melaena. See [Upper gastrointestinal bleeding, page 249](#)
- If blood loss is heavy or continuing, or there is increased HR or hypotension/shock:
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
 - MO/NP may advise IV fluids
 - in most cases blood loss that causes hypotension/tachycardia will require blood replacement, if available. See [Shock, page 77](#)
- 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 238](#) to guide assessment, noting in particular:
 - change in bowel habits (mucoid 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 Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weight
- Collect a stool specimen to check OCP
- Note nutritional status
- Digital rectal examination may be required
- Collect bloods for ESR, C-reactive protein (CRP), UE, FBC

4. Management

- If heavy blood loss - patient will require evacuation. See Immediate management
- If bleeding not heavy or continuing consult MO/NP who may advise topical treatment for haemorrhoids ± short term laxative
- Need to be assessed by an MO/NP at next available opportunity including digital rectal examination/proctoscopy ± sigmoidoscopy
- Treat for worms where clinically indicated. See [Intestinal worms, page 740](#)

5. Follow up

- If not evacuated, advise to be reviewed at next MO/NP clinic, or earlier if concerned

6. Referral/consultation

- All patients with rectal bleeding need to be reviewed by an MO/NP

HMP Bowel obstruction - adult/child

Recommend

- Metoclopramide is contraindicated¹

Background

- Bowel obstruction can occur in the small or large intestine, it can be partial or complete
- Common causes of small bowel obstruction are post-operative adhesions, hernias and cancers
- 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 238](#)

[Intussusception, page 747](#)

1. May present with^{2,3}

- Nausea
- Vomiting may or may not be present - may smell like faeces
- Cramping or colicky abdominal pain
- Cannot pass wind or stool (obstipation)
- Abdominal distension - soft or rigid

- Bowel sounds may be increased or absent
- Fever - may be indicative of peritonitis, late sign
- Liquid diarrhoea
- ↑ HR, dehydration, especially in children and elderly
- Hypotension/shock with perforation and sepsis

2. Immediate management

- Consult MO/NP urgently
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- Perform standard clinical observations (full Q-ADDs/CEWT score or other local Early Warning and Response Tools)
- If hypotension/shock:
 - MO/NP may advise IV fluids. See [Shock, page 77](#)

3. Clinical assessment

- See [Acute abdominal pain, page 238](#) to guide assessment, 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
- Take bloods for UE and lactate - iStat® if available

4. Management

- If a patient looks unwell, has persistently abnormal vital signs or rigidity of the abdomen, then ischaemic bowel or perforated viscus should be suspected
- Consult MO/NP urgently
- MO/NP may advise:
 - evacuation/hospitalisation
 - NG tube. Allow free drainage and aspirate periodically
 - if available 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
 - 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

6. Referral/consultation

- Consult MO/NP. All cases of suspected bowel obstruction will need to be evacuated/hospitalised
- Refer to Dietitian

Genitourinary emergencies

HMP Renal colic - adult

Recommend^{1,2}

- Provide early pain relief. NSAID and opioids are effective for renal colic
- Fever may indicate an infected obstructed kidney which is a urological emergency

Background³

- 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 238](#)

1. May present with³

- Acute and debilitating 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
- Fever
- Haematuria - visible or on urinalysis
- Restless/agitated

2. Immediate management

- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - check pain scale
- Administer analgesia as clinically indicated:
 - give ketorolac trometamol¹ if not contraindicated
 - if ketorolac trometamol contraindicated, morphine is the preferred opioid.² See [Acute pain management, page 35](#)
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status

3. Clinical assessment

- Obtain history and complete physical examination. See [Acute abdominal pain, page 238](#)
- 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
- Urinalysis + MSU for MCS
- Perform point of care testing for pregnancy for sexually active women of reproductive age

4. Management

- Administer antiemetic as clinically indicated. See [Nausea and vomiting, page 48](#)
- Continue to monitor clinical observations and pain scale
- Consult with MO/NP in all cases
- Evacuation/hospitalisation required if:
 - fever (an infected obstructed kidney is a urological emergency) - MO/NP may order IV antibiotic(s)
 - pain not controlled or persists for more than 24 hours
- If the pain settles, the patient should be advised to maintain hydration, and to strain all urine (for stones) at home

Schedule	4	Ketorolac trometamol		Extended authority
ATSIHP, IHW and RN must consult MO/NP		ATSIHP/IHW/RIPRN		
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	10 mg/mL	IM Not approved for IV use	Adult only 10 mg	stat Inject slowly and deeply Further doses on MO/NP order
Provide Consumer Medicine Information: May cause pain at the injection site, itching, sweating and purpura				
Note: Use with caution in the elderly, patients with history of hypertension, asthma, coagulation disorders, or other NSAID use				
Contraindication: Dehydration, hypovolaemia, probenecid use, GI bleeding, renal or hepatic impairment, heart failure and hypersensitivity reaction to NSAIDs				
Use in pregnancy: Seek specialist advice for use in the second half of pregnancy; do not use during the last few days before expected birth. May increase rate of miscarriage				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1

1

5. Follow up

- Request patient to return for review the next day
- Advise to see MO/NP at next clinic and likely referral for IVP, CT scan, and/or renal USS

6. Referral/consultation

- Consult MO/NP on all occasions

HMP Acute retention of urine - adult

Background¹

- Causes may be obstructive, neurogenic, infective, post-operative, trauma, pharmacologic, extraurinary, or psychogenic
- Most common in middle aged or elderly men due to benign prostatic hyperplasia, 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 238](#)

1. May present with^{2,3}

- Inability to pass urine or passing dribbles of urine only
- Dull suprapubic pain (obstruction of urinary bladder)
- Severe suprapubic and flank pain that radiates to the penis, scrotum, or inner aspect of the upper thigh (obstruction of ureter)
- Constipation

2. Immediate management

- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

3. Clinical assessment²

- Obtain history, and complete physical examination. See [Acute abdominal pain, page 238](#) as a guide, noting in particular:
 - any flank pain, or pain radiating to scrotum
 - preceding history of urinary retention, 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
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)

4. Management^{1,3}

- Consult with MO/NP
- 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:
 - DO NOT use excessive force to push the catheter through the obstructed urethra
 - if unable to catheterise easily, MO/NP will attempt on evacuation and may insert suprapubic catheter instead
- Measure and record all urine output
- Perform urinalysis
- Send MSU or catheter catch urine for MCS

- 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, advise to be reviewed next day and consult MO/NP
- Advise to see next MO/NP clinic

6. Referral/consultation

- Consult MO/NP on all occasions

HMP Testicular/scrotal pain - adult/child

TESTICULAR TORSION

Recommend^{1,2}

- **Testicular torsion is an emergency requiring urgent surgery (within 4-6 hours)** to save testes
- In male paediatric patients presenting with abdominal/and scrotal pain or swelling, the diagnosis of testicular torsion must be considered

Background

- Other less common causes of acute scrotal pain include mumps, strangulated inguinal hernia, epididymo-orchitis, traumatic haematoma

Related topics

[Acute abdominal pain, page 238](#)

[Epididymo-orchitis, page 632](#)

1. May present with^{1,2,3}

- Symptoms may be vague
- Gradual or acute onset of pain and/or swelling of testicle(s)
- Abdominal pain +++
- Nausea and vomiting
- Impaired gait
- Right iliac fossa (RIF) or left iliac fossa (LIF) referred pain
- Fever
- History of rapid movement, physical trauma

2. Immediate management

- Complete rapid history
- Consult MO/NP urgently
- Administer analgesia and antiemetic as clinically indicated. See [Acute pain management, page 35](#) and [Nausea and vomiting, page 48](#)

3. Clinical assessment

- Obtain history, and complete physical examination. See [Acute abdominal pain, page 238](#) as a guide, noting in particular:
 - history of minor physical trauma/sport, rapid movement, previous history of scrotal/testicular

- pain
 - pain location, onset (sudden or gradual), one or both testicles
 - any associated nausea, vomiting or fever
 - examine the scrotum for tenderness and compare location of each testicle
 - urethral discharge, burning on passing urine (dysuria)
 - obtain urinalysis

4. Management²

- Testicular torsion must be excluded, particularly in boys. Use the following differential diagnoses table as a guide in consultation with the MO/NP

Differential diagnoses ²	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, < 37.5°C	Significant
Associated symptoms	Abdominal pain, vomiting	Abdominal pain, occasional urethral discharge/dysuria
Examination	Swollen, red and tender, affected testicle may sit higher than the other and be lying transversely	Swollen, red and tender
Effect of elevating testicles	No change or worse pain	Relief of pain

Torsion¹

- Testicular torsion is an emergency requiring urgent surgery
- Urgent evacuation
- Keep nil by mouth
- Ultrasound imaging is generally **NOT** indicated (unacceptable false negative rate)¹

Epididymo-orchitis

- Rare in pre-pubescent boys - always exclude testicular torsion first¹
- See [Epididymo-orchitis, page 632](#)

5. Follow up

- If MO/NP decides to treat as acute epididymo-orchitis and not to evacuate/operate:
 - advise to be reviewed the 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 (poisoning and overdose)

Toxicology (poisoning and overdose) - general approach

Recommend^{1,2,3,4}

- **Contact the Poisons Information Centre (PIC) for any poisoning, and/or for information on agents/drugs not specifically mentioned in the PCCM ① 13 11 26 (24 hours):**
 - if possible, the MO/NP should contact PIC
 - in cases of severe or complex poisoning where specific expert medical advice is required PIC can refer health practitioners to a Clinical Toxicologist
- Use PPE (gloves, plastic gown and mask), in particular for [Cyanide, page 274](#), [Organophosphates, page 282](#) and [Paraquat, page 286](#)
- Remember, someone who is conscious and talking after taking a poison could still be in the early stages of severe poisoning

Background^{1,2,3,4}

- 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
- 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
- Recommended resources:
 - Queensland PIC - first aid treatment and prevention of poisonings. Available at: www.childrens.health.qld.gov.au/chq/our-services/queensland-poisons-information-centre/
 - Therapeutic Guidelines (eTG) 'Toxicology and Wilderness'. Available at: <https://tgldcdp.tg.org.au/guideLine?guidelinePage=Toxicology+and+Wilderness&frompage=etgcomplete>

Related topics

[Fits/convulsions/seizures, page 109](#)

[Unconscious/altered level of consciousness, page 73](#)

[Hypoglycaemia, page 115](#)

1. May present with^{1,2,3,4}

- Confusion, drowsiness, altered level of consciousness or fitting (always consider poisoning)
- Respiratory failure
- Hyperthermia, hypothermia
- 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 management^{1,2,3,4}

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
 - if CPR required continue until discussed with Poisons Information Centre/Toxicologist
- If breathing, turn on to side in recovery position while obtaining more information. Some poisons may cause both vomiting and sedation resulting in aspiration

- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - SpO₂
 - BGL
 - conscious state. See [Glasgow Coma Scale/AVPU, page 785](#)
- Do not administer O₂ routinely:
 - if required, give O₂ to maintain SpO₂ saturation > 94% adult or > 95% child. See [Oxygen delivery, page 64](#)
 - 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
- Insert IV cannula
- If BGL ↓ treat. See [Hypoglycaemia, page 115](#)
- If hyperthermia or hypothermia treat. See [Heat exhaustion/heat stroke/hyperthermia, page 231](#) or [Hypothermia, page 229](#)
- MO/NP may consider antidotes e.g. naloxone for opioid poisoning
- If patient is confused or withdrawn, strange, aggressive or displaying acutely disturbed behaviour ensure safety of self, staff, family and visitors:
 - you may need to get help from 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 always. Reassure the patient and avoid confrontation
 - use de-escalation techniques to manage aggression. See [De-escalation techniques, page 789](#)
 - for additional information on ensuring safety and managing anger. See [Acute severe behavioural disturbance, page 467](#)
- **Note:** Do not undertake any gastrointestinal decontamination (e.g. activated charcoal) until a full risk assessment has been completed

3. Clinical assessment^{1,2,3,4}

- Undertake a 'Poisoning/overdose risk assessment' to obtain a history, details of poisoning and risk assessment
- Obtain:
 - urinalysis (for pH)
 - blood for UE
 - arterial or venous blood gas if available
 - paracetamol level if available
- If intentional poisoning, always perform:
 - paracetamol level. See [Paracetamol, page 283](#)
 - ECG - see **Specific ECG changes for further information** on following page
 - + mental health review required. See [Mental health assessment, page 450](#)
- MO/NP may advise further investigations e.g:
 - blood tests:
 - renal and liver function, FBC, coagulation tests (rarely)
 - chest x-ray
 - spirometry
 - further urine testing

Poisoning/overdose risk assessment

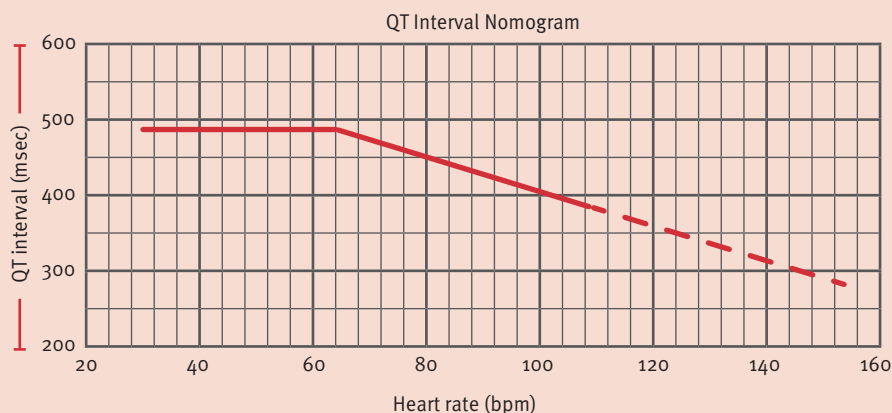
Agent	• Name of product, its ingredients/components, manufacturer • Look for container if possible • Ask relatives or witnesses • Overdoses of drugs often involve more than one substance • Inquire specifically if alcohol has been taken in all instances as it may greatly affect the toxicity of other exposures • 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, suicidal behaviour 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	• BP, HR, RR, T, SpO₂, conscious state

4. Management^{1,2,3,4}

- Consult MO/NP urgently if suspected poisoning
- MO/NP will contact Poisons Information Centre PIC ☎ 13 11 26 (24 hours):
 - the PIC can help determine the contents and other characteristics of the agent involved in the exposure, and advise on the likely clinical effects and appropriate management
- Following stabilisation of the poisoned patient:
 - good supportive care and monitoring is sufficient most of the time
- MO/NP may consider gastrointestinal decontamination (e.g. activated charcoal) only when a risk assessment has been undertaken and:
 - 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
 - is able to be removed by chosen method
 - the patient's airway is self protected or has been secured

Specific ECG changes

- 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 (if required) (binds to poisons in the gut preventing absorption)

- Give on MO/NP advice only
- MO/NPs are advised to consult the Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours) or Clinical Toxicologist for information before use in paediatrics
- Administration points:
 - only give 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 intubation prior to administration
 - is not effective for cyanide, alcohols, iron, lithium, potassium and other electrolytes, acids, alkalis or petroleum products
 - 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
- Evacuation/hospitalisation may be required for patients who are:
 - drowsy, or are at risk of becoming drowsy
 - unconscious or fitting

- or who may require specific management or antidotes
- Before allowing any patient home assess suicidal intent, see [Suicide risk assessment, page 464](#).
- 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:
 - physical and mental state to have returned, or be close to their pre-morbid state
 - the patient should be able to mobilise independently, perform simple activities of daily living e.g. feed and toilet themselves
 - the patient should be orientated to time, place and person and perform simple mental tasks e.g. serial sevens (counting down from 100)

Schedule	Unscheduled	Activated charcoal		Prescribing guide
Only give on advice of PIC/MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Suspension	50 g/250 mL	Oral Nasogastric Orogastric	Adult 50 g Child 1 g/kg/dose to max. of 50 g	Stat Repeat doses may be ordered for overdose of some drugs (e.g. carbamazepine, theophylline, quinine, colchicine and phenobarbital (phenobarbitone), digoxin, aspirin) to enhance elimination (25-50 g 4-6 hourly)
Contact the Poisons Information Centre ☎ 13 11 26 (24 hours) for advice				
Provide Consumer Medicine Information: Improve palatability by chilling; it may be easier to take if served in a covered container with a large straw, or drunk with eyes shut				
Notes: Offer orally to conscious patients who are able to protect their airways. Should never be administered in unconscious patients without intubation to protect airway. Rarely indicated in children: only consider when risk assessment suggests that a good outcome is unlikely with supportive care				
Management of associated emergency: Consult MO/NP				

1,5

1,5

5. Follow up

- As advised by MO/NP

6. Referral/consultation

- Consult MO/NP on all occasions if the substance taken is known or suspected to be toxic

Specific poisons

For information regarding agents/drugs not specifically mentioned in this section please contact the Poisons Information Centre (PIC) ☎13 11 26 (24 hours)

HMP Anticholinergic agents - adult/child

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, atropine, trihexyphenadyl hydrochloride (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, dry mouth and axilla and urinary retention, reduced bowel sounds, tachycardia and hyperthermia
- Effects may be delayed and cyclical

2. Immediate management

- See [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

3. Clinical assessment

- See Poisoning/overdose risk assessment in [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

4. Management¹

- The patient may be in a hyper stimulated 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. See [Delirium, page 161](#)
- Consult MO/NP who will advise further management which may include:
 - diazepam for sedation or seizures. See [Fits/convulsions/seizures, page 109](#)
 - active cooling for hyperthermia. See [Heat exhaustion/heat stroke/hyperthermia, page 231](#)
 - 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 (general) - adult/child

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 levetiracetam
- Carbamazepine toxicity is related to dose: $> 50 \text{ mg/kg}$ or $> 3 \text{ g}$ total, can be associated with significant toxicity
- Ingestion of anticonvulsants other than sodium valproate and carbamazepine 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

Sodium valproate

1. May present with¹

- 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), hypernatraemia (sodium load)
- Bone marrow depression e.g. thrombocytopenia

2. Immediate management

- See [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- High serum sodium level may indicate a significant ingestion¹

4. Management¹

- 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 $< 90 \text{ mmHg}$) 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
- Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Carbamazepine - adult/child

1. May present with²

- 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 [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

4. Management²

- Consult MO/NP who will advise further management. Evacuation/hospitalisation may be required
- Intubation and ventilation for patients with a decreased level of consciousness
- Multi dose activated charcoal (50 g every 4 hours) 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
- Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Other anticonvulsants

E.G. PHENYTOIN, LAMOTRIGINE, GABAPENTIN, PREGABALIN, LEVETIRACETUM, OXCARBAZEPINE

1. May present with³

- 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

- See [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

4. Management³

- 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 4 hourly) to increase clearance in severe toxicity may be

indicated

- Serial phenytoin levels (no more than daily)
- Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Antidepressants (general) - adult/child

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
- SNRIs have varying toxicities. Both venlafaxine and desvenlafaxine are only available as modified or extended release so onset of toxicity can be delayed (> 6 hours post ingestion). Toxicity consists of serotonin toxicity, and sympathomimetic toxidrome including seizures with venlafaxine. With venlafaxine the seizure risk increases with ingested dose. In large venlafaxine ingestions (> 8 g) there is also a risk of cardiac toxicity

Selective serotonin reuptake inhibitors (SSRIs)

E.G. FLUOXETINE, PAROXETINE, FLUVOXAMINE, SERTRALINE, CITALOPRAM, ESCITALOPRAM

1. May present with¹

- 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

- See [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

4. Management¹

- 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)

Serotonin and noradrenaline reuptake inhibitors (SNRIs)^{2,3,4}

E.G. VENLAFAXINE, DESVENLAFAXINE, DULOXETINE, TRAMADOL

1. May present with⁵

- Serotonin toxicity, which is rarely life threatening, is best described as:
 - neuromuscular effects e.g. hyperreflexia, clonus, tremor, hypertonicity
 - autonomic effects e.g. hyperthermia, diaphoresis, flushing, tachycardia
 - mental status effects e.g. anxiety, agitation and confusion (rare)
- Sympathomimetic toxidrome symptoms:
 - tachycardia
 - mild hypertension
 - hyperthermia
 - with venlafaxine hypotension and arrhythmias (rare) may be seen with large ingestions (> 8 g)
- Seizures:
 - are common with venlafaxine, are dose dependent and can be delayed up to 24 hours (0-3 g 10%, 3-5 g 10-20%, 5-8 g 20-50%, > 8 g almost universal)
 - are rare with duloxetine
 - have not been recorded with desvenlafaxine
 - can be delayed up to 24 hours but most are seen within 16 hours

2. Immediate management

- See [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- See [Fits/convulsions/seizures, page 109](#)
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

4. Management¹

- Consult MO/NP/Clinical Toxicologist and Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)
- Most ingestions of SNRIs require only observation
- Activated charcoal should be considered with venlafaxine ingestions > 5 g
- ECG, cardiac monitoring
- Seizures and those with sympathomimetic symptoms may need benzodiazepines and intravenous fluids

HMP Tricyclic antidepressants (TCAs)

E.G. AMITRIPTYLINE, CLOMIPRAMINE, DOSULEPIN (DOTHIEPIN), DOXEPIN, IMIPRAMINE, NORTRIPTYLINE, TRIMIPRAMINE

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, including:

- urinary retention
- dry mucosa
- diminished bowel sounds

2. Immediate management

- See [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- See [Fits/convulsions/seizures, page 109](#)
- 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 \(poisoning and overdose\) - general approach, page 259](#)
- ECG

4. Management¹

- If unconscious see Immediate management under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- 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 IM/IV/buccal or intranasal. See [Fits/convulsions/seizures, page 109](#)
 - consideration should be given to administering activated charcoal 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

Recommend¹

- Consider paracetamol toxicity if a combination cough and cold preparation has been ingested

Background^{1,2}

- Antihistamines with sedative effects available in Australia include promethazine, alimemazine (trimeprazine), doxylamine, diphenhydramine, dimenhydrinate (only available combined with hyoscine hydrobromide), pheniramine, dexchlorpheniramine, brompheniramine and cyproheptadine
- Antihistamines with no sedative effect include cetirizine, desloratadine, fexofenadine and loratadine
- Many antihistamines are available combined with analgesia and decongestants, and the combined medicine may be more significant toxicologically
- Consider ingestion of both sedating antihistamines e.g. promethazine and doxylamine, and non-sedating antihistamines e.g. loratadine, desloratadine, cetirizine and fexofenadine

1. May present with^{1,3}

- Central nervous system depression, anticholinergic symptoms e.g. delirium, urinary retention, dry mucosa and rarely seizures. See [Anticholinergic agents, page 264](#)
- 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 management⁶

- See [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

4. Management⁶

- 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

HMP Antipsychotics - adult/child

Background

- Although grouped as a class, these agents have different toxicities in overdose
- Typical antipsychotics may include, but not limited to, chlorpromazine, haloperidol and periciazine
- Atypical antipsychotics may include, but not limited to quetiapine, olanzapine and risperidone

1. May present with¹

- Neurological effects e.g. decreased level of consciousness, dystonic reactions
- Cardiovascular effects e.g. hypotension, tachycardia and QT prolongation
- **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 \(poisoning and overdose\) - general approach, page 259](#)
- Patients who arrive with a decreased level of consciousness will often require intubation and ventilation

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

4. Management¹

- 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 IV benzatropine - adult 1-2 mg and for children 0.02 mg/kg (max. 1 g)². See [Acute severe behavioural disturbance, page 467](#)
- patients with QT prolongation should have ongoing cardiac monitoring

Aspirin/salicylates - adult/child

Background^{1,2,3}

- Clinically all salicylate poisoning presents and is managed in a similar manner
- May be due to ingestion of aspirin containing products and methylsalicylate containing topical preparations, effervescent antacids, and vapouriser fluids
- Ingestion of small amounts of topical salicylates can result in severe toxicity in children < 5 years of age

1. May present with^{1,2}

- Gastrointestinal effects e.g. nausea, vomiting
- Neurological effects e.g. confusion, drowsiness, restlessness, hyperventilation, tinnitus (ringing in ears), vertigo. Coma and seizures are rare and associated with severe poisoning
- Metabolic effects e.g. respiratory alkalosis and metabolic acidosis
- Pulmonary oedema
- Hypovolaemia
- Toxicity is related to ingested dose¹
 - < 150 mg/kg - minor toxicity
 - 150-300 mg/kg - mild to moderate effects e.g. tinnitus, hyperventilation, vomiting
 - 300-500 mg/kg - severe toxicity e.g. hyperthermia, metabolic acidosis, coma and seizures
 - > 500 mg/kg - potentially fatal

2. Immediate management

- See Immediate management under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- In addition, patients with salicylate toxicity require an arterial blood gas (ABG), repeated salicylate levels and biochemistry e.g. electrolytes, renal function

4. Management^{1,2}

- Consult MO/NP who will advise further management which may include activated charcoal for salicylate 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
- 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

Carbon monoxide inhalation - adult/child

Recommend¹

- Oxygen administration increases the elimination of carbon monoxide

Background¹

- Most common agent used in suicides by poisoning
- Carbon monoxide is a common colourless and odourless gas found in vehicle exhaust, faulty room heaters, cigarette smoke, fires (including from wood burning room heaters), and produced by industrial processes
- Poisoning can result from exposure to combustion in a confined space, both accidentally, occupationally e.g. fire fighters and deliberately (car exhaust fumes). Patient with deliberate exposures to carbon monoxide have often taken overdoses of other agents
- Poisoning causes tissue hypoxia and organ damage

1. May present with^{1,2}

- Neurological effects e.g. headache, lethargy, confusion, drowsiness, weakness, ataxia, altered state of consciousness (may be transient), seizures
- Gastrointestinal effects e.g. nausea, vomiting
- Respiratory effects e.g. respiratory arrest, Cheyne-Stokes breathing
- Cardiovascular effects e.g. tachycardia. In severe poisonings ECG changes and arrhythmias
- Metabolic effects e.g. lactic acidosis, rhabdomyolysis, hyperglycaemia

2. Immediate management

- See Immediate management under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- Apply high flow O₂ via a non-rebreathing mask. A Hudson mask is not sufficient.^{1,2} See [Oxygen delivery, page 64](#)

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- Carboxyhaemoglobin levels are a poor marker of exposure and hence prognosis²

4. Management¹

- 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. See [Oxygen delivery, page 64](#)
 - management with High flow O₂ should be discussed with a Clinical Toxicologist
- In carbon monoxide poisoning, a pulse oximeter can record a misleading normal O₂ saturation
- If conscious, reassure and keep at rest to minimize oxygen needs

- Consider suicide in deliberate inhalations of carbon monoxide. See [Suicidal behaviour, page 456](#)
- Patients with ongoing symptoms or pregnant patients should be discussed with a Clinical Toxicologist
- 1-2 months after poisoning, referral to psychiatric team for evaluation of potential neuropsychiatric injury (ongoing cognitive impairment, memory loss, depression) and for psychological and psychiatric support
- If inhalation resulted from suicidal behaviour, see [Suicidal behaviour, page 456](#)

HMP Corrosive/caustic substance ingestion - adult/child

Recommend¹

- Early airway intervention can be lifesaving
- Personal protective equipment should be used to protect staff and bystanders from exposure to corrosive substance

Background^{1,2}

- 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
- Major complications include perforation, haemorrhage and necrosis of tissue
- Acids tend to cause more injuries to the stomach and duodenum, whereas alkalis cause more injuries to the oesophagus

Related topics

[Button battery ingestion/insertion, page 680](#)

1. May present with^{1,2}

- 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
- Signs associated with oesophageal inflammation: pain or difficulty with swallowing, excessive drooling, irritability, pulling at lips or tongue, vomiting, abdominal pain, haematemesis
- Signs and symptoms indicating a possible life threatening ingestion include chest pain, dyspnoea, fever, stridor, hoarse voice, subcutaneous emphysema of neck and chest
- Hypoxia

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 \(poisoning and overdose\) - general approach, page 259](#)

4. Management²

- Consult MO/NP who will advise further management and arrange evacuation/hospitalisation if

required

- 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 charcoal. It is ineffective
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Consult MO/NP on all occasions if the substance taken is known or suspected to be toxic
- The Poisons Information Centre (PIC) can help to clarify toxicity and give up to date advice on the urgency and the specifics of management

Cyanide - adult/child

Recommend¹

- 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

Take precautions (gloves, plastic gown and mask) to prevent contact with cyanide directly or off the patient, particularly from the liquid form of cyanide

- See Immediate management under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- 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 \(poisoning and overdose\) - general approach, page 259](#)

4. Management

- 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, page 64](#)

- 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

Background^{1,2}

- 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
- Available as a purified essential oil, but also a common ingredient of non-prescription cough and cold remedies, lice treatments, rubs and balms

1. May present with^{1,2}

- Neurological effects e.g. ataxia, 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
- Eucalyptus odour on breath
- Onset can be rapid with severe toxicity developing within the hour

2. Immediate management

- See Immediate management under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

4. Management²

- 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

Petrol, fuels and other oils (hydrocarbons) - ingestion/aspiration - adult/child

Background¹

- 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 with²

- Respiratory symptoms such as gagging, coughing and choking, which indicates aspiration has occurred
- Rapid onset of central nervous system (CNS) depression and seizures
- Cardiac arrhythmias can occur early and be fatal

2. Immediate management

- See Immediate management under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

4. Management²

- Consult MO/NP first for all patients with ingestion of hydrocarbons. Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)
- Give O₂ to maintain SpO₂ ≥ 94%. See [Oxygen delivery, page 64](#)
- Do not induce vomiting. Activated charcoal administration is contraindicated in hydrocarbon poisoning²
- See following table Types of hydrocarbons
- Staff may need personal protective equipment such as gown, gloves and goggles
- Advise to be reviewed 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	Petroleum jelly 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 ingestion - adult/child

Background¹

- 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 6 mg/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 with¹

- Early signs and symptoms include vomiting, altered mental status, dehydration
- Shock, seizures, haematemesis, bloody diarrhoea
- Severe signs and symptoms after several hours may include coma, seizures, pulmonary oedema, hypotension, haemorrhage, metabolic acidosis and multi-organ failure

2. Immediate management

- See Immediate management under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- A plain abdominal x-ray if available may show residual whole tablets or a concretion (a hard usually inorganic mass)

4. Management²

- Consult MO/NP who will organise evacuation/hospitalisation
- 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:
 - UE, creatinine, LFT
 - full blood count
 - blood gases
- IV fluids - to ensure adequate circulating volume and replacement of fluid loss
- Activated charcoal is ineffective
- Whole bowel irrigation may be ordered by the MO/NP/Clinical Toxicologist for large exposures (over 60 mg/kg)³
- Desferrioxamine is an antidote that will be needed in serious cases.⁴ This can be brought with the retrieval team

HMP Lithium - adult/child

Background¹

- Acute lithium ingestions in patients with normal renal function are relatively benign with minor GIT toxicity only, as the lithium is excreted by the kidneys 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 with¹

- 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 \(poisoning and overdose\) - general approach, page 259](#)

4. Management¹

- All cases of chronic lithium toxicity with neurological toxicity should be discussed with the MO/NP/ Clinical Toxicologist. The Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours) can assist
- Acute lithium ingestions often only require antiemetics and IV fluids. MO/NP will order. See [Nausea and vomiting, page 48](#)
- 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

Ingestion of non-steroidal anti-inflammatory drugs (NSAID) - adult/child E.G. DICLOFENAC, IBUPROFEN, INDOMETACIN, KETOROLAC, NAPROXEN, MEFENAMIC ACID

Background^{1,2}

- 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
- For aspirin ingestions, see [Aspirin/salicylates, page 271](#)

1. May present with^{1,2}

- Majority of cases are asymptomatic
- 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 (Ponstan®)
- 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 \(poisoning and overdose\) - general approach, page 259](#)
- NSAID products often contain paracetamol or codeine. See [Paracetamol, page 283](#)

4. Management²

- Consult MO/NP first for all patients with NSAID overdose.
- Insert IV cannula. MO/NP may order IV fluids
- MO/NP may order IV/oral proton pump inhibitors (PPI)
- Most patients will do well with symptomatic and supportive care

HMP Opioids - adult/child

E.G. BUPRENORPHINE, CODEINE, FENTANYL, HYDROMORPHONE, METHADONE, MORPHINE, HEROIN, OXYCODONE, PETHIDINE, TRAMADOL, LOMOTIL®

Recommend¹

- Consider urgent evacuation and critical care admission for an overdose with long-acting opioids such as methadone, oxycodone and slow-release morphine

Background¹

- 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
- Lomotil® contains atropine and diphenoxylate. Diphenoxylate is chemically related to pethidine

1. May present with¹

- 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

- See [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- Inspect for and remove any transdermal patches of opioid medicine if present²

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- A head injury and hypoglycaemia can mimic opioid toxicity.² See [Head injuries, page 175](#) and [Hypoglycaemia, page 115](#)

4. Management

- Consult MO/NP first for all patients with opioid overdose. The Poisons Information Centre (PIC)
① 13 11 26 (24 hours)
- May require O₂ to maintain saturation > 94% adult or > 95% child. If SpO₂ is not maintained consult MO/NP. See [Oxygen delivery, page 64](#)
- Hypoxia in patients with opioid ingestion mandates an assessment of CO₂
- Closely monitor respiratory rate as regular opioid users may have a GCS > 14, but still have respiratory depression
- 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 is metabolised. This is particularly relevant to patients with renal impairment.
- **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	Extended authority ATSIHP/IHW	
ATSIHP and IHW may proceed for one dose only . Must then consult MO/NP				
RIPRN and RN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	400 microgram/mL	IV/IM (IV preferred)	Adult 400 microgram	stat Can be repeated at intervals of 2-3 min to a max. of 2 mg
Provide Consumer Medicine Information:				
Note: Use with caution in opioid dependence: may have an acute withdrawal syndrome e.g. anxiety, agitation, tachycardia, confusion, or rarely more severe effects e.g. seizures, pulmonary oedema or arrhythmias. There should be an improvement within 1 minute. Reconsider diagnosis if no response after a total of 10 mg has been given. Opioids 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				
Use in pregnancy: Do not use in opioid dependent women; risk of withdrawal in fetus				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

3,4

Organophosphates/carbamates (pesticides) - adult/child

Recommend¹

- Oximes are not generally indicated for the management of organophosphate poisoning

Background²

- Organophosphates are in many insecticides, herbicides and fungicides used in agriculture, industry and in the home garden. Organophosphates include chlorpyrifos, diazinon, dimethoate, fenthion and malathion
- Organophosphate toxicity is a rare and potentially lethal toxicity. Toxicity usually occurs in situations of deliberate overdose
- Carbamates are more recently developed pesticides and clinical presentation is identical to organophosphate ingestions. The duration of effects is usually briefer and sometimes are less severe. Some carbamate products are mixed with methanol, which can be the major toxicity encountered. Carbamates include carbaryl, propoxur, bendiocarb and methomyl
- Occupational dermal, ophthalmic or inhalational exposure which are 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 [Petrol, fuels and other oils \(hydrocarbons\) - ingestion/aspiration, page 276](#)

1. May present with¹

- Central nervous system: headache, slurred speech, blurred vision, restlessness, seizures, confusion, coma
- Acute autonomic features: sweating, miosis, bradycardia, hypotension, salivation, lacrimation, urinary frequency and incontinence, productive cough, bronchoconstriction
- Gastrointestinal effects: nausea, vomiting, diarrhoea,
- Cardiovascular effects: arrhythmias, tachycardia, shock can occur with some organophosphate poisonings
- Muscle weakness and twitching
- Runny nose
- Respiratory failure and unconsciousness may follow

2. Immediate management Not applicable

PPE (gloves, gowns, eye protection) MUST be used when assessing and managing patients with suspected organophosphate poisoning to ensure safety and avoid staff being affected

- See Immediate management under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- Decontamination of the patient is important but immediate management should not be impeded

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

4. Management

- Consult MO/NP first. May advise several stat doses of atropine IV and an atropine infusion

- MO/NP will organise urgent evacuation
- Advanced care, including intubation and suctioning of airways may be required
- All organophosphate ingestions should be discussed with a Clinical Toxicologist. The Poisons Information Centre (PIC) ☎13 11 26 (24 hours) can assist
- 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, page 64](#)
- Aggressive decontamination of skin and eyes. Remove clothing and seal in bags for disposal, and wash skin thoroughly with warm soapy water, and irrigate eyes if contaminated
- Gastrointestinal decontamination is unlikely to be effective due to rapid absorption of the liquid formulations

Paracetamol - adult/child

Recommend^{1,2}

- 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, need to be managed in a facility where they can have serum paracetamol concentration measured 4 hours post ingestion**
- Medical Journal of Australia (MJA): *Guidelines for the management of paracetamol poisoning in Australia and New Zealand* available at: <https://www.mja.com.au/journal/2016/205/4/summary-statement-new-guidelines-management-paracetamol-poisoning-australia-and>
- Intravenous paracetamol errors leading to toxicity are managed differently and are not discussed in this topic. The MO/NP and Poisons Information Centre (PIC) ☎13 11 26 (24 hours), should be consulted where there is an error in IV paracetamol administration

Background^{2,3,4}

- Mortality rates from paracetamol ingestion are low, and most patients recover from toxicity
- 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 1-3 years (10-15 kg)
- 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 ingestion
- Death due to liver failure may result

1. May present with³

- 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
- 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 complications

- 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

2. Immediate management Not applicable

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- Risk assessment for paracetamol toxicity encompasses the ingested dose, the serum concentration, and clinical/laboratory features of liver injury (such as ALT measurement)²

Paracetamol dosing that may be associated with hepatic injury

Adult or a child ≥ 6 years¹

- 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 years²

- 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 hours
- 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^{2,3,4}

- 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 ingestion. All children < 6 years presenting with possible paracetamol ingestion require an urgent consult with the MO/NP or PIC
- All immediate-release ingestions > 30 g and all modified-release ingestions should be discussed with the Poisons Information Centre (PIC) ☎13 11 26
- The patient may require evacuation/hospitalisation
- 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 paracetamol
- In children < 6 years of age with potential accidental paracetamol intoxication, gastrointestinal decontamination with activated charcoal or gastric lavage is not indicated^{1,2}
- Risk assessments for paracetamol toxicity may use a nomogram to determine treatment.

Indications for acetylcysteine are based on the serum paracetamol level plotted on the nomogram, which is sent with the results from pathology². Risk assessment is complicated and advice from MO/NP/Clinical Toxicologists is needed⁴

- Acetylcysteine (Parvolex[®]) given intravenously, is an effective antidote and ensures survival if administered within 8 hours of paracetamol ingestion². If being evacuated, the RFDS will bring this medication with them
- Indications for Acetylcysteine administration include:^{2,5}
 - where serum paracetamol level is not available within 8 hours of ingestion, or if time of ingestions is uncertain
 - where serum paracetamol can be measured, the level at 4 hours post ingestion is above the recommended level on the treatment nomogram

Schedule	4	Acetylcysteine	Prescribing guide

RIPRN and RN only. Must be ordered by an MO/NP

Form	Strength	Route of administration	Recommended dosage	Duration
Injection	200 mg/mL	IV	Adult Initially 150 mg/kg in 200 mL glucose 5% Infuse over 60 minutes THEN 50 mg/kg in 500 mL glucose 5% infused over 4 hours THEN 100 mg/kg in 1 L glucose 5% infused over 16 hours Max. 300 mg/kg in 21 hour period	Give 3 infusions over 21 hours

Provide Consumer Medicine Information: May cause flushing, urticaria and itch. Anaphylaxis is common (1%)

Note: Calculation errors may lead to potentially fatal dosing errors. Calculate dose using actual body weight rounded up to the nearest 10 kg and to a maximum of 110 kg

Management of associated emergency: Stop the infusion. Contact MO/NP. See [Anaphylaxis, page 102](#)

2,4,6

HMP Paraquat ingestion/inhalation/contact - adult/child

Recommend¹

- **PPE (gloves, gowns, eye protection) must be used when assessing and managing patients with suspected paraquat poisoning to ensure safety and avoid staff being affected. Patient clothes, linen and other material in contact with patient must be bagged and sealed**
- 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
- Immediate evacuation for rapid treatment is required

Background¹

- Paraquat is a very common and effective herbicide used world-wide on many agricultural crops
- 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
- Paraquat ingestions have a high mortality rate. Death is early, secondary to multi-organ dysfunction or to pulmonary fibrosis
- Inflammation of the heart muscle (myocarditis), liver, pancreas and kidney damage and pulmonary fibrosis can occur with paraquat poisoning
- Resource booklet available at: <https://www4.syngenta.com/~media/Files/S/Syngenta/documents/paraquat-booklet.pdf>

1. May present with²

- A 'burning skin' sensation¹
- Mild effects include oral, tongue and pharyngeal burning pain and/or ulceration, nausea, vomiting and diarrhoea
- Moderate effects include GI haemorrhage, corrosive injuries to oropharynx and oesophagus, hypotension, respiratory distress, acidosis
- Severe life-threatening effects include:
 - pulmonary oedema
 - kidney and liver injury
 - hyperkalaemia
 - hypotension
 - cardiac arrest
 - coma, seizures
- Profuse vomiting
- Strong odour due to stenching agent added to Paraquat by manufacturer

2. Immediate management³

PPE (gloves, gowns, eye protection) **MUST** be used when assessing and managing patients with suspected paraquat poisoning to ensure safety and avoid staff being affected

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- **Treatment must be rapid. Immediate evacuation. Delays will greatly increase risk of toxicity and death**
- Give activated charcoal immediately. If there is a delay with getting a patient to receive activated charcoal, e.g. isolated patients telephoning in, instruct them to eat soil or food - this will absorb

the paraquat

- Remove, bag and seal all patient clothing and wash skin thoroughly with soap and copious water
- See Immediate management under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

4. Management¹

- Do not give O₂ initially unless ordered by MO/NP. O₂ enhances pulmonary toxicity of paraquat
- Consult MO/NP who may advise:
 - O₂ if SpO₂ falls below 90%
 - base line spirometry and oximetry is of use for monitoring patient condition
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- Bloods, including:
 - UEC
 - FBC
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- If paraquat has contacted eyes, irrigate copiously with sodium chloride 0.9% for 15 minutes. See [Chemical burn to eye, page 367](#)

Amphetamines and cocaine - adult/child

Recommend¹

- 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 \(poisoning and overdose\) - general approach, page 259](#)

4. Management²

- Consult MO/NP who will advise further management which may include:
 - most patients sympathomimetic toxidrome will settle with sedation e.g. diazepam 2.5-5 mg IV up to a maximum of 20-30 mg.
 - 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 (if available). See [Acute hypertensive crisis, page 151](#)
 - myocardial ischaemia - aspirin 300 mg, nitrates e.g. GTN
 - hyperthermia (> 39°C) - cold IV fluids, tepid sponging and ice packs to the groin and axillae. See [Hypothermia, page 229](#)
 - rhabdomyolysis - IV fluids, IDC, fluid balance
- Complicated amphetamine toxicity should be discussed with a Clinical Toxicologist

Cannabis (marijuana) - adult/child

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 \(poisoning and overdose\) - general approach, page 259](#)

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) - adult/child

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 \(poisoning and overdose\) - general approach, page 259](#)
- Patients who arrive with a decreased level of consciousness may require intubation and ventilation

3. Clinical assessment

- See Risk assessment under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)

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. See [Hypothermia, page 229](#)

Sniffing petrol/glue/aerosol - adult/child

Background^{1,2,3}

- Recreational sniffing of fumes can occur directly from the container of the substance 'chroming', by 'huffing' or placing a saturated cloth of the substance over the mouth and nose, or by 'bagging' or pouring the substance into a plastic or paper bag and breathing the fumes
- Substances inhaled include petrol, solvents/acetone in glues, paints, thinners, correction fluids. Others include propellants in aerosols such as deodorants, air fresheners. Presentations may be related to acute or chronic use
- Inhalation can be associated with cardiac arrest known as sudden sniffing death syndrome
- Rates of inhalation are high in some Aboriginal and Torres Strait Islander communities

Related topics[Acute asthma, page 119](#)[Acute severe behavioural disturbance, page 467](#)[Fits/convulsions/seizures, page 109](#)[Pneumonia - adult, page 329](#)**1. May present with**^{1,2,3,4}

- Cardiac arrest, myocardial infarction, increased QT duration
- Respiratory distress, aspiration
- Fever
- Epistaxis. See [Nose bleed/epistaxis, page 234](#)
- Acidosis
- Fitting
- Headache, nausea, vomiting, abdominal cramping
- Eczema-like itchy rash around mouth and on face, staining to fingers and hands
- Tremor (shakes), nystagmus (eye tremor), ataxia (unsteadiness), blurred vision and slurred speech
- Odour of agent that has been used e.g. petrol, air freshener, glue
- Euphoria, disinhibition, giddiness, confusion, agitation, stupor, hallucinations, delirium
- Withdrawn, strange, aggressive or displaying acutely disturbed behaviour
- Lethargy
- Suicidal intent. See [Suicidal behaviour, page 456](#)

2. Immediate management³

- See Immediate management under [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- If fitting see [Fits/convulsions/seizures, page 109](#)
- Treat in well ventilated room to ensure safety of self, staff, family and visitors from fumes³
- If patient is confused or withdrawn, strange, aggressive or displaying acutely disturbed behaviour ensure safety of self, staff, family and visitors:
 - 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 [De-escalation techniques, page 789](#) and see [Acute severe behavioural disturbance, page 467](#)

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 Q-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^{3,4}

- For management of behavioural disturbance see [Acute severe behavioural disturbance, page 467](#)
- Most cases can be managed by removing the substance and allowing patient to rest
- If evidence of chest signs and symptoms MO/NP may advise treatment. See [Acute asthma, page 119](#) and [Pneumonia - adult, page 329](#)
- May require O₂ to maintain SpO₂ saturation > 94% adult or > 95% child. See [Oxygen delivery, page 64](#)
- 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 sedation
- Always consider non-accidental injury where injury or presentation is inconsistent with history or is unexpected in children or other vulnerable people.¹ See [Child protection, page 760](#)
- If allowed home, patient should be discharged into the care of a responsible person

5. Follow up³

- Advise to be reviewed daily for 2-3 days. Respiratory symptoms in particular may be delayed
- Advise to see MO/NP at next clinic

Sedatives/hypnotics - adult/child

E.G. BENZODIAZEPINES, ZOPICLONE, ZOLPIDEM

Background^{1,2}

- 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^{2,3}

- 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 \(poisoning and overdose\) - general approach, page 259](#)

4. Management^{2,3}

- 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)

HMP Snakebite including sea snake - adult/child

Recommend^{1,2,3,4}

- Every snakebite should be treated as potentially venomous
- Snakebite is a potential medical emergency and should receive a high priority assessment, even if the patient appears well
- Antivenom is not indicated without signs of systemic envenomation⁵
- Outside of Tasmania and Victoria, if the type of snake is accurately identified, use the appropriate monovalent antivenom for that snake. It is less likely to cause side effects¹. In all other circumstances, use polyvalent antivenom⁵
- MO/NP will arrange evacuation/hospitalisation as required. MO/NP is advised to contact Clinical Toxicologist early
- Expert advice is available from the Poisons Information Centre (PIC) ☎ 13 11 26 (24 hours)

Background^{1,2,3,4}

- Snakebite is relatively common in regional and remote areas. Envenomation is rare
- Many Australian snakes have potentially lethal bites. Venoms are a complex mixture of substances that cause a range of effects such as muscle paralysis, bleeding, muscle damage and acute kidney injury

1. May present with^{2,3,4}

- No symptoms, but a history suggestive of a bite
- No obvious bite site
- Obvious bite site often appears as a single mark or small scratch. Pain, redness and local tissue swelling may be present but is not a feature of Australian snake bites^{3,4}
- Signs and symptoms of envenomation:
 - sudden collapse (often prior to presentation), hypotension and altered consciousness
 - occasionally cardiac arrest or seizure
 - non-specific systemic effects e.g. nausea, vomiting, abdominal pain, headache, sweating and diarrhoea
 - 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^{2,4}

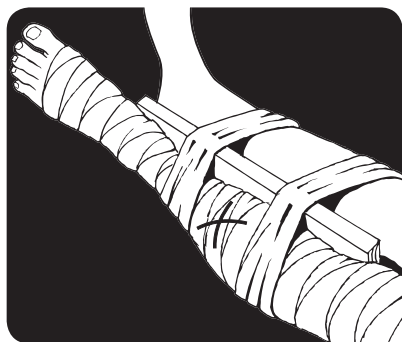
- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Aim to delay lymphatic spread of venom and possible systemic effects through immobilisation, of

both the patient and the affected limb

- 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
- If bandaged do not remove
- Apply a pressure bandage with immobilisation. See **Procedure for pressure immobilisation bandage** below
- Keep the patient at rest and as calm and still as possible, provide reassurance
- Note time of snakebite
- Avoid unproven and harmful techniques such as tourniquets, ice, cutting, sucking
- 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 envenomed

Procedure for pressure immobilisation bandage^{3,4,6}

- Use a broad elastic bandage (15 cm) relevant to size of patient
- Apply a firm bandage over the bite site using firm pressure (should be unable to easily slide a finger between the bandage and skin)
- Then apply a further bandage upwards from the lower portion of the bitten 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



- 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 help

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 Q-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)
- **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

4. Management^{4,7}

- Consult MO/NP immediately
- Ensure limb is appropriately bandaged and apply further bandages as necessary without removing the first bandage
- Insert 2 x IV cannula – use the largest possible gauge given age and vascular status
- Monitor vital signs and urine output
- Collect blood for FBC, UE, CK and coagulation tests (INR, aPTT, D Dimer). This can be sent with the patient
- Do not use point of care analyser e.g. iSTAT, to assess the coagulation status of, or to monitor the treatment of, possible or confirmed snake bite patients
- Collect urine for urinalysis
- If hypotension/shock is present, commence bolus sodium chloride 0.9% or Hartmann's solution at 20 mL/kg stat. Consult MO/NP who will advise subsequent volumes/rate. See [Shock, page 77](#)
- 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) are no longer recommended for use^{8,9}

Indications for antivenom^{1,3,5,7}

- Laboratory evidence of envenoming e.g. coagulopathy
- Clinical evidence of envenoming e.g. neurotoxicity, sudden collapse, convulsions, myoglobinuria
- 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 (species

specific) antivenom⁹ or 1 ampoule of polyvalent. More than 1 ampoule is usually not required

- Monovalent antivenom is used:⁹
 - where laboratory testing confirms the species of snake
 - the species of snake has been identified by a licensed reptile handler or zoo or museum snake expert
 - in Tasmania (tiger snake monovalent)
 - in Victoria (tiger snake monovalent plus brown snake monovalent)

**In any circumstance where unable to positively confirm snake species
polyvalent antivenom must be used**

- Patients receiving antivenom should be in a resuscitation area where an allergic reaction can be managed
- Draw up adrenaline (epinephrine) 0.5 mL of 1:1000 for adults. Keep close at hand in the event of an allergic reaction/anaphylaxis to the antivenom. See [Anaphylaxis, page 102](#)
- Check BP and HR every 5 minutes while antivenom is being administered
- In cardiac arrest undiluted antivenom, administered as a rapid IV push, may be life saving¹¹
- Check tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)

Schedule

4

Polyvalent snake antivenom

**Extended authority
ATSIHP/IHW/IPAP/RIPRN**

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN must consult MO/NP unless circumstances do not allow, in which case notify MO/NP as soon as circumstances allow

Form	Strength	Route of administration	Recommended dosage	Duration
Injection	40,000 units/50 mL Contains 5 monovalents: Brown snake Tiger snake Death adder Taipan Black snake	IV	Adult and child 1 vial (40,000 units) Dilute with 450 mL sodium chloride 0.9% or Hartmann's In a small child, to avoid fluid overload, dilute with 200 mL	stat Begin infusion slowly, watching for adverse effects If no adverse reaction, increase rate and infuse over 20 minutes Additional doses on MO/NP order

Provide Consumer Medicine Information: May commonly cause anaphylaxis, rash, urticaria. Serum sickness (symptoms of fever, rash, joint and muscle pain) may occur up to 14 days later

Note: In life threatening emergency situations can be injected undiluted. Continue to monitor for adverse effects post administration: if these occur, treat promptly

Use in Pregnancy: Fetal death is common in pregnant snakebite victims. Obvious benefits to mother and fetus outweigh potential risks of antivenom

Management of associated emergency: Ensure adrenaline (epinephrine) and resuscitation equipment readily available. If patient develops a significant allergic reaction e.g. itching of the skin, hives, angioedema, hypotension/shock and loss of consciousness, immediately stop the infusion and give adrenaline (epinephrine). See [Anaphylaxis, page 102](#). Consult MO/NP

1,10,11

5. Follow up

- If antivenom is used, complete and send off the questionnaire that comes with each ampoule
- Be aware serum sickness can occur within the first two weeks after exposure to antivenom. The features are rash, fever and polyarthralgias or polyarthritis. The use of prophylactic steroids to reduce the incidence of serum sickness is controversial and should be discussed with the Clinical Toxicologist¹

6. Referral/consultation

- Consult MO/NP on all occasions of snakebite

HMP Spider bites (general) - adult/child

Related topics

[Funnel-web \(big black\) spider bite, page 297](#)

[Redback spider bite, page 299](#)

1. May present with^{1,2}

- A history of being bitten by a spider
- Fang marks or no marks, with or without bleeding
- 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, sweating, respiratory distress
 - 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 Q-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
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Check tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)
- Necrotic lesions have not been reported from confirmed spider bites in Australia^{1,2}

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

HMP Funnel-web (big black) spider bite - adult/child

Recommend³

- 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

Background^{1,2}

- Funnel-web spiders are the most dangerous spiders in Australia. Their venom can cause a rapidly developing life-threatening illness, but envenomation is rare

Distribution of funnel web spiders in Australia³



©2013 *A Clinician's Guide to Australian Venomous Bites and Stings*. A/Prof. Julian White

1. May present with¹

- If severe systematic envenomation occurs, it develops rapidly, usually within 30 minutes and almost always within 2 hours
- History of witnessed painful bite by big black spider with large fangs
- Severe pain at bite site, bleeding from site, but little local reaction - no swelling/redness
- Tongue and other muscle twitching, tingling of the lips
- Lacrimation, piloerection (erection of the hair on limbs), sweating, hypersalivation
- Abdominal pain, nausea, vomiting, headache
- Hypertension, bradycardia or tachycardia

- Breathlessness, pulmonary oedema
- Anxiety
- In young children, the first indication of envenoming may be sudden severe illness with inconsolable crying, salivation, vomiting or collapse¹

2. Immediate management^{1,2}

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#) - managed in an area with cardiorespiratory and resuscitation equipment if possible
- Apply pressure immobilisation bandage. See [Snakebite including sea snake, page 292](#)
- Apply a splint to immobilise the limb

3. Clinical assessment²

- Include in history taking:
 - description of spider (if seen)
 - time of bite
 - site location and features of the site
 - geographical location where bite occurred
 - first aid measures
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination observing for any signs of envenomation

4. Management^{1,3}

- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- 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 envenomation
- 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
- Complete an ECG
- Check tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)
- **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 given⁶
- If not evacuated/hospitalised observe for 4 hours

Schedule	4	Funnel web spider antivenom	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN must consult MO/NP unless circumstances do not allow, in which case notify the MO/NP as soon as circumstances do allow				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	125 units Reconstitute with 10 mL water for injections Gently swirl: may take up to 10 minutes to dissolve	IV	Adult and child Initial dose 2 vials (4 vials if severe envenomation)	stat Inject over 2-5 minutes May be repeated on MO/NP order in 15 minutes
Provide Consumer Medicine Information: May cause anaphylaxis, rash, urticaria and serum sickness (symptoms of fever, rash, joint and muscle pain up to 14 days later)				
Note: Dissolved solution should appear slightly opalescent to colourless. Anaphylaxis can occur rapidly				
Use in Pregnancy: Limited data available. Benefits to mother and fetus may outweigh potential risks				
Management of associated emergency: Ensure adrenaline (epinephrine) and resuscitation equipment readily available. If patient develops a significant allergic reaction e.g itching of the skin, hives, angiooedema, hypotension/shock and loss of consciousness, immediately stop the injection and give adrenaline (epinephrine). See Anaphylaxis, page 102 . Consult MO/NP				

3,4,5,6

3,4,5,6

5. Follow up²

- If not evacuated/hospitalised advise to be reviewed the 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 polyarthritis

6. Referral/consultation

- Consult MO/NP on all occasions of suspected funnel-web spider bite

HMP Redback spider bite - adult/child

Recommend¹

- Do not apply pressure immobilisation bandage
- Treatment is symptomatic

Background¹

- Red-back spider (*Latrodectus hasselti*) bite is not life-threatening, even to children. No deaths have been reported in the past 60 years

1. May present with²

- 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 general
- Localised, patchy sweating and piloerection (erection of hair) can occur within an hour around the bite site and spreads gradually
- 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 months
- Very rarely, severe cases can lead to progressive muscular paralysis

2. Immediate management See Management

Do not apply a pressure immobilisation bandage for redback spider bites. Envenoming is not life threatening and resuscitation is rarely required

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 Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - location of site
 - features of bite

4. Management^{1,3}

- Reassure the patient
- Apply an ice pack, or heat pack, to bite site
- Clean the wound with antiseptic or wash with soap and water to help prevent secondary infection
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- 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 envenomation or the diagnosis is in doubt
- Recent trials suggest any effect from red-back spider antivenom is less than effect of standard analgesia¹
- 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 tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)

5. Follow up

- Review symptoms and wound daily

6. Referral/consultation

- Consult MO/NP if severe or persistent local or systemic symptoms

HMP Scorpion stings and centipede bites - adult/child

Recommend¹

- Australian scorpion and centipede species do not cause systemic envenomation. Symptoms are localised to sting site

1. May present with²

- 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 tingling
- Severe local pain is common lasting 15-45 minutes, occasionally longer
- Centipede stings may cause itchiness around sting site
- Occasional systemic symptoms mild, non-specific and self-limiting include nausea, headache and malaise

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 Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - site and feature of sting/bite

4. Management^{3,4}

- Reassure patient
- Apply an ice pack to sting/bite site
- For centipede stings, alternate pain relief to ice pack includes immersion of affected area in hot water or under a shower as hot as the patient can tolerate (45°C)³. 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 minutes
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Clean the wound with soap and water to help prevent secondary infection
- Consult MO/NP if patient not responding to simple analgesia
- Check tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)

5. Follow up

- Advise daily wound care and review as required

6. Referral/consultation

- Consult MO/NP as above or if systemic symptoms

HMP Tick bites - adult/child

TICK PARALYSIS/TICK TYPHUS

Recommend¹

- Ticks should not be removed but should be killed and allowed to drop off. Avoid methods 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
- Previous guidelines have recommended various tick removal devices or the use of fine forceps. Removal of ticks in this manner may result in the release of higher amounts of toxin that could pose an allergy risk. In addition, a portion of the tick's head or mouthpiece may remain embedded in the host
- **Note:** ticks and scrub mites may carry rickettsia that cause tick typhus and scrub typhus². Consult MO/NP

Background^{3,4}

- There are numerous species of tick in Australia, but only one genus (*Ixodes*) includes ticks whose saliva produces potentially severe and lethal consequences in susceptible humans
- *Ixodes* are found throughout eastern Australia and Tasmania

Related topics

[Anaphylaxis, page 102](#)

1. May present with

- Allergic reaction - ranging from localised swelling to severe life-threatening anaphylaxis
- Initially, local itching and irritation 6-12 hours after bite
- If tick is located on 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 leading to difficulty walking, poor balance and poor coordination
 - visual symptoms such as difficulty reading and double vision
 - cranial nerve palsy (changes to facial movements, sensory changes)
 - regional nerve palsy (numbness, tingling, paralysis in limbs, hands or feet)
- Symptoms can worsen for up to 48 hours after killing the tick

2. Immediate management⁴

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- See [Anaphylaxis, page 102](#)
- Check for medical alert jewellery

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 Q-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 and skin folds 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

- If the patient has a known tick allergy, tick removal should be done in an area with resuscitation facilities available and under the guidance of MO/NP. See [Anaphylaxis, page 102](#)
- Where severe allergy is known to exist, patient may have an allergy action plan which should be followed
- After tick has fallen off, 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 swelling
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Check tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)

Procedure for removal of tick⁵

- It is recommended that tick removal is achieved by killing the adult tick on the skin with a freezing product and then allowing it to fall off. This may take up to 24 hours
- For small ticks (larvae or nymphs) the recommendation is to apply permethrin cream to kill them and allow them to drop off
- When located, the tick is carefully killed with every attempt made to ensure tick falls off
- Take care not to squeeze the body of the tick or use any methods which may agitate the tick
- Do not use a tick removal device
- To kill the tick and minimise the risk of allergic reaction, the Australian Society of Clinical Immunology and Allergy (ASCI) recommends freezing the tick by the application of an ether-containing spray e.g. Wart-Off Freeze[®], Elastoplast Cold Spray[®] or applying permethrin e.g. Lyclear[®] cream to small ticks. See [Scabies, page 415](#)
- Wait for the tick to drop off, and then carefully brush tick away

5. Follow up⁴

- Consult MO/NP if any signs of tick bite paralysis. The MO/NP will arrange evacuation/hospitalisation
- Advise daily wound care after removal and review as required
- It is normal for a tick bite site to remain swollen and inflamed for several days

- Advise patient that symptoms may become worse for up to 48 hours after tick removal and that they should return if symptoms worsen
- If symptoms have not fully resolved within 72 hours, advise patient to return

6. Referral/consultation

- Consult MO/NP if severe or persistent local or systemic symptoms or evidence of allergic reaction

HMP **Box jellyfish (*Chironex fleckeri*) envenomation** - adult/child

Recommend^{1,3}

- Remove tentacles if possible with care and douse all visible sting sites with vinegar to inactivate any undischarged sting cells
- Several metres of tentacle contact can result in rapid cardiovascular collapse and death. Initiate CPR, may require prolonged CPR
- Give antivenom as soon as possible if there is evidence of life threatening envenoming

Background^{1,2}

- Box jellyfish have a large box like body around 20-30 cm in size and have multiple long tentacles that containing millions of stinging cells that discharge into the skin upon contact
- Box jellyfish inhabit estuaries and coastal waters close to shore
- Antivenom is available

Related topics

[Irukandji syndrome, page 306](#)

1. May present with³

- 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^{1,4}

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Consult MO/NP for required resuscitation medicines
- Even if respiratory or cardiac arrest, and no antivenom available, continue CPR until MO/ NP advises to stop
- Gently remove visible tentacles with forceps or gloved fingers, taking care to avoid skin contact
- Douse the sting area and all adherent tentacles with copious amounts of vinegar, for at least 30 seconds. Use seawater if no vinegar is available
- 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 2 x IV cannula - use the largest possible gauge given age and vascular status
 - if not possible to achieve IV access intraosseous route should be considered
- Nil by mouth

3. Clinical assessment

- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - note in particular cardiovascular system - BP and HR
 - attach to monitor and observe for arrhythmias
 - ECG
- Perform physical examination - site, size and features of sting
- Include in history:
 - time of sting
 - first aid measures taken
- If possible, retain some removed tentacles for toxicology in sealed container
 - note: ensure you have gloves on to avoid envenomation

4. Management⁴

- Manage patient in area equipped for cardiorespiratory monitoring and resuscitation if possible
- Consult MO/NP
- Continue CPR if in cardiac arrest. This should continue for at least 1 hour
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#). An IV opioid will be necessary. Consult MO/NP
- Application of ice packs to affected areas can reduce pain⁵
- Give box jellyfish antivenom for systemic envenomation
- In cardiac arrest, undiluted antivenom, administered as a rapid IV push can be lifesaving

Schedule	4	Box jellyfish antivenom	Extended authority ATSIHP/IHW/RIPRN	
RN must consult MO/NP				
ATSIHP, IHW and RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	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 Infuse over 5-10 minutes Additional doses may be given on MO/NP order (if patient in cardiac arrest CPR should continue until at least 6 vials are given)
Provide Consumer Medicine Information: Serious adverse effects e.g. anaphylaxis and serum sickness have not been reported with box jellyfish antivenom. Transient rash may occur				
Note: In cardiac arrest, undiluted antivenom, administered as a rapid IV push can be lifesaving. 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: Consult MO/NP. See Anaphylaxis, page 102				

3,4,7

3,4,7

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

HMP Irukandji syndrome - adult/child

Recommend¹

- Apply generous volumes of vinegar to all visible sting sites. No antivenom is available

Background²

- This syndrome is associated with stings by stinging cells on the tentacles and body of the Irukandji (*Carukia barnesi*) and some other species of jellyfish and can result in life threatening symptoms, with a small number of patients developing cardiac failure
- Unlike box jellyfish, Irukandji stings can occur near the shore or far offshore in tropical waters
- Only a small area of skin contact, as little as a few square centimetres, is required to be stung to have a major envenomation
- Stings may go unnoticed but within 20 minutes may develop severe generalised pain in abdomen, back and chest

Related topics

[Box jellyfish \(*Chironex fleckeri*\) envenomation, page 304](#)

1. May present with^{3,4}

- Minor short-lived pain with initial sting or may go unfelt initially
- Onset of systemic symptoms 15-40 minutes after sting:
 - generalised back, abdominal, chest and muscle 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 management⁴

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Consult MO/NP for required resuscitation medicines
- In the event of respiratory or cardiac arrest, continue CPR (EAR ± ECC) until MO/NP advises to stop
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- Douse the sting area and all adherent tentacles with copious amounts of vinegar, for at least 30 seconds. Use seawater if no vinegar is available
- Gently remove visible tentacles with forceps or gloved fingers, taking care to avoid skin contact

3. Clinical assessment⁴

- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - monitor RR and any signs of respiratory distress
 - monitor BP (severe hypertension may occur)
- Cardiac monitoring:
 - attach to monitor and observe for arrhythmias until evacuation
 - ECG
- Perform physical examination:
 - auscultate the chest for added sounds (crackles or wheezes), as an indication of pulmonary oedema
 - document site, size and features of sting
- Include in history taking:
 - time of sting
 - first aid measures used

4. Management^{4,5}

- Consult MO/NP who will arrange evacuation
- Apply high flow O₂
- Monitor BP, HR, SpO₂, respirations
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Control of hypertension may be life saving as a number of deaths have occurred due to intracerebral haemorrhage:
 - if systolic BP > 200 mmHg and/or diastolic BP > 120 mmHg - give 2 sprays sublingual glyceryl trinitrate (GTN) whilst awaiting evacuation. May repeat as required on MO/NP orders⁶
 - MO/NP may commence IV glyceryl trinitrate infusion
 - See [Acute hypertensive crisis, page 151](#)
- Contact Poisons Information Centre (PIC) ☎ 13 11 26 if assistance is required or referral to a Clinical Toxicologist is required

5. Follow up

- All patients to be evacuated and hospitalised

6. Referral/consultation

- Consult MO/NP in all cases of suspected irukandji syndrome

HMP Bluebottle (*Physalia*) and other jellyfish stings - adult/child

Recommend¹

- Do not use vinegar. It is only used for box jellyfish (*Chironex Fleckeri*) and Irukandji Syndrome

1. May present with^{1,2}

- Immediate burning pain (lasts up to 2 hours)
- Linear or spindle (elliptical) red welts
- Systemic effects are uncommon

2. Immediate management Not applicable

3. Clinical assessment

- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Include in history:
 - time of sting
 - first aid measures used
- Perform physical examination:
 - site, size and features of sting

4. Management^{1,3,4,5}

- Gently pick off any remaining tentacles with forceps or gloved fingers
- 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 minutes
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Monitor for allergic reactions

5. Follow up

- Review if any indication of systemic symptoms e.g. 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 (suspect box jellyfish or Irukandji Syndrome)
- Transport to hospital or medical intervention is rarely required

Blue-ringed octopus and cone shell envenomation - adult/child

Background^{1,2}

- Blue-ringed octopus are found in coastal areas throughout Australia including Tasmania
- Toxins are found in blue-ringed octopus saliva and envenomation occurs from bites by distressed octopus
- Many species of cone shell are found in Australian tropical waters. They sting by firing a small harpoon with toxins from their mouths which pierces the skin
- Venom from both molluscs causes death by paralysis leading to respiratory failure

1. May present with

Blue-ringed octopus^{1,2,3}

- Often painless sting
- Tingling sensation around the mouth and tongue
- Local symptoms are minimal or absent
- Collapse on or near the beach shortly after a minor sting
- Early signs of systemic envenomation:
 - ptosis, drooping upper eyelid
 - blurred vision
 - double vision
 - difficulty swallowing
- Flaccid paralysis - occurs within minutes of sting
- Respiratory/cardiac arrest

Cone shell²

- Local pain, swelling and numbness
- Can progress to muscle unco-ordination and weakness, disturbance of speech, vision and even hearing loss
- Swallowing/breathing difficulties and respiratory paralysis if severe envenomation

2. Immediate management^{2,3,4}

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Continue CPR until MO/NP advises to stop
- Apply a pressure immobilisation bandage over the wound site and involved limb. See [Snakebite including sea snake, page 292](#)
- 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 Q-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^{3,4}

- Consult MO/NP, who will organise evacuation
- 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 insitu 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

HMP Fish stings - adult/child

STONEFISH, BULLROUT, CAT FISH AND OTHER SPINY FISH

Recommend

- Do not apply pressure immobilisation bandage²

Background¹

- Most fish stings are minor and do not require medical intervention
- Severe systemic envenomation is uncommon
- Many species of fish can cause painful stings, including scorpion (lion) fish, rabbitfish (Happy Moments), scats, and other

Related topics

[Acute wound\(s\), page 198](#)

[Sea urchin injuries, page 314](#)

[Water related wounds, page 209](#)

1. May present with^{1,3}

- Immediate and intense pain which may be out of proportion to the extent of the wound
- 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

2. Immediate management⁴

- 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 minutes⁴

3. Clinical assessment

- Include in history:
 - circumstances of injury
 - time of injury
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - inspect site of injury. See [Acute wound\(s\), page 198](#)

4. Management

- Consult MO/NP for:
 - all stonefish stings that warrant opioid analgesia
 - stonefish sting with systemic symptoms
 - 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
 - any requirement for antibiotic prophylaxis
- Reassure the patient
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Options for pain control may include:⁴
 - lidocaine (lignocaine) 1% subcutaneously infiltrated around the wound is effective
 - **note:** caution if/when combining with immersion of wound in hot water
 - consult MO/NP regarding opioid analgesia - depending on severity of injury may order IV morphine
- Apply general principles of wound management⁴. See [Acute wound\(s\), page 198](#) and [Water related wounds, page 209](#):
 - 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 tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)
 - elevate wound
 - antibiotics may be necessary
- Evacuation/hospitalisation and MO/NP may consider administration of stonefish antivenom for systemic symptoms or severe pain
- Stonefish antivenom can be given IM however IV is likely to be more effective⁸. Stonefish antivenom must always be administered in a critical care area with readily available resuscitation drugs and equipment⁴

Schedule	4	Lidocaine (lignocaine)	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	1% 50 mg/5 mL	Subcut	Adult and child ≥ 12 years or > 50 kg up to 3 mg/kg to a total max. of 200 mg Child < 12 years up to max. of 3 mg/kg	stat
Provide Consumer Medicine Information: Report any drowsiness, dizziness, blurred vision, vomiting or tremors				
Note: Use the lowest dose that results in effective anaesthesia				
Management of associated emergency: Ensure resuscitation equipment readily available. Consult MO/NP. See Anaphylaxis, page 102				

5,6,7

5,6,7

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 as above

HMP 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 emergency^{1,2}
- Do not use the pressure immobilisation technique²

Related topics

[Acute wound\(s\), page 198](#)
[Water related wounds, page 209](#)

1. May present with

- History of injury from stingray
- Lacerations
- Local trauma and severe pain
- Barb or spine insitu

2. Immediate management

- Do not remove any embedded barbs in chest or abdomen, place padding around or above and below barb and apply pressure over the pads to control bleeding.²
- If on trunk treat urgently. See [Chest injuries, page 171](#), [Abdominal injury, page 183](#)

3. Clinical assessment

- Include in history:
 - time of injury
 - first aid measures used
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - site, size and features of injury
- Observe for increasing local pain which spreads to the entire limb, swelling and a characteristic bluish white appearance of the wound²
- Systemic effects are rare, they include nausea, vomiting, muscle cramps, diarrhoea, sweating, syncope and cardiac arrhythmias

4. Management

- Wash the wound site. Do not remove penetrating barbs, especially those affecting the chest and abdomen¹
- 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 minutes^{1,2,3}
- Apply local pressure for bleeding²
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#). Oral paracetamol may be sufficient analgesia or an IV opioid may be necessary⁴
- Tetanus prophylaxis may apply for penetrating injuries.⁴ Check tetanus vaccination status and give booster if indicated. See [Immunisation program, page 768](#)
- MO/NP may consider antibiotics. See [Water related wounds, page 209](#)

5. Follow up

- Advise daily wound care and review as required

6. Referral/consultation

- Stingray wounds to trunk require immediate evacuation for surgical assessment
- Transport to hospital or medical intervention for possible wound debridement or surgery

HMP Sea urchin injuries - adult/child

Recommend²

- General principles of wound management for penetrating wounds should be followed

Background¹

- Sea urchins have long, sharp spines that can penetrate flesh, rubber soled shoes and wet suits. Spines easily break off deep in the wound.
- Injuries are common where an individual has stepped on or fallen onto a sea urchin

Related topics

[Acute wound\(s\), page 198](#)

[Water related wounds, page 209](#)

1. May present with¹

- Local pain
- Redness, swelling, bleeding from multiple puncture wounds
- 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 Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - site, size and features of injury

4. Management^{1,3}

- Wash the wound site
- Remove visible spines
- Removal of spines close to surface. Soap and warm water may dissolve spines
- Skin discolouration may indicate the presence of spines. If discolouration resolves within 46 hours, it is unlikely that embedded spines are present
- Check tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)
- X-ray may be required to identify any embedded spines
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Additional pain control measures include immersing affected area in water or shower as hot as patient can tolerate (45°C) for up to 90 minutes. Put both limbs in hot water so individual can gauge heat. Use with caution in young children and those with poor peripheral circulation e.g. elderly and diabetic.

5. Follow up³

- Review if any ongoing pain or indication of retained spines. Sharp, localised pain exacerbated by application of pressure may indicate retained spines in tissue. Further x-rays or ultrasound may be required

6. Referral/consultation

- Transport to hospital for medical intervention if required

HMP Sponges - adult/child

Background^{1,2}

- Species of venomous sponges can be found in all coastal waters of Australia
- Sponge related injuries are rare

1. May present with^{1,2}

- Mild local itching and stinging
- Occasionally prolonged symptoms of erythema, but also vesicles, local swelling and joint stiffness can develop
- Fire sponges are reported to cause delayed reactions and peeling of the skin can occur after 2-3 weeks

2. Immediate management Not applicable

3. Clinical assessment

- Include in history:
 - time of sting
 - first aid measures used
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - site, size and features of sting

4. Management¹

- Wash the site
- Oral paracetamol is usually sufficient analgesia. See [Acute pain management, page 35](#)

5. Follow up

- Review if any ongoing symptoms

6. Referral/consultation

- Usually not required

HMP Ciguatera poisoning - adult/child

Background¹

- Ciguatera is caused by the ingestion of fish which contain ciguatoxins
- Diagnosis is clinical as no laboratory tests exist for ciguatera
- Pacific and Indian Ocean ciguatera can be associated with ongoing mental status changes, including hallucinations and dizziness, and ataxia²
- Ciguatera poisoning is rarely fatal

Related topics

[Acute gastroenteritis/dehydration - adult, page 243](#)

[Toxicology \(poisoning and overdose\), page 259](#)

1. May present with^{1,2,3}

- Symptoms of ciguatera poisoning develop within 6-12 hours of ingestion of fish contaminated with ciguatoxins
- Symptoms are grouped into neurological, gastrointestinal or non-specific:
 - dehydration
 - pruritis
 - gastrointestinal:
 - moderate to severe nausea, vomiting, diarrhoea, abdominal pain
 - gastrointestinal symptoms occur early and resolve within 12 hours
 - neurological:
 - numbness and tingling of the hands and around the mouth
 - sensation that teeth are loose
 - hot and cold sensation reversed such that cold items give a hot sensation and vice versa
 - headache, weakness, faintness, fatigue
 - joint and muscle pain
 - pain on passing urine
 - sweating, chills
 - breathlessness
 - neurological symptoms appear over 24 hours
 - non-specific:
 - slow HR, heart block hypotension
 - onset of symptoms can vary, usually within 1 to 48 hours of ingestion

2. Immediate management Not applicable

3. Clinical assessment^{2,3}

- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Take bloods for UE
- Obtain a full history including:
 - type and amount of fish ingested
 - when ingested
 - how many other individuals who ate the fish also feel unwell
- Ask about any symptoms, particularly gastrointestinal symptoms, that may have been experienced in hours before presentation

- If patient has breastfed an infant since consuming fish, infant should be fully assessed for symptoms of ciguatera poisoning

4. Management^{2,3}

- Consult MO/NP in all cases of suspected ciguatera poisoning
- If bradycardia (slow HR), hypotension or moderate to severe symptoms - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- Administer antiemetic as clinically indicated. See [Nausea and vomiting, page 48](#)
- Consider non-ciguatera causes such as gastric infection or organophosphate poisoning. See [Acute gastroenteritis/dehydration - adult, page 243](#) and [Toxicology \(poisoning and overdose\), page 259](#)
- Ciguatoxin may be passed through breast milk. Assessment of breastfed infants and advice with regard to the safety of breastfeeding may be necessary²
- Advise the patient that:
 - the joint and muscle pains, weakness and temperature reversal may take weeks to months to resolve completely
 - gastrointestinal symptoms usually settle in 1-4 days
- 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 any type of fish for at least 3-6 months
- Symptoms can be exacerbated by ingestion of some foods and these should be avoided for 3-6 months, including:
 - non-toxic seafood,
 - nuts
 - alcohol
 - caffeine
 - pork, chicken
- Opioids can exacerbate symptoms

5. Follow up^{2,3}

- If not evacuated/hospitalised advise to be reviewed the next day
- Consult MO/NP if there is:
 - ongoing mental status changes
 - depression, anxiety
 - difficulty walking
 - fatigue, malaise (which may be debilitating)

6. Referral/consultation

- Ciguatera is a notifiable condition in Queensland and may be in other jurisdictions ①
- Contact your Public Health Unit by telephone
- Reporting resources for Queensland available at <http://disease-control.health.qld.gov.au/Condition/731/ciguatera-poisoning>

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General



Mild and moderate allergic reactions

HMP Urticaria, allergic rhinitis - adult/child

Recommend

- Be alert to signs of anaphylaxis (severe allergic reaction)

Background^{1,2}

- Mild allergic reactions typically involve skin features - urticarial rash or erythema, flushing and/or angio-oedema. Severe allergic reactions (anaphylaxis) also involves respiratory and/or cardiovascular and/or gastrointestinal symptoms
- Acute urticaria can last from a few minutes to 24 hours. If it lasts longer than 6 weeks it is considered chronic urticaria
- ASCIA Action plan for allergic rhinitis available at <https://www.allergy.org.au/patients/allergic-rhinitis-hay-fever-and-sinusitis/allergic-rhinitis-treatment-plan>

Related topics

[Anaphylaxis, page 102](#)

[Allergic conjunctivitis, page 382](#)

[Acute asthma, page 119](#)

1. May present with

Urticaria³

- Central swelling (wheal) of variable size, surrounded by erythema (hives)
- Associated itching, or sometimes burning sensation
- Angio-oedema sometimes co-exists - swelling of face, tongue or lips

Allergic rhinitis (hay fever)⁴

- Sneezing, itchy nose, sniffing, upward rubbing of nose
- Clear rhinorrhoea, nasal obstruction/congestion
- Itchy throat, frequent need to clear throat
- Watery, itchy eyes (allergic conjunctivitis) may occur concurrently

Be alert to signs of anaphylaxis (severe allergic reaction)

- Difficult/noisy breathing
- Wheeze or persistent cough
- Swelling of tongue
- Persistent dizziness or collapse
- Swelling/tightness in throat
- Pale and floppy (young children)
- Difficulty talking/hoarse voice
- Vomiting and/or abdominal pain - for insect stings/bites
- And/or any acute onset:
 - hypotension, bronchospasm or upper airway obstruction, **OR**
 - illness with skin features **PLUS** respiratory/cardiovascular or persistent severe gastrointestinal symptoms

2. Immediate management

- If any signs of anaphylaxis give adrenaline (epinephrine) without delay. See [Anaphylaxis, page 102](#)

3. Clinical assessment⁵

- Obtain complete patient history:
 - any known allergies/triggers
 - recent viral infection or insect bite - common causes of urticaria in children
 - previous episodes, treatment used, was it effective
 - contact with irritant/allergens e.g. nickel, detergents, cosmetics, rubber, topical medicines, shampoo, hair dye, clothing, dust mite, animal dander, moulds, pollens
 - contact with plants - stinging tree
 - contact with animals - caterpillars, bird lice, honey bees
 - recent intake of foods - seafood, peanuts
 - time of potential contact with irritant
 - current medications
 - coexisting conditions e.g. asthma, eczema
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - inspect skin:
 - describe lesions - red, swollen, flat, linear pattern
 - are lesions diffuse, itchy, painful
 - auscultate chest for wheezes. See [Acute asthma, page 119](#)
 - inspect eyes for watering/redness. See [Allergic conjunctivitis, page 382](#)

4. Management

- Consult MO/NP if:
 - angio-oedema e.g. swelling of face, tongue or lips
 - suspected irritant is a medicine before recommending to cease

Allergic rhinitis^{4,6}

- Treat with intranasal corticosteroid (budesonide) and/or oral non-sedating antihistamine - cetirizine or loratadine
- Reduce doses as symptoms improve
- Check patient has ASCIA treatment plan for allergic rhinitis, if not, refer to next MO/NP clinic

Urticaria⁵

- Usually self-limiting
- Treat with oral non-sedating antihistamine - cetirizine or loratadine
- Children > 12 years and adults may need another dose late afternoon
- If sleep of older children or adults is disturbed, add a sedating antihistamine at night (promethazine)
- Oral antihistamine may be effective to treat angioedema; if not, MO/NP may order oral prednisolone

Schedule	2	Budesonide (Rhinocort®)		Extended authority ATSIHP/IHW/IPAP
ATSIHP, IHW, IPAP and RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Nasal spray	32 microgram	Intranasal	Adult and child > 6 years 4 sprays daily OR 2 sprays bd	While symptoms persist Supply max. one bottle
Provide Consumer Medicine Information: May cause nasal stinging, itching, nose bleed, sneezing, sore throat, dry mouth or cough. Avoid spraying at septum. Bend neck forward and look down. Use right hand for left nostril and vice versa. Put nozzle just inside nose, aiming towards outer wall. Avoid sniffing too hard or liquid likely to go straight down throat. Videos on administration: https://www.nationalasthma.org.au/living-with-asthma/how-to-videos				
Pregnancy: Do not use in 1 st trimester				
Contraindication: Severe nasal infection, bleeding disorders, recent nasal surgery				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

6,7

Schedule	2	Cetirizine		Extended authority ATSIHP/IHW/IPAP
ATSIHP, IHW and IPAP may proceed for adults and child > 12 only				
RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	10 mg	Oral	Adult and child > 12 years 10 mg mane	While symptoms persist
Oral liquid	1 mg/mL		Child 1-2 years 2.5 mg bd 2-6 years 5 mg mane 6-12 years 10 mg mane	
Provide Consumer Medicine Information: May cause drowsiness, fatigue, headache, nausea, dry mouth or diarrhoea. Avoid drinking alcohol while taking				
Note: If renal impairment seek MO/NP advice. Increased risk of sedation in elderly: monitor carefully				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5,6,8

Schedule	2	Loratadine		Extended authority ATSIHP/IHW/IPAP
ASTIHP, IHW, IPAP and RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	10 mg	Oral	Adult and child > 30 kg 10 mg Child 2-12 years or < 30 kg 5 mg Child 1-2 years 2.5 mg (tablet can be quartered and crushed)	Once a day in the morning while symptoms persist For adult and child > 12 years, dose may be repeated in late afternoon if needed
Provide Consumer Medicine Information: May cause drowsiness, fatigue, headache, nausea and dry mouth				
Note: If hepatic impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to loratadine or desloratadine				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
				5,6,9

Schedule	3	Promethazine	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW and IPAP must consult MO/NP				
RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	10 mg 25 mg	Oral	Adult 50 mg nocte	While symptoms persist
Oral liquid	5 mg/5 mL		Child 2-12 years 0.5 mg/kg to a max. of 50 mg nocte	
Provide Consumer Medicine Information: May cause sedation, psychomotor impairment, dizziness, confusion, headache, blurred vision, dry eyes, constipation, dry mouth, urinary retention. Avoid alcohol and other sedating medicines				
Contraindication: Avoid use in: Phenylketonuria, epilepsy, respiratory depression, Parkinsons disease, the elderly, children < 2 years				
Use in pregnancy: Safe. Avoid close to delivery: risk of neurological disturbance in infant				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5,10

5. Follow up

- Advise to be reviewed the next day if symptoms continue and at next MO/NP clinic

6. Referral/consultation

- Referral to an Allergist may need to be considered to identify the allergen(s)

Respiratory problems

HMP Upper respiratory tract infection (URTI) - adult

COMMON COLD, INFLUENZA, SORE THROAT, TONSILLITIS, BRONCHITIS, PHARYNGITIS

Recommend¹

- 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
- Most URTI are caused by viruses and do not require antibiotics¹

Background^{1,2,3}

- A viral upper respiratory tract infection can be complicated by secondary bacterial infection requiring antibiotics e.g. acute otitis media, sinusitis, bronchitis, pneumonia
- Other complications include exacerbation of asthma/chronic obstructive pulmonary disease (COPD)
- 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'
- Recommend influenza vaccination for all persons ≥ 6 months of age. For high risk groups, see the current *Australian Immunisation Handbook*⁴

Related topics

[Acute asthma, page 119](#)

[Pneumonia - adult, page 329](#)

[Acute bacterial sinusitis, page 327](#)

1. May present with^{5,6}

- Watery or purulent nasal discharge, sneezing
- Sore throat, red throat and/or tonsils with or without pus, halitosis
- Cough, wheeze, earache, hearing loss
- Enlarged tender cervical (neck) lymph nodes
- Fever, headache
- General malaise, lethargy
- Muscular aches and pains
- Rash
- Facial pain
- Diminished sense of smell

2. Immediate management Not applicable

3. Clinical assessment⁷

- 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 score or other local Early Warning and Response Tools):
 - note in particular RR, T and SpO₂
- Perform physical examination:
 - examine upper respiratory tract - nose, sinuses, throat, tonsils and cervical lymph nodes and ears
 - urinalysis - if positive for blood, see [APSGN, page 700](#)
 - listen to the chest for air entry and added sounds (crackles or wheezes)
 - palpate joints for any swelling
- Observe for meningism, with neck stiffness

4. Management^{1,2,3}

- If the patient has:
 - an increased RR or any chest findings, consider other diagnoses, see [Pneumonia - adult, page 329](#) and [Acute asthma, page 119](#)
 - a cough productive of mucopurulent sputum (bronchitis), consult MO/NP and treat. See [Pneumonia - adult, page 329](#)
 - facial pain or tenderness, see [Acute bacterial sinusitis, page 327](#)

For the adult patient with uncomplicated URTI

- Treatment is symptomatic:
 - encourage rest and increase fluid intake
 - administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
 - consider symptomatic treatment such as steam inhalation, lemon or honey drinks and lozenges, which help some patients
 - if severe nasal congestion consult MO/NP

For the adult patient with complicated URTI

- Indications for antibiotic treatment are:
 - patients aged 2-25 years with sore throat in communities with high incidence of acute rheumatic fever e.g. Aboriginal and Torres Strait Islander communities in central and northern Australia
 - Maori and Pacific Islander people
 - 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 phenoxymethylpenicillin

- If a lack of adherence with oral medicine is anticipated, treat with IM benzathine benzylpenicillin (Bicillin LA®)
- If allergic to penicillin, treat with azithromycin⁴
- Advise exclusion from work and school for 5-7 days
- Advise to wash hands frequently to minimise transmission to others

Schedule	4	Phenoxymethylpenicillin	Extended authority ATSHP/IHW/IPAP/RIPRN

ATSHP, IHW, IPAP and RN must consult MO/NP

RIPRN may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	500 mg bd	10 days

Provide Consumer Medicine Information: May cause diarrhoea, nausea and candidiasis. Food has little effect on absorption

Contraindication: 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, page 102](#)

1,8,9

Schedule	4	Benzathine benzylpenicillin (Bicillin LA®)	Extended authority ATSHP/IHW/IPAP/RIPRN

ATSHP, IHW, IPAP and RN must consult MO/NP

RIPRN may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Injection (pre-filled syringe)	1.2 million units/2.3 mL (900 mg)	IM	Adult 1.2 million units (900 mg)	stat

Provide Consumer Medicine Information: May cause diarrhoea, nausea and pain at injection site

Note: Stop injection immediately if patient shows signs of severe pain. See [Administration tips for benzathine benzylpenicillin, page 787](#)

Contraindication: 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, page 102](#)

1,10

Schedule	4	Azithromycin		Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP					
RIPRN may proceed					
Form	Strength	Route of administration	Recommended dosage	Duration	
Tablet	500 mg	Oral	500 mg daily	5 days	
Provide Consumer Medicine Information: Take with or without food. May cause rash, diarrhoea, nausea, abdominal cramps and candidiasis					
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102					

1, 11,12

1, 11,12

5. Follow up⁶

- Advise to be reviewed the next day if not improving
- If antibiotics have been given for sore throat, advise to be reviewed in 2 weeks. Ask about sore joints, breathlessness, rash and check urinalysis
- Consult MO/NP if symptoms persist or abnormal urinalysis on follow up

6. Referral/consultation

- Consult MO/NP as above

HMP Acute bacterial sinusitis - adult/child

Recommend¹

- Consider foreign body in the nose in children, especially if symptoms are on one side of the nose only
- Most cases resolve without treatment, so routine use of antibiotics is not recommended

Background¹

- Rapid onset of inflammation of the nose and sinuses
- Upper respiratory viral infections can be complicated by an acute bacterial infection
- Acute bacterial sinusitis can also occur in immunocompromised patients or with some dental cysts, and in nasal obstruction

Related topics

[Acute and chronic headache, page 336](#)

1. May present with²

- As per URTI, see [Upper respiratory tract infection \(URTI\) - adult, page 324](#), and additionally:
 - significant facial pain and/or tenderness (less common in children)
 - frontal headache
 - systemically unwell, fever
 - mucopurulent nasal discharge (anterior and/or posterior)/nasal blockage/nasal obstruction

- reduction/loss of smell
- dental pain
- bad breath

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history including:
 - past episodes
 - treatment received
 - medicines 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
 - inspect nostrils in children to exclude foreign body

4. Management¹

- If any associated symptoms of double or reduced vision, mental status deterioration, severe headache or periorbital oedema consult MO/NP urgently
- Consult MO/NP who may advise:
 - antibiotics
 - analgesia
 - nasal saline sprays or nasal douches may relieve nasal congestion from thick mucous⁹
 - oral decongestant
 - oral antihistamine
 - nasal decongestants should be used for < 3 days, to prevent rebound congestion and not in children < 6 years old
- Symptomatic treatment. See [Upper respiratory tract infection \(URTI\) - adult, page 324](#) and [Upper respiratory tract infection \(URTI\) - child, page 682](#)
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

5. Follow up

- Advise to be reviewed the next day. Consult MO/NP if not improving

6. Referral/consultation

- Consult MO/NP as above

HMP Pneumonia - adult

Recommend¹

- Assessment of pneumonia severity is required to guide management including antibiotic therapy³
- 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
- Consider *Burkholderia pseudomallei* (melioidosis) and *Acinetobacter baumannii* as possible causes 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, has specific antibiotic requirements and may be resistant to initial treatment
- Less common cause to consider is *Legionella*

Background³

- Pneumonia is an infection of the lung tissue. The lungs become filled with microorganisms, fluid and inflammatory cells and lung function is impaired
- A common condition, especially in Aboriginal and Torres Strait Islander people and is a significant cause of morbidity and mortality
- Pneumonia is classified as community-acquired, or hospital-acquired. Hospital-acquired pneumonia needs different treatment, and develops 48 hours or more after hospital admission

Related topics

[Upper respiratory tract infection \(URTI\) - adult, page 324](#) [Sepsis/septic shock, page 80](#)

1. May present with⁴

- Some patients, particularly older patients, may have few or none of the features of pneumonia
- Shortness of breath
- Cough with sputum. A dry cough is typical of atypical pneumonia
- Fever, rigors
- Rash, myalgia (muscle pain)
- Rapid breathing
- Pleuritic chest pain (sharp pain made worse by deep breath)
- Cyanosis
- Confusion, drowsiness, loss of consciousness
- Diarrhoea, headache
- Hypotension/shock

2. Immediate management

- Perform standard clinical observations (full ADDS score or other local Early Warning and Response Tools)
- Give O₂ to maintain SpO₂ > 94%. If > 94% not maintained consult MO/NP. See [Oxygen delivery, page 64](#)
- Insert IV cannula
- MO/NP may advise IV fluids
- Consult MO/NP who may advise:

- antibiotics³
- if possible take blood cultures prior to commencing antibiotics
- sputum sample for MCS and/or PCR if possible
- evacuation/hospitalisation

3. Clinical assessment¹

- Take a complete patient history as soon as possible allowing for severity of condition including:
 - past episodes
 - immunocompromised - history of cancer, autoimmune disease, patients on steroids, diabetes, kidney disease and chronic lung disease
 - recent hospital admission, as hospital-acquired pneumonia requires different treatment to community-acquired pneumonia
 - travel history to overseas or northern Australian areas
 - misuse of alcohol
 - age > 65 years
- Where available, perform chest x-ray
- Perform physical examination:
 - inspect the patient breathing - are they lifting their shoulders, bending forward or sitting straight, using muscles in their neck or chest; any nasal flaring
 - is there pain on inhalation; is there any noise made when the patient breathes
 - any cough
 - any sputum. Note type, colour
 - listen to the air entry into the lungs - any decreased air entry, crackles or wheezes
 - percuss the lungs - any dullness and in what area
 - inspect lips, fingernails - pale or cyanosed
 - urinalysis - if positive for blood, see [APSGN, page 700](#)
- Check pneumococcal and influenza immunisation status

4. Management^{1,2,3}

- Consult MO/NP
- Monitor standard clinical observations (full ADDS score or other local Early Warning and Response Tools) + conscious state
- **If ≥ 2 of the following apply, pneumonia is considered moderate or severe:**⁵
 - HR ≥ 100 beats/minute¹
 - confusion, either new onset, or worsening of previous state
 - SpO₂ $\leq 90\%$
 - RR ≥ 30 breaths/minute
 - systolic BP < 90 mmHg or diastolic BP ≤ 60 mmHg
- Closely monitor patient
- In addition to severity, other factors are also considered² to determine if evacuation/hospitalisation is required, including:
 - history of chronic lung disease
 - Aboriginal and Torres Strait Islander person
 - hospitalisation or antibiotic treatment in last 30 days

- aged care facility resident
- corticosteroid use
- altered conscious state
- diabetes
- chronic kidney disease
- alcohol dependence
- failure to improve after 3 days of oral antibiotics
- pregnant women
- wet season in areas north of Port Hedland, Tennant Creek or Mackay
- suspicion of tuberculosis. See [Tuberculosis, page 333](#)
- suspicion of influenza. See [Upper respiratory tract infection \(URTI\) - adult, page 324](#)
- See **Suspected pneumonia** flowchart on following page

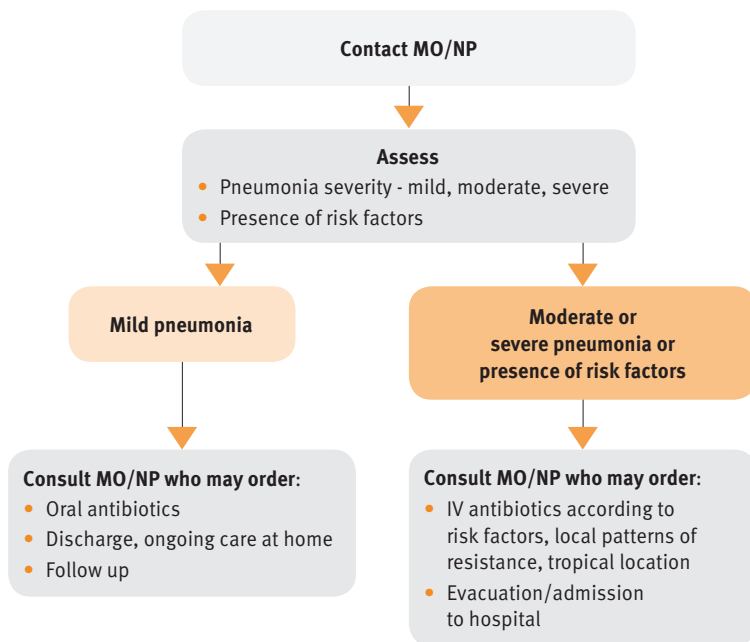
Mild pneumonia¹

- Consult MO/NP who may advise:
 - chest x-ray if available
 - oral antibiotics. Antibiotics may not be indicated if typical of viral infection
 - encourage rest and increase fluid intake
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

Moderate to severe pneumonia²

- Consult MO/NP who may advise:
 - IV antibiotics within 4 hours
 - IV fluids
 - urgent evacuation

Suspected pneumonia



5. Follow up

- Patients with mild pneumonia who are not evacuated/hospitalised should be advised to return for review daily. Consult MO/NP if the patient's condition has not improved after 3 days
- Advise to see at next MO/NP clinic
- If a smoker, encourage the patient to stop
- If eligible offer pneumococcal and influenza vaccination as per the *Australian Immunisation Handbook*. See [Immunisation program, page 768](#)

6. Referral/consultation

- Consult MO/NP on all occasions pneumonia is suspected

Tuberculosis - adult/child

Recommend

- Always seek advice for assessment and management from local tuberculosis (TB) control unit:
 - in Queensland contact numbers available at: <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/diseases/tuberculosis/contact-a-service>
 - in other states and territories contact local public health unit
 - TB is a notifiable disease ②
- Be guided by local policies for assessment and management of TB and transmission based/standard precautions

Background¹

- Air borne lung disease is the most common form of TB, and accounts for approx. 60% of notifications in Australia²
- Cure rates of TB with standardised treatments in drug sensitive disease is 98%¹
- Drug resistant TB has emerged globally, and is an ongoing concern in Australia¹
- Countries with the most severe burden of TB include: PNG, China, DR Congo, Ethiopia, India, Indonesia, Kenya, Mozambique, Myanmar, Nigeria, South Africa, Thailand, Zimbabwe.³ See World Health Organisation (WHO) TB country profiles for further information: <http://www.who.int/tb/country/data/profiles/en/>
- Groups more susceptible to infection and progression to active TB:¹
 - children < 5, adolescents, elderly; malnourished; immunocompromised e.g. diabetes, renal failure; taking medicines that can cause immunosuppression e.g. corticosteroids, anti-cancer treatments

Related topics

- HIV, page 656

1. May present with^{1,2}

- Common symptoms of pulmonary TB include:¹
 - cough > 3 weeks, sometimes with haemoptysis
 - fever and night sweats
 - weight loss
 - feeling generally tired and unwell
- Have a high clinical suspicion of TB in any person with:¹
 - risk of exposure, and:
 - respiratory infection unresponsive to standard treatments, or
 - unexplained non-respiratory illness
 - in particular if:
 - travel/arrival from high incidence countries
 - contact of an active case within past 5 years
 - history of previous TB treatment
 - Aboriginal and Torres Strait Islander person in localised area e.g. NT, North Qld
 - HIV positive
 - overcrowded living conditions
- Non-pulmonary TB (disease involving organs other than lungs) may present with:¹
 - a wide range of symptoms, depending on site of disease

- often accompanied by intermittent fever or weight loss

2. Immediate management Not applicable

3. Clinical assessment

- If TB is suspected:^{1,4}
 - clinician to use PPE including high filtration mask i.e. P2/N95 mask
 - if the facility has a negative pressure room, immediately place patient into room
 - if no negative pressure room separate patient from others:
 - outside; or in well ventilated area, windows open, ceiling fans on
 - do not place in a room with re-circulating air conditioning system
- Obtain history of symptoms, including onset date of any:⁵
 - cough - productive/haemoptysis
 - night sweats
 - fever
 - weight loss
 - swollen and/or painful lymph nodes
 - any other signs/symptoms
- Obtain past history:¹
 - past episodes or exposure to TB; when, treatment
 - close contact with someone with TB; when/who
 - travel to TB known area e.g. PNG
 - history of chronic disease; diabetes, liver or renal disease
 - cancer, seizures, leukaemia, lymphoma, HIV
 - major abdominal surgery
 - major organ transplant
 - currently pregnant - gestation
 - medications - any immunosuppressive therapy
- Obtain social history:⁵
 - occupation/number in household
 - bong smoking, illicit drug use, betel nut use
 - incarceration (prison time)
 - alcohol/smoking history
- Perform a complete physical examination, including:⁵
 - standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) including SpO₂
 - weight and height
 - respiratory assessment
 - palpation of lymph nodes - note if any > 1 cm, and have been there > 1 month

4. Management^{1,4}

- For any patient with suspected TB:
 - consult with MO/NP
 - contact local TB control unit or public health unit for advice and management

- Give patient a fluid repellent surgical mask to wear and educate on coughing etiquette
- Obtain sputum samples x 3 on separate days:^{1,4}
 - 1 'spot sputum' at presentation
 - 2 early morning samples - can give sterile container to patient to take home
 - request AFB/GXP on pathology form
 - ideally sample should be obtained in negative pressure room if available
 - otherwise, ask patient to go to a well-ventilated area, away from other patients e.g. outside
 - if patient has difficulty expectorating, seek advice from TB control unit
- Take blood for HIV
- Do chest x-ray - regardless of symptoms
- Further management as per local TB control unit/MO/NP instructions
- MO/NP may advise:⁴
 - evacuation if critical or suspected multidrug resistant TB, or
 - isolate in community to wait for sputum results, or
 - evacuation for non-critical cases, but where isolation in the community is not possible
- If evacuated, patient should:⁴
 - wear a surgical mask. Does not need P2/N95
 - not travel on commercial airlines, and/or travel with other patients UNLESS the MO/NP determines they are clinically non-infectious
- Diagnosis must be conveyed to:⁴
 - transferring crew
 - receiving hospital - so single room can be prepared

5. Follow up

- As determined by TB control unit or MO/NP

6. Referral/consultation

- Always contact TB control unit for advice
- TB is a notifiable disease ①

Nervous system problems

HMP 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'

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

1. May present with

Primary headache^{1,2,3}

- Include migraine, cluster headache, medication overuse headaches, and tension-type headaches
- May have no underlying cause

Secondary headache^{1,2,3}

- Are potentially serious
- Have a demonstrable underlying cause
- May be caused by a serious condition that requires urgent referral and management
- Causes include:
 - vascular - subarachnoid haemorrhage, temporal arteritis, stroke, hypertension. See [Subarachnoid haemorrhage, page 157](#) and [Transient ischaemic attack \(TIA\) and stroke, page 158](#)
 - lesions - tumours, arteriovenous malformations, brain cysts
 - intracranial pressure changes
 - head trauma - up to 7 days after trauma. See [Head injuries, page 175](#)
 - referred pain from neck, eyes, jaw, teeth or sinuses
 - activity associated headache following exertion or sexual activity

2. Immediate management

- Consult MO/NP urgently if the following 'red flags' are present:^{1,2}
 - first or worst headache of patient's life
 - sudden onset headache - 'thunderclap headache', like a blow to the head, peak pain level reached within minutes
 - neurological changes
 - meningism or fever. See [Meningitis, page 91](#)
 - > 50 years old with a new or different headache
 - a concerning headache for the patient that cannot be explained
- If patient distressed, lie at 30 degrees and reassure

- Consider:
 - snakebite with resultant coagulopathy. See [Snakebite including sea snake, page 292](#)
 - exposure to heat. See [Heat exhaustion/heat stroke/hyperthermia, page 231](#)

3. Clinical assessment

- Perform a complete patient history noting current medications, alcohol and other drug use
- 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
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - thoroughly inspect the skin for rashes including hidden regions such as toe webbing and in other skin folds

4. Management

- Consult MO/NP immediately where a red flag is present
- Consult MO/NP if persistent headache - needs to be medically investigated. Tests can include scans, eye tests and sinus x-rays
- Encourage rest and treat in a quiet darkened room, encourage sleep in children²
- Treating a headache depends on its cause
- Treatment for the underlying disorder if the headache is secondary
- Primary headaches - may respond to massage, heat packs, cold packs, relaxation exercises, and behavioural interventions²
- Tension headache - lifestyle adjustments, e.g. exercise, diet, stress management and attention to posture
- Migraine headache – treatment medicines and preventative medicines² and lifestyle modifications, such as identifying and avoiding factors that trigger an attack
- Cluster headache - medicine or O₂ therapy
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Other management techniques include:
 - MO/NP may prescribe other medicines
 - relaxation techniques, such as massage, stress management
 - alterations to the diet

5. Follow up

- According to underlying cause

- Offer ongoing support and reassurance

6. Referral/consultation

- Immediate consult with MO/NP for all secondary headaches. Patients will need urgent referral for further investigation as appropriate
- Consider referral for counselling and/or stress management for people with primary headaches

Mouth and dental problems

HMP Trauma to teeth - adult/child

DISPLACED TEETH, AVULSED TEETH, BROKEN TEETH

Recommend

- NSAIDS e.g. Ibuprofen are the drug class of choice for acute dental pain¹
- Do not use water to rinse or store the avulsed (knocked out) tooth²

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

- If an avulsed (knocked out) adult tooth:²
 - 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 surface
 - 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 saliva
 - 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 191](#)

- assess bleeding, duration and amount

4. Management

- Control bleeding with gentle pressure
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- NSAIDs should be used as a 'course of treatment' with regular dosing intervals rather than when the patient feels pain or discomfort¹

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®³

Displaced permanent (adult) tooth/teeth²

- 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 8-12 hourly while the tooth is splinted for a maximum of 10 days

Avulsed and displaced primary (baby) tooth/teeth²

- Assess avulsed teeth in children < 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 root
- Do **not** replace or reposition primary (baby) teeth. There is a risk of damaging the permanent (adult) tooth underneath

Avulsed permanent (adult) tooth/teeth (completely out of socket)²

- 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-ray
- 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 tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)
- If bleeding continues, see [Post extraction haemorrhage, page 351](#)

- Give antibiotics:
 - doxycycline if not allergic and > 8 years of age OR
 - if doxycycline is contraindicated or child is ≤ 8 years, give amoxicillin OR
 - if allergic to penicillin and doxycycline is contraindicated (child ≤ 8 years) give clindamycin
- Advise soft diet for 2 weeks and chlorhexidine 0.2% mouthwash 10 mL rinsed in the mouth for one minute 8-12 hourly while the tooth is splinted for a max. of 10 days

In all cases

- Reinforce positive oral hygiene measures. 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>
- If temporary splint/bridge required, arrange evacuation for further treatment by dentist

Schedule	4	Doxycycline	Extended authority ATSIHP/IHW/IPAP/RIPRN

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	50 mg 100 mg	Oral	Adult 200 mg first dose then 100 mg daily Child > 8-18 years 5 mg/kg (to max. 200 mg) first dose then 2.5 mg/kg daily to a max. 100 mg daily	7 days

Provide Consumer Medicine Information: May cause diarrhoea, nausea, vomiting, epigastric burning and photosensitivity. Take with food or milk. Do not lie down for an hour after taking. Do not take iron, calcium, zinc, or antacids within 2 hours of taking. Avoid sun exposure

Contraindication: Severe or immediate allergic reaction to tetracyclines or treatment with oral retinoids. Children ≤ 8 years of age. After 18 weeks of pregnancy

Use in pregnancy: Safe in the first 18 weeks of pregnancy

Management of associated emergency: Consult MO/NP. See [Anaphylaxis, page 102](#)

Schedule	4	Amoxicillin	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN 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
Powder for reconstitution to oral liquid	250 mg/5 mL 500 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/dose tds	
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea and candidiasis				
Contraindication: 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, page 102				

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Schedule	4	Clindamycin	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN 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/dose tds	5 days
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, vomiting and abdominal pain. Take with a full glass of water				
Note: Can cause severe colitis due to <i>Cl. difficile</i> There is no oral liquid for children. A 50 mg/mL solution can be made:				
• dissolve contents of 1 capsule in 2 mL water • draw this solution into a syringe and make the volume up to 3 mL (if necessary) • discard any excess solution so that the correct dose remains in the syringe • mix the dose in juice or soft food to disguise the taste before giving it				
Contraindication: Allergy to clindamycin or lincomycin				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

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5. Follow up

- Refer for next Dentist clinic visit

6. Referral/consultation

- Consult Dentist or MO/NP on all occasions

HMP Toothache - adult/child

Background¹

- There is insufficient evidence to support the use of Oil of Cloves for oral/dental indications. Ingestion can cause life threatening adverse reactions in children, and safety has not been established in pregnant and lactating women

1. May present with²

- 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 pain²

Signs/symptoms	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, may be sore to bite, not sensitive to hot/cold/sweet	Inflammation of the tooth nerve	Analgesia 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 348
• Pain worsens when head is tilted forwards	Maxillary sinusitis	Antibiotics, inhalations and nasal sprays or solutions may be indicated. See Acute bacterial sinusitis, page 327

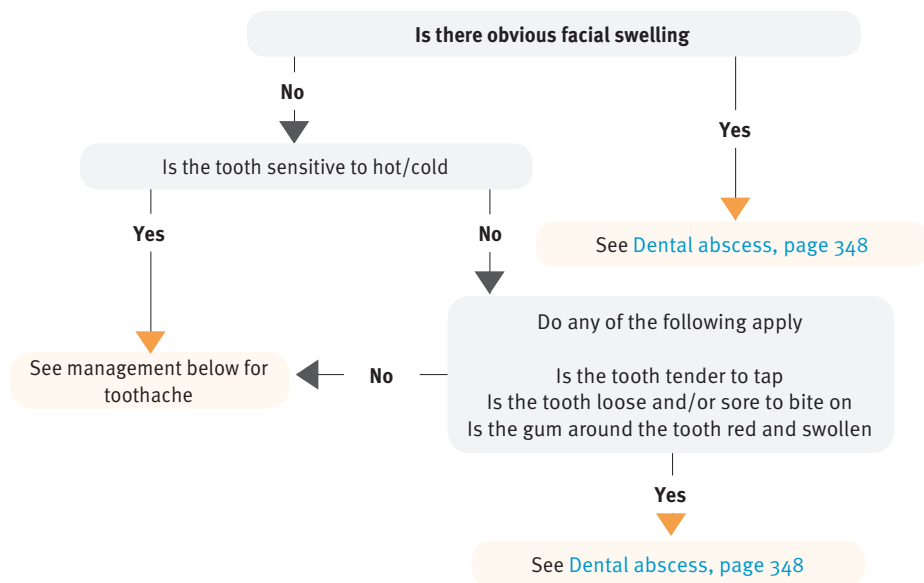
2. Immediate management Not applicable

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
- See Dental pain presentation flowchart below to assist with differential diagnosis

Dental pain presentation flowchart



4. Management

- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- If severe consult MO/NP
- If associated tenderness, swelling, redness see [Dental abscess, page 348](#)
- Topical lidocaine (lignocaine) e.g. Seda Lotion® may be applied to tooth
- Reinforce positive oral hygiene measures. 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>

Schedule	2	Lidocaine (lignocaine) (Seda lotion®)	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP and RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Lotion	2.5% 15 mL	Topical	Dip cotton bud in lotion and apply to biting surface of tooth until numbed Max. of every 2 hours	Advise patient to use for 2-3 days only Supply in original pack (15 mL)
Provide Consumer Medicine Information: Caution with hot drinks as numbness can result in burns				
Note: Not for use in infants				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

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5. Follow up

- Refer for next Dentist clinic

6. Referral/consultation

- If severe consult MO/NP/Dentist

HMP Dental caries - adult/child

Recommend

- Provide all patients with personalised oral health promotion advice and develop an oral health care plan. For further information 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>

Background

- Aboriginal and Torres Strait Islander people and people from rural and remote areas are at high risk of dental caries¹
- Application of fluoride varnish 2-4 times a year to primary (baby) and permanent (adult) tooth/teeth is associated with a substantial reduction in the extent of caries experienced³

1. May present with

- Tooth/teeth sensitive to hot/cold; biting or pressure
- Tooth decay - hole in tooth, broken down tooth, darkened tooth
- Dental caries
- Risk factors for increased risk of dental caries¹ - 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>

2. Immediate management Not applicable

3. Clinical assessment

- Ask when last dental visit was
- Assess for risk factors for dental caries
- Examine teeth for dental caries:
 - holes/cavities or structural damage which can be brown or black in appearance
 - tooth/teeth surfaces with a white or frosty appearance may indicate early stages of decay
 - pain or sensitivity
 - bad breath or a bad taste in the mouth

4. Management

- If toothache see [Toothache, page 342](#)
- Ask about any adverse experience associated with previous fluoride varnish application
- Offer to apply fluoride varnish to teeth if:
 - there is evidence of dental caries or person is at high risk of dental caries, and
 - regular brushing with fluoride toothpaste is likely to be ineffective, and
 - person is > 18 months old, and
 - there are no contraindications
- Refer for dentist review
- If patient has been recalled for re-application of fluoride varnish:
 - assess for any changes in risk status
 - check if patient has had fluoride varnish applied anywhere else during the recall period e.g. by a dentist
 - reapply as indicated
- Reinforce positive oral hygiene measures. 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>

Application of fluoride varnish (sodium fluoride)²

- Obtain valid consent from parent/guardian:
- Warn parent/guardian that teeth may appear discoloured following varnish application
- If thick plaque deposits are present, clean the teeth first
- Dry teeth gently e.g. with gauze or cloth
- Apply fluoride varnish:
 - use a small brush, applicator or dental probe
 - apply as a thin film to all tooth surfaces including exposed root surfaces if present (ensure the tip/brush is not overloaded with varnish)
 - the colour of the varnish will assist you to know where to apply it
- The fluoride varnish will set in the presence of saliva and should not be disturbed or removed prematurely - advise not to eat or drink for 30 minutes or brush teeth until the following morning
- Ensure clinical documentation includes all teeth/tooth surfaces to which fluoride varnish was applied and dosage

Schedule	4	Fluoride varnish (Duraphat®)	Extended authority ATSIHP/RIPRN	
ATSIHP may proceed if included in the scope of practice in the practitioner's practice plan				
RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Liquid	0.4 g/0.4 mL 5% (Single dose preparation) 50 mg/1 mL (10 mL tube) 5%	Topical	Child 18 months to 6 years up to 0.25 mL Child 6 to 12 years up to 0.4 mL Child > 12 years and adult up to 0.75 mL Recommend use of Duraphat® dosing card if not using single dose preparation	stat Then administer 6 monthly (or 3 monthly if indicated) (do not supply for self/parent administration)
Provide Consumer Medicine Information: Teeth may appear discoloured temporarily following application. Do not brush teeth on day of application - resume brushing the next morning. Eat soft foods for the rest of the day to minimise disruption of the varnish				
Note: Do not apply if ulcerative gingivitis or stomatitis to avoid discomfort for patient (contains alcohol). Do not leave fluoride varnish unattended when in use. Fluoride varnish is an S4 when used by clinicians other than dental practitioners				
Contraindication: Allergy to colophony (natural rosin) or sticking plaster; any episode of severe allergy or bronchial asthma that has required hospitalisation				
Management of associated emergency: Adverse reactions extremely rare. If occurs contact MO/NP or dentist. If ingestion of large amounts contact Poisons Information Centre (13 11 26) or 13HEALTH				

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5. Follow up

- Arrange re-call for review of oral health status and reapplication of fluoride varnish:
 - if low risk - every 6 months
 - if high risk - every 3 months

6. Referral/consultation

- Refer high risk and patients with obvious dental caries to dentist

HMP Mouth ulcers - adult/child

Recommend^{1,2}

- Ulcers persisting for longer than three weeks are potentially serious

Background^{1,2}

- 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, dentures

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
- Consider in history taking potential other causes of ulcers: STIs, medicine(s) reaction, viral and fungal infections, carcinoma, systemic disease e.g. blood disorders, gastrointestinal disease, skin/mucocutaneous disease
- 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
 - 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 folate³
 - aphthous ulcers are round/oval ulcers usually 3-5 mm in diameter with a red margin and sloughing base.³ May occur spontaneously as painful solitary or multiple ulcerations on cheek, lip or floor of mouth. May occur acutely with smoking cessation⁴

4. Management

- Ensure patient can maintain oral intake and hydration (especially in children)
- Management of mouth ulcers must address possible causes of the ulcers, such as trauma within the mouth
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- For symptomatic relief try:
 - chlorhexidine 0.2% mouth wash or topical anaesthetics such as lidocaine (lignocaine) lotion (Seda lotion®). See [Toothache, page 342](#)
 - not salt water mouth rinses
- Refer to MO/NP/Dentist if ulcer persists for longer than 3 weeks

5. Follow up

- Advise to be reviewed in 3 weeks if ulcer has not resolved

6. Referral/consultation

- Consult Dentist or MO/NP if not improving within expected time frame

HMP Dental abscess - adult/child

Recommend

- Always refer for active Dental treatment. Treatment with antibiotics alone can lead to increasingly severe episodes of acute tooth related infection with risk of airway compromise and increased antibiotic resistance¹

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

- Maintain airway if compromised. See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Consult MO/NP urgently if:
 - severe trismus
 - breathing and/or swallowing difficulty
 - marked swelling on face or neck
 - systemically unwell
- Patient will require evacuation/hospitalisation and IV antibiotics²

3. Clinical assessment

- Obtain patient history including dental history - recent toothache/previous presentations
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
- Perform physical examination:
 - inspect oral cavity looking for soft tissue swelling or 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

- Administer analgesia as clinically indicated (especially NSAID if not contraindicated). See [Acute pain management, page 35](#)

- For **severe infection** (swelling causing dysphagia or dyspnea):²
 - consult MO/NP urgently
 - will require evacuation/hospitalisation for IV antibiotics and appropriate surgical management
 - closely monitor airway - if cellulitis is present or develops, it can be life threatening²
- For **superficial infections** (swelling in the region of pain, discrete swelling of gum):^{2,3}
 - give oral antibiotics:
 - if not allergic give amoxicillin OR
 - if facial swelling give amoxicillin + clavulanic acid OR
 - if allergic to penicillin give clindamycin
 - refer for urgent dental treatment
 - advise to be reviewed within 48 hours:
 - if unresponsive to amoxicillin change to amoxicillin + clavulanic acid
 - if no improvement or deteriorating consult MO/NP/Dentist
- Reinforce positive oral hygiene measures. 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>

Schedule**4****Amoxicillin****Extended authority**
ATSIHP/IHW/IPAP/RIPRN

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN 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
Powder for reconstitution to oral liquid	250 mg/5 mL 500 mg/5 mL		Child < 12 years 12.5 mg/kg/dose tds to a max. of 500 mg/dose tds	

Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea and candidiasis**Contraindication:** 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, page 102](#)

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Schedule	4	Amoxicillin + clavulanic acid	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN 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 Child > 2 months to < 12 years 22.5 mg + 3.2 mg/kg/dose bd up to a max. of 875 mg + 125 mg/dose bd (Calculate dose based on the amoxicillin component)	5 days
Powder for reconstitution to oral liquid	400 mg/5 mL + 57 mg/5 mL			
Provide Consumer Medicine Information: Take with food. May cause rash, diarrhoea, nausea and candidiasis. Can cause severe colitis due to <i>Cl. difficile</i>				
Contraindication: Severe or immediate allergic reaction to a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems. Avoid in women with premature rupture of the membranes as there may be an increased risk of neonatal necrotising enterocolitis				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

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Schedule	4	Clindamycin	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN 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/dose tds	5 days
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, vomiting and abdominal pain. Take with a full glass of water				
Note: Can cause severe colitis due to <i>Cl. difficile</i> There is no oral liquid for children. A 50 mg/mL solution can be made:				
• dissolve contents of 1 capsule in 2 mL water • draw this solution into a syringe and make the volume up to 3 mL (if necessary) • discard any excess solution so that the correct dose remains in the syringe • mix the dose in juice or soft food to disguise the taste before giving it				
Contraindication: Allergy to clindamycin or lincomycin				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

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5. Follow up

- Advise to see Dentist as soon as possible
- Advise patient to return daily to review swelling until it resolves
- If unresponsive to oral antibiotic after 48 hours or deteriorating consult MO/NP/Dentist
- Advise patient to return to clinic if their condition deteriorates

6. Referral/consultation

- Consult Dentist/MO/NP
- Consider telehealth consultation with dentist

Post extraction haemorrhage - adult/child

1. May present with

- Bleeding soon after tooth extraction

2. Immediate management Not applicable

3. Clinical assessment¹

- Obtain patient history including:
 - dental history - date of tooth extraction, when bleeding started and the nature and amount of blood loss
 - medical history for bleeding disorders, chronic diseases e.g. leukaemia, chronic liver disease
 - medication history - in particular anticoagulant/antiplatelet therapy
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Assess blood loss - examine the oral cavity and identify site of bleeding. Use gauze, suction or syringe with normal saline to remove blood for better visibility if needed
- Is bleeding causing swelling or airway compromise
- Any high flow arterial bleed, tear in gum or mucosa
- Look for signs of infection e.g. pus, cellulitis, trismus, liver clots (large mobile clots resembling fresh liver)

4. Management¹

- In healthy patients, a low level ooze for 12-24 hours following a dental extraction is normal and requires no treatment. Active bleeding beyond this time requires investigation and treatment
- 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
- Consult MO/NP/Dentist if bleeding is profuse
- If bleeding continues beyond these measures, systemic causes should be investigated

5. Follow up

- Advise patient to be reviewed the next day
- Refer to next Dentist clinic

6. Referral/consultation

- Consult MO/NP if bleeding heavy or continuing

HMP Alveolar osteitis (dry socket) - adult/child

Background^{1,2}

- Alveolar osteitis (dry socket) is a local painful osteitis (inflammation of bone) of an extraction socket following premature lysis (disintegration) of the blood clot. It usually resolves spontaneously in 2-3 weeks
- Treatment with antibiotics is of no benefit
- Alvogyl® is a self-eliminating dressing which provides a fast soothing, long lasting analgesic effect

1. May present with^{1,2}

- Postoperative pain in and around a tooth extraction socket, that increases in severity between 1-4 days after the extraction, responding poorly to over the counter analgesia
- Partially or totally disintegrated blood clot in socket
- Halitosis, foul taste

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history including:
 - when dental extraction occurred, pain assessment, 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)
- Inspect oral cavity (with care - an empty socket without a clot is very tender)
- Any halitosis

4. Management^{1,2}

- Administer analgesia as clinically indicated (NSAID preferred). See [Acute pain management, page 35](#)
- Irrigate socket gently with warm sodium chloride 0.9% to remove debris
- 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 contact Dentist/MO/NP for further advice
- Should heal spontaneously within 2-3 weeks
- If severe or continues for more than 3 weeks consult MO/NP or Dentist for review of diagnosis

5. Follow up

- Advise patient to be reviewed daily initially. Consult Dentist or MO/NP if not improving
- Refer for next Dentist clinic visit

6. Referral/consultation

- Consult Dentist /MO/NP as above

HMP Periodontal disease - adult/child

PERIODONTITIS, GINGIVITIS, GUM DISEASE

Background^{1,2,3}

- Periodontitis can result in loss of the bone that supports the teeth and loss of teeth. Major risk factors include poorly controlled diabetes and smoking
- Gingivitis the most common form of periodontal disease. It develops due to the presence of undisturbed plaque causing a nonspecific inflammatory response

1. May present with^{1,2,3}

- Periodontitis:
 - halitosis, bad taste
 - gum recession, loose/missing teeth, bleeding and/or swollen gums, not normally painful
 - rarely seen in children
- Gingivitis:
 - red, swollen gums that bleed easily
 - rarely painful
- Acute ulcerative gingivitis:
 - extremely painful
 - ulcers on the gums (may be covered with a grey membrane)
 - foul smelling mouth odour
 - fever/other systemic features may be present
 - rarely (if at all) seen in children

2. Immediate management Not applicable

3. Clinical assessment

- Obtain patient history including dental history. Ask about:
 - smoking
 - diabetes
 - 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^{1,2,3}

- Reinforce positive oral hygiene measures. 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>
- 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

Additionally

- Periodontitis:
 - refer to next Dental clinic for debridement of plaque (scaling and root planning) and ongoing management
 - antibiotics are rarely required
- Gingivitis:
 - short term use of chlorhexidine mouthwash 0.2% may be useful when inflammation of the gums restricts normal brushing. Rinse mouth with 10 mL for 1 minute 8-12 hourly for 5-10 days (do not use for more than 10 days as superficial discolouration of teeth can occur)
 - complete resolution can be expected within 1 week
- Acute ulcerative gingivitis:
 - administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
 - recommend to use chlorhexidine mouthwash 0.2% (as per Gingivitis) until pain has abated and can brush teeth effectively
 - give antibiotics:
 - metronidazole OR
 - if patient adherence is a concern, tinidazole
 - refer to Dentist for scaling and root planning and ongoing management
 - **note:** antibiotics alone, without debridement and improvement of oral hygiene will usually lead to reoccurrence

Schedule

4

Metronidazole

Extended authority
 ATSIHP/IHW/IPAP/RIPRN

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN may proceed for **adults only**

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg 400 mg	Oral	Adult 400 mg bd	5 days
Oral liquid	200 mg/5 mL		Child > 1 month 10 mg/kg/dose bd to a max. of 400 mg/dose bd	

Provide Consumer Medicine Information: Avoid alcohol while taking and for 24 hours thereafter. Take tablet with food to reduce stomach upset. Take oral liquid 1 hour before food for better absorption. May cause nausea, anorexia, abdominal pain, vomiting, diarrhoea, metallic taste, dizziness or headache

Management of associated emergency: Consult MO/NP. See [Anaphylaxis, page 102](#)

2,5

Schedule	4	Tinidazole	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	Adult only 2 g	stat
Provide Consumer Medicine Information: Avoid alcohol while taking and for 72 hours thereafter. Take with food to reduce stomach upset. May cause nausea, anorexia, abdominal pain, vomiting, diarrhoea, metallic taste, dizziness or headache				
Use in pregnancy: Use metronidazole instead of tinidazole				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

2,6,7

2,6,7

5. Follow up

- If acute ulcerative gingivitis advise patient to be reviewed the next day
- Refer to next Dentist clinic

6. Referral/consultation

- Consider telehealth consult with Dentist
- If diabetic, consider referral to Diabetic Educator

HMP Candidiasis (oral thrush) - adult/child

Background^{1,2}

- Oral thrush occurs commonly in the first 9 months of life. It is rare during the 1st week and peaks at the 4th week of life. It is otherwise uncommon in healthy individuals

1. May present with³

- Oral discomfort
- Whitish plaques on the tongue or oral mucosa
- Severe cases may show ulceration
- Additionally in infants:¹
 - irritability
 - poor feeding and/or feeding refusal
 - may be asymptomatic

2. Immediate management Not applicable

3. Clinical assessment^{1,3}

- Obtain patient history
- Ask about risk factors associated with thrush:

- antibiotic use; incorrect use of corticosteroid inhalers; poor oral hygiene
- conditions associated with immunodeficiency e.g. HIV
- nutritional deficiencies
- denture use (when and how are they cleaned)
- past episodes of thrush
- frequent or unusual infections
- In infants ask about:¹
 - nappy rash
 - if breastfeeding, any nipple pain, burning and/or itching, or cracked/red areolae
 - method of cleaning infant feeding equipment/other items that go in infants mouth e.g. pacifiers, as these can be a source of reinfection
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Inspect:
 - oral cavity - look for white or whitish-yellow plaques and erythema that may be difficult to remove, with the underlying area being raw or bleeding
 - infant's nappy area for candidiasis
 - mother's nipple area (if indicated from history) - any redness/cracked nipples

4. Management^{2,3,4}

- Consult with MO/NP if:
 - an adult
 - severe, persistent, or frequent episodes of thrush, or if immunocompromised. Correct diagnosis and identification of underlying pre-disposing factors needs to be considered
 - if adults do not respond to miconazole or nystatin - MO/NP/Dentist may order amphotericin lozenges
- In infants:
 - treat with oral miconazole gel (may be more effective in infants¹) or nystatin suspension
 - concurrently treat nipples of mother if breastfeeding (use oral miconazole)
 - educate regarding correct cleaning of feeding equipment/dummies
 - refer to Child Health Nurse/Midwife
 - provide support with breastfeeding as required
- In denture users:
 - if candidiasis is confirmed, advise to apply the antifungal gel/drops to the cleaned fitting surface of the dentures before inserting them
 - at night, dentures should be removed, cleaned thoroughly and placed in a dry environment. They are best soaked in commercial denture cleaner e.g. Steradent® to destroy candida infection

Schedule	3	Miconazole	Extended authority ATSIHP/IHW/IPAP/SRH	
ATSIHP, IHW, IPAP, MID, RIPRN and SRH may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Oral gel	2%	Oral	Adult and child ≥ 2 years 2.5 mL qid (½ of spoon supplied) Child birth (at term) - 2 years 1.25 mL qid (¼ of spoon supplied)	7-14 days
Provide Consumer Medicine Information: Use spoon supplied to measure dose. Place directly in the mouth and on the tongue after food or drink. Keep in mouth as long as possible before swallowing. Continue using for several days after symptoms cease. If breastfeeding, treat nipples concurrently with this gel. May cause mild GI upset				
Note: Do not use a spoon to administer to babies. Use a clean finger to smear small amounts of gel to the front of the mouth so that they don't choke				
Contraindicated: Warfarin and simvastatin				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5,6

5,6

Schedule	3	Nystatin	Extended authority ATSIHP/IHW/IPAP/SRH	
ATSIHP, IHW, IPAP, MID, RIPRN and SRH may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Oral liquid	100,000 units/mL	Oral	Adult and child 1 mL qid	7-14 days
Provide Consumer Medicine Information: Swish around the mouth for as long as possible before swallowing. Use after eating/feed. If breastfeeding treat nipples with miconazole 2 % oral gel after feeding. May cause nausea, vomiting or diarrhoea				
Management of associated emergency: consult MO/NP. See Anaphylaxis, page 102				

7

7

5. Follow up

- If mild, advise to be reviewed in one week
- If moderate, advise to be reviewed daily initially

6. Referral/consultation

- Consult Child Health Nurse or midwife if child or infant
- Consult MO/NP if severe or not improving or if an immunocompromised patient

Eye problems

Assessment of the eye - adult/child

Recommend¹

- 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

Background¹

- Visual acuity (VA) of 6/6 does not exclude a serious eye condition
- Equipment - small powerful torch, VA chart such as Snellen or Snellen-E chart, multiple-pinhole occluder, solid occluder, magnification, cotton bud, ophthalmoscope, topical anaesthetic eye drops, fluorescein eye drops or strips

1. History^{1,2}

It is important to establish:

- If the problem is a result of trauma:
 - a history of when and how the injury was sustained is essential
 - in any high velocity projectile injury, a penetrating injury must be suspected
 - if there has been a forceful blunt injury, suspect rupture of the eye and/or 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 history of medical or mental health problems, and eye problems:
 - current medical problems e.g. diabetes or autoimmune disease
 - medicines that can affect the eyes, including use of eye drops/ointment
 - does the patient wear contact lenses or spectacles
 - any surgery on the eyes
- Any family history of eye problems e.g. chronic glaucoma

2. Examination

Visual acuity (VA)^{1,2}

- Test VA of each eye separately using a Snellen chart at 6 metres in good light. Vision should be tested with the patient's usual spectacles or contact lenses, with the other eye completely covered by a solid occluder
- VA is recorded as 2 numbers. The top number is the distance the patient is from the chart in metres e.g. 6. The bottom number records the smallest line of letters the patient is able to see on the chart without any errors. It will usually be found under the line of letters e.g. 6/5, 6/6, 6/12, etc.
- If any abnormality is found (vision less than 6/9), check VA of that eye with the patient looking through a pinhole and the other eye completely covered
- If the patient cannot read the largest letter on the chart at 6 metres, move the patient closer to the chart e.g. 3 metres. The top number then becomes 3 e.g. 3/60. If still unable to see the largest

letter, can the patient count fingers or see hand movements at 1 metre. If not, can the patient see torch light (perception of light)

- Further assessment may involve Snellen E or animal charts if there are literacy issues

Examine the eye systematically^{1,2}

- Ensure good lighting and use magnification
- Check the periorbital areas, external eyelids, cornea, sclera and conjunctiva:
 - the lower eyelid should be pulled down to examine the conjunctival lining
 - care should be taken **not to apply any pressure** to the eyeball if there is any suggestion of an eyeball rupture or penetrating eye injury
 - the eyelids can be separated by using traction over the orbital margins, thus avoiding any pressure on the eye. Never try to pry the eyelids of a child apart to see the eye
- If there is an obvious or a very strong suspicion of an eyeball rupture or penetrating eye injury:
 - abandon examination, place a rigid shield over the eye and evacuate the patient to an appropriate facility
 - do NOT attempt to remove any foreign body e.g. nail, knife, fish hook protruding from a penetrating injury
- 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 Procedure for eversion of the eyelid:
 - foreign bodies are often retained on the inner surface of the eyelid
 - eversion of the upper eyelid should NOT be done if there is any suggestion of an eyeball rupture or penetrating eye injury
 - in all other cases, eyelid eversion is an essential part of examination of a red or injured eye
- The anterior chamber (between the cornea and iris) should be examined for the presence of blood (hyphaema) or pus (hypopyon), either of which may present as a fluid level in the lower chamber or be diffused and obscure the iris and pupil

Examine the pupils and eye movements^{1,2}

- Check and record 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 torch to shine on one eye
 - repeat the procedure on the other eye. Both pupils should constrict when a light is shone on either eye
 - check both pupils align equally and light reflections from a torch are positioned symmetrically on the corneas i.e. no obvious squint/deviation
- Check movements of the eyes:
 - are they equal in all directions especially upward if a blowout orbital fracture is suspected
 - is there double vision
 - if there is double vision, cover one eye at a time to check if double vision disappears

Fluorescein examination of the cornea^{1,2,3,4}

- Contraindicated if a ruptured eyeball or penetrating eye injury is obvious
- Fluorescein dye pools in areas denuded of corneal epithelium. When exposed to blue light it fluoresces, allowing assessment of the nature and extent of corneal epithelium damage e.g. scratch, herpes simplex ulcer
- Too much fluorescein dye swamps the tear film and makes it difficult to discern abnormalities. Instil a small amount of fluorescein

- If using fluorescein strips, there is no need to pre-moisten:
 - gently touch the dry strip to the inside of the lower eyelid
 - the tears will moisten and release a small amount of dye
 - repeat if more dye is needed
- If using liquid fluorescein, instil a small drop onto the inside of the lower eyelid
- Ask the patient to blink. This will distribute the fluorescein over the cornea
- Gently dab the closed eye with a tissue to remove any excess fluorescein
- Darken the room and expose the eye to blue filtered e.g. ophthalmoscope, cobalt or 'black' light

Padding of the eye¹

- Routine padding of an eye is not necessary for minor corneal or conjunctival trauma, or after the use of topical anaesthetic eye drops to facilitate examination or removal of a foreign body
- **Use an eye shield or cut down styrofoam cup** taped securely to the brow and cheek if a ruptured eyeball or penetrating eye injury is obvious or cannot be ruled out. Make sure the shield is not pressing on the eye. It will protect the eye from compression. The patient should remain on their back, with head elevated if preferred
- There are no indications for continued use of topical anaesthesia. DO NOT give topical anaesthetic eye drops to the patient to use as a continuing treatment for pain
- Instruct the patient not to drive with an eye padded because depth perception may be altered, and monocular vision may invalidate insurance
- Double padding of an eye i.e. 2 pads applied to a single eye, acts as a pressure bandage and should not be used unless advised to do so by an Ophthalmologist
- There are no indications to pad the unaffected eye unless instructed to do so by an Ophthalmologist

Eye Tips¹

Do	Do NOT
• Always check VA and record it • Test pupil light reactions • Evert the upper eyelid when examining the eye • The cornea may be stained with fluorescein when examining the eye unless a ruptured eyeball or penetrating eye injury is obvious • Arrange x-ray of the orbit for a patient who may have suffered a penetrating eye injury from a high velocity metal fragment e.g. a hammer striking steel, particularly if the patient felt something hit the eye. Consult MO/NP	• Give patient local anaesthetic eye-drops to take home • Try to remove an object protruding from a penetrating eye injury • Put drops or ointment in an eye that has suffered an obvious rupture or penetrating injury • Use steroid eye drops, unless on MO/NP orders • Double pad an eye unless advised to do so by an Ophthalmologist

Procedure for eversion of the eyelid¹

Fig 1.



- Instruct the patient to keep looking downwards as you take hold of the eyelashes and then gently pull the lid slightly towards you (Fig.1)

Fig 2.



- Place cotton bud at the lid crease (or 5 mm from lid edge) and apply very light pressure downward with the bud (Fig 1.&.2)

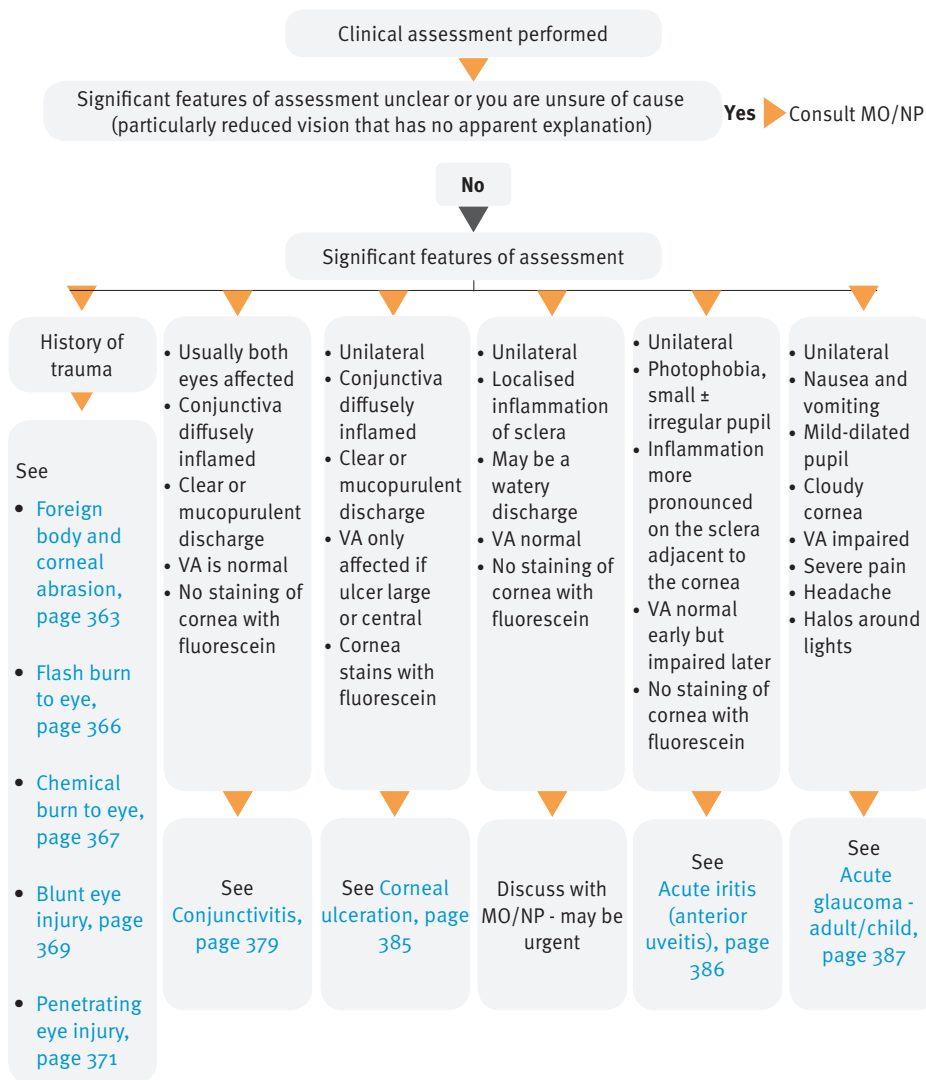
Fig 3.



- Evert the eyelid by using the eyelashes to gently pull the lid upwards over the bud. Remove the bud (Fig.3)

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Red or painful eye - adult/child



HMP Foreign body/corneal abrasion - adult/child

Recommend¹

- Consult MO/NP if there is a foreign body in a child's eye, or if over or near the pupil of any patient
- Eye pad is not routinely used as treatment for corneal abrasion or after superficial foreign body removal

Related topics

[Corneal ulceration, page 385](#)

[Penetrating eye injury, page 371](#)

1. May present with^{1,2}

- A history of, or visible, foreign body, eye pain or grittiness
- Inability to open eye
- Photophobia
- Contact lens related abrasion

2. Immediate management^{1,2}

- Do not remove any protruding foreign bodies

3. Clinical assessment^{1,2}

- Obtain patient history, including time and 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 Q-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, instill topical anaesthetic oxybuprocaine eye drops unless there is an obvious ruptured eyeball or penetrating eye injury
- Fluorescein dye may be used unless there is an obvious ruptured eyeball or penetrating eye injury
- With fluorescein staining, foreign bodies and abrasions are usually obvious under the blue light of an ophthalmoscope. Fluorescein will pool in any defect present

4. Management^{1,2,3,4,5}

- Consult MO/NP if:
 - high velocity projectile. MO/NP may order x-ray if available
 - decreased VA
 - large or central (over pupil) corneal abrasion
- Instil oxybuprocaine eye-drops before removing any corneal foreign body
- Many 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 the bud
- An experienced clinician may remove the foreign body using an 18 G needle:
 - attached to a 2 mL syringe to provide support

- steadying the hand on the patient's cheek
- using the tip of the needle tangential i.e. not perpendicular to the corneal surface, gently dislodge the foreign body
- If the foreign body does not lift out with the needle, irrigate with sodium chloride 0.9%
- Note that the cornea is only 0.5-1.0 mm thick
- Consult MO/NP:
 - if there is a foreign body over or near the pupil
 - if unsuccessful or not skilled in removal of a foreign body
- Metal foreign bodies may leave a rust ring. This can be gently scraped off with an 18 G needle held tangentially to the cornea if clinician is experienced to perform, and irrigated away with sodium chloride 0.9%
- If a foreign body is successfully removed, or there is only a simple corneal abrasion, give topical chloramphenicol eye drops/ointment
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

Schedule	4	Oxybuprocaine	Extended authority ATSIHP/IHW/IPAP/RIPRN	

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Eye drops	0.4%	Eye	Adult and child 1 drop	stat Repeat in 1-2 minutes if needed. Up to 6 drops may be used for foreign body removal

Provide Consumer Medicine Information: May sting for a few seconds. Do not rub or touch eyes while anaesthetised

Note: Do not give to patient to take home

Contraindication: Ruptured eyeball or penetrating eye injury

Management of associated emergency: consult MO/NP. See [Anaphylaxis, page 102](#)

3

Schedule**3****Chloramphenicol****Extended authority**
ATSIHP/IHW/IPAP

ATSIHP, IHW and IPAP must consult MO/NP

RIPRN may proceed

RN may administer; for supply see [Authority to administer and supply medicines, page 9](#)

Form	Strength	Route of administration	Recommended dosage	Duration
Eye drops	0.5% (10 mL)	Eye	Adult and child > 2 years Foreign body / Corneal abrasion / Flash burn to eye 1-2 drops qid and 1-1.5 cm of ointment nocte OR 1-1.5 cm of ointment qid	Up to 5 days
Eye ointment	1% (4 g)		Bacterial conjunctivitis 1-2 drops 2 hourly for 1 day, then qid and 1-1.5 cm of ointment nocte OR 1-1.5 cm of ointment qid	

Provide Consumer Medicine Information: May cause stinging or burning. Discard one month after opening. Can be stored at room temperature once opened. Do not wear contact lenses during treatment**Note:** Consult MO/NP if child $\leq$ 2 years**Contraindication:** Ruptured eyeball or penetrating eye injury**Management of associated emergency:** Consult MO/NP. See [Anaphylaxis, page 102](#)

4,5,6

5. Follow up

- Advise to be reviewed daily until healed. Re-examine the eye, including VA and fluorescein staining
- Consult MO/NP if:
 - not improving on first review, or not healed by second review
 - VA deteriorates at any time
- Advise to see MO/NP at next clinic

6. Referral/consultation

- Consult MO/NP as above

HMP 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 with¹

- History of welding or sun lamp use without eye protection
- Pain (often severe), which starts several hours after exposure (often presents late in evening after welding exposure at work)
- Red eye(s)
- Blepharospasm (involuntary eyelid closure)
- Tearing of the eye(s)
- Foreign body sensation (often severe)

2. Immediate management^{1,2,3}

- Administer topical anaesthetic oxybuprocaine eye drops. See [Foreign body and corneal abrasion, page 363](#)

3. Clinical assessment^{1,3}

- Obtain patient history, including time and mechanism of injury
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes, starting with VA after instilling oxybuprocaine eye drops
- Stain eye(s) with fluorescein and examine under blue light of ophthalmoscope. Fluorescein staining will show superficial epithelial defects (multiple dots of stain across the cornea, particularly where not protected by eyelids in normal position) on the cornea. There may be conjunctival redness in both eyes
- Evert the upper eyelid and check for a retained foreign body which may occur concurrently with flash burn, especially from welding

4. Management^{1,3}

- Consult MO/NP if:
 - large or central (over pupil) corneal abrasion
 - decreased VA
- Give topical chloramphenicol eye drops and ointment. See [Foreign body and corneal abrasion, page 363](#)
- Explain to the patient the importance of not rubbing the eye(s)
- Administer analgesia and/or antiemetic as clinically indicated. See [Acute pain management, page 35](#) and [Nausea and vomiting, page 48](#)
- Advise patient not to wear contact lenses for at least 1 week after cornea has healed
- Advise patient that flash burn can be prevented by use of appropriate protective eye wear

5. Follow up

- Advise to be reviewed the next day
- Consult MO/NP if not improving

6. Referral/consultation

- Consult MO/NP as above

HMP Chemical burn to eye - adult/child

Recommend^{1,2,3}

- Immediate and prolonged eye irrigation for chemical burns
- Contact Poisons Information Centre ☎13 11 26 (24 hours) as required
- Patients with alkaline chemical burns to the eyes may require urgent assessment by an Ophthalmologist

Background^{1,2,3}

- Acidic substances include: toilet cleaner, car battery fluid, pool cleaner
- Alkaline substances include: lime, mortar and plaster, drain cleaner, oven cleaner, ammonia
- Alkali burns are more harmful to the eye. May result in rupture of the eyeball within 24 hours if not treated

1. May present with¹

- History of contact with acid or alkali chemical
- Pain
- Reduced vision

2. Immediate management^{1,2,3}

- Consult MO/NP urgently
- Instil topical anaesthetic oxybuprocaine eye drops to affected eye(s). See [Foreign body and corneal abrasion, page 363](#)
- Irrigate copiously with sodium chloride 0.9%. Use an IV bag with giving set and set regulator fully open
- Evert the upper eyelid and clear it and the eye of any debris/foreign body e.g. lime particles that may be present, by sweeping the conjunctiva with a moistened cotton bud
- Initial continuous irrigation with at least 1 litre of fluid is required for 30 minutes
- Review the patient's pain level every 10 minutes and instil another 1-2 drops of oxybuprocaine as required
- Check pH after 30 minutes of irrigation:
 - wait 5 minutes after ceasing irrigation and then check pH with pad on urine dip stick. It should be between 6.5 and < 7.5
- If pH is ≥ 7.5 , instil another oxybuprocaine eye drop and continue to irrigate while reassessing pH every 15-30 minutes until pH is between 6.5-7.5. Re-measure pH at 5 and 30 minutes after completion of irrigation to confirm that a neutral pH has been maintained

3. Clinical assessment^{1,3}

- Obtain rapid history:
 - when it occurred
 - identify the chemical, acid or alkali
 - what first aid has been given, and how soon after the incident
- Perform standard clinical observations (full Q-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 or area of blanched conjunctival blood vessels indicates a severe chemical burn
 - assess VA if possible

4. Management^{1,2,3}

- Perform irrigation - see Immediate management
- Contact Poisons Information Centre ☎13 11 26 (24 hours) for further information about the chemical involved
- Administer analgesia and/or antiemetic as clinically indicated. See [Acute pain management, page 35](#) and [Nausea and vomiting, page 48](#)
- Consult MO/NP, who will advise further management depending on:
 - the chemical - acid or alkali
 - extent of corneal injury/fluorescein staining/appearance of the conjunctiva which should be very red
- Evacuation for review by an Ophthalmologist if indicated
- Most cases will be treated as corneal abrasions, using chloramphenicol ointment with daily review until healed

Note: Some 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 eyeball may result if not treated within 24 hours.

These patients need urgent assessment by an Ophthalmologist

5. Follow up

- If severity of the chemical burn does not require evacuation of the patient, advise patient to be followed up according to MO/NP instructions

6. Referral/consultation

- Consult MO/NP as above

HMP Blunt eye injury - adult/child

Recommend^{1,2,3}

- If an eyeball is obviously ruptured **do not**:
 - perform a routine eye examination
 - instil any eye-drops/ointment
 - apply any direct pressure on the eyeball
 - apply an eye pad
- **Do** protect the eye by applying an eye shield
- Any obvious or suspected ruptured eyeball requires Ophthalmologist management

Background

- A forceful injury with a blunt object e.g. ball, racquet, fist, champagne cork directly on the eye and orbit may cause damage inside the eye, eyeball rupture, fracture of the rim of the bony orbit, and/or a blow-out fracture of a wall or floor of the orbit

Related topics

[Head injuries, page 175](#)

1. May present with^{1,2,3}

- History of injury
- Pain
- Reduced or normal vision
- Obvious or occult eyeball rupture
- Double vision
- Blood in the anterior chamber of the eye (hyphaema)

2. Immediate management

- Consult MO/NP urgently

3. Clinical assessment^{1,2,3}

- Obtain patient history in particular:
 - mechanism of injury e.g. hit by ball, racquet, fist, champagne cork
 - changes in vision immediately and subsequently
 - if the patient was wearing eye protection
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- If a ruptured eyeball is obvious:
 - **do not** perform a routine eye examination
 - **do not** instil topical anaesthetic oxybuprocaine eye-drops, fluorescein dye or any other eye-drops/ointment
 - with the patient lying flat, assess VA - count fingers, hand movements, light perception
 - apply an eye shield
- If a ruptured eyeball is suspected from the history, but not immediately obvious:

- routine systematic examination of the eye may be performed if the practitioner is competent and the MO/NP agrees
- **do not apply any direct pressure on the eyeball** during examination
- topical anaesthetic oxybuprocaine eye-drops may be used. See [Foreign body and corneal abrasion, page 363](#)
- if it becomes evident during the examination that there is a ruptured eyeball, abandon examination and apply an eye shield
- If a ruptured eyeball is suspected from the history, but not immediately obvious, and the practitioner is not competent to perform a routine systematic examination in these circumstances:
 - **do not** perform a routine eye examination
 - assess the VA if the MO/NP agrees to this
 - apply an eye shield
 - manage as for a confirmed ruptured eyeball
- Examine both eyes:
 - VA may help determine the extent of the injury and will be required for medicolegal cases
 - check the pupils: size, shape, reactivity
 - after routine eye examination, check the red reflex with an ophthalmoscope. The pupil should appear red, with no areas of black
- Orbital fractures may occur alone or with an eye injury resulting from blunt trauma. The following should be looked for:
 - step in the bony rim of the orbit, especially below the eye
 - an eye that is sunken into the orbit or lower than the other eye
 - restricted eye movements, especially upgaze
 - anaesthesia of the cheek below the eye and/or the anterior upper gum, immediately behind the upper lip, on the side of the injury
 - clarity of the anterior chamber of the eye: clear, cloudy obscuring the iris and/or pupil or contains a blood fluid level (hyphaema)
 - if there is considerable eyelid oedema, carefully lift the eyelid away from the eye to check there is no obvious eye rupture
 - examine the eyelid(s) for lacerations

4. Management^{1,2,3}

- If there is a ruptured eyeball:
 - do not remove any eye tissue protruding from the rupture
 - do not pad the eye
 - 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 the eyeball. The base should rest on the orbital margin
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Nausea is common in eye injuries and vomiting can aggravate the injury:
 - raised intraocular pressure when vomiting can cause expulsion of eye contents
 - administer antiemetic as clinically indicated. See [Nausea and vomiting, page 48](#)
- Keep nil by mouth
- Where possible keep patient in dim lighting and on bed rest with the head of bed elevated to 30 degrees

- Prepare for evacuation
- If there is no ruptured eyeball, discuss with MO/NP:
 - eye lid lacerations. Treatment may vary, depending on eyelid margin and/or lacrimal drainage system damage
 - hyphaema (blood in the anterior chamber of the eye). If significant, patients are at risk of re-bleeding during the 7-10 days, especially the first 2 days, following injury. Associated intraocular inflammation and high intraocular pressure are common
 - any patient who has no apparent injury, but has reduced vision. Blunt trauma may cause damage to the internal structures of the eye e.g. retina
- Advise patient to rest, not use aspirin or NSAIDS and do no strenuous activity

5. Follow up

- If not evacuated advise to be followed up according to MO/NP instructions, which may include:
 - review the next day and re-examine eye
 - daily review if significant hyphaema. This review should include measurement of intraocular pressure if able

6. Referral/consultation

- Consult MO/NP as above

HMP Penetrating eye injury - adult/child

Recommend^{1,2,3}

- Any obvious or suspected ruptured eyeball requires Ophthalmologist management

Background

- Includes any foreign body penetration of the cornea e.g. dirt, glass, metal and inorganic material

1. May present with^{1,2,3}

- History of feeling a high velocity projectile hit the eye
- Obvious penetrating eye injury
- Suspicious history, but no immediately obvious penetrating eye injury e.g. very small entry wound made by small metal fragment travelling at high speed
- Pain
- Normal or reduced vision

2. Immediate management^{1,2,3}

- If there is an obvious penetrating eye injury:
 - check and manage any other life-threatening injuries
 - keep patient nil by mouth
- Consult MO/NP urgently

3. Clinical assessment^{1,2,3}

- Obtain patient history, including:
 - mechanism of injury

- type of projectile
- velocity - high or low
- if patient was wearing eye protection
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- If a penetrating eye injury is obvious:
 - **do NOT** perform a routine eye examination
 - **do NOT** instil topical anaesthetic oxybuprocaine eye drops, fluorescein dye or any other eye drops/ointment
 - with the patient lying flat, assess VA - count fingers, hand movements, light perception
 - apply an eye shield
- If a penetrating eye injury is suspected from the history, but not immediately obvious:
 - routine systematic examination of the eye may be performed if the practitioner is competent and the MO/NP agrees to this
 - if VA is **not** normal, abandon examination and apply an eye shield
 - **do NOT apply any direct pressure on the eyeball** during examination
 - if it becomes evident during the examination that there is a penetrating eye injury, abandon examination and apply an eye shield

4. Management^{1,2,3,4}

- Do not remove any foreign body or eye tissue protruding from a penetrating eye wound
- Do not pad the eye
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Administer antiemetic as clinically indicated. See [Nausea and vomiting, page 48](#)
- Keep nil by mouth
- Consult MO/NP who will advise:
 - x-ray (if available) if there is a history of high velocity projectile hitting the eye and if unsure the eye has been penetrated
 - antibiotics - IV gentamicin PLUS cefazolin (give gentamicin first)
 - preparation for evacuation
- If the injury is suggestive of the presence of intraocular air e.g:
 - large penetrating foreign body OR
 - prolapse of eyeball contents OR
 - intraocular air detected on examination
 - **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** air travel with 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
- 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 the eyeball
 - the base should rest on the orbital margin.
 - the injured eye should not be padded because any extruded ocular contents may stick to the

pad, causing further injury

- Check tetanus vaccination status and give booster if indicated. See [Tetanus immunisation, page 773](#)

Schedule	4	Gentamicin	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	80 mg/2 mL	IV	Adult and child 5 mg/kg Base dose on ideal body weight. If > 20% over ideal body weight consult MO/NP	stat Infuse over 15-30 minutes
Provide Consumer Medicine Information: Sometimes hearing and balance is affected and there may be some permanent hearing loss. Tell your doctor if your hearing becomes worse or you are unsteady or dizzy (especially when you sit up, stand up or walk)				
Note: Inactivated by cephalosporins and penicillins. Give gentamicin before other antibiotics. Strongly consider alternative antibiotics for those > 80 years of age. Rapid IV administration may result in ototoxicity/vestibular toxicity				
Contraindications: Severe or immediate allergic reaction to an aminoglycoside or a history of vestibular or auditory toxicity caused by an aminoglycoside				
Use in pregnancy: Do not use				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5,7

5,7

Schedule	4	Cefazolin	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	1 g	IV/Intraosseous dissolve 1 g in 9.5 mL of water for injections to give a concentration of 100 mg/mL	Adult 2 g	stat Infuse over 5 minutes
			Child ≥ 1 month 50 mg/kg to a max. 2 g	
Provide Consumer Medicine Information: May cause nausea, diarrhoea, rash, headache, dizziness and pain at injection site				
Note: Rapid IV injection of large doses may cause seizures. Doses up to 2 g can be given over 5 minutes. If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to a cephalosporin or a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: Contact the MO/NP. See Anaphylaxis, page 102				
5,6,8,9				

5,6,8,9

5. Follow up

- All patients with an obvious or suspected penetrating eye injury require evacuation/hospitalisation under the care of an Ophthalmologist

6. Referral/consultation

- Consult MO/NP on all occasions of suspected penetrating eye injury

Sudden, painless loss of vision - adult/child

Background^{1,2,3}

- Vision loss may involve:
 - central vision - reduced VA
 - the peripheral visual field - normal VA
 - both central and peripheral vision - reduced VA
- Sudden painless vision loss may be transient or persistent
- Transient vision loss may be due to TIA
- Painless vision loss is generally caused by an event in the back of the eye e.g retinal detachment, blood vessel occlusion, that will not be apparent when examining the front of the eye. There may be reduced pupil light reaction
- Examination by an Ophthalmologist is required to determine the cause
- Vision loss with pain is generally the result of other conditions e.g. Acute glaucoma

1. May present with^{1,2,3}

- Abrupt loss of vision that is partial or complete, involving one or both eyes
- Symptoms that occur before or simultaneously with loss of vision e.g. blurred vision, floaters or flashing lights

2. Immediate management

- Obtain rapid history and consult MO/NP urgently

3. Clinical assessment^{1,2,3}

- Obtain a complete patient history:
 - past eye and medical e.g. hypertension, diabetes
 - past visual acuities if known
 - medications
 - one or both eyes involved
 - vision loss sudden, or over hours to days
 - pattern of vision loss:
 - blackout started at the top of the visual field and moved downward
 - greying started centrally and moved outward
 - fading of vision turned into black-out
 - any preceding flashes, floaters or other eye symptoms
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL

- Examine both eyes:
 - start with VA
 - check the visual field of each eye separately by getting the patient to count fingers on your hand presented in each quadrant, 50 cm from their face
 - carefully check and document pupil reaction to light
 - check red reflex with an ophthalmoscope - loss of reflex may indicate retinal detachment

4. Management^{1,3}

- Consult MO/NP, who will advise urgent evacuation for Ophthalmologist/Neurologist review if an acute physical cause is 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, advise to see MO/NP at next clinic

6. Referral/consultation

- Consult MO/NP as above

HMP Orbital cellulitis/periorbital cellulitis - adult/child

Background^{1,2}

- Periorbital cellulitis is a soft tissue infection of the eyelids usually caused by trauma or infection of the surrounding skin
- Periorbital cellulitis is generally not a threat to vision
- Orbital cellulitis affects the eye socket and surrounding skin usually the result of a paranasal sinus infection
- Orbital cellulitis is a potentially blinding and life threatening emergency

Related topics

[Acute bacterial sinusitis, page 327](#)

1. May present with^{1,2}

- Oedema and redness of the eyelids in one eye
- Pain
- A history and signs suggestive of orbital cellulitis:
 - previous sinusitis
 - generally unwell, often with fever
 - tenderness over sinuses
 - eye pushed forward against eyelids
 - painful and/or restricted eye movement
 - conjunctival swelling
 - reduced VA
 - abnormal pupil light reaction

2. Immediate management Not applicable

3. Clinical assessment²

- Obtain a comprehensive patient history, including recent stye, insect bite to eyelid
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes, noting:
 - any obvious source of infection
 - tenderness over sinuses
 - position of the eye in the socket
 - range of eye movements
 - VA
 - pupil light reactions

4. Management^{1,2}

- Orbital cellulitis is a potentially blinding and life threatening emergency
- Suspect particularly if:
 - any alteration in VA, pupil light reaction, or restricted or painful eye movements
- Consult MO/NP in all cases, who will advise if:
 - evacuation/hospitalisation needed
 - Ophthalmologist and/or ENT review is required
- MO/NP will order antibiotics:
 - for orbital cellulitis:
 - IV ceftriaxone AND
 - IV flucloxacillin
 - for periorbital cellulitis MO/NP may order oral:
 - flucloxacillin OR
 - cefalexin OR
 - amoxicillin + clavulanic acid OR
 - if immediate sensitivity to penicillin, clindamycin
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

Schedule	4	Ceftriaxone	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	1 g	IV	Adult 2g	stat
			Child ≥ 1 month 50 mg/kg to a max. 2 g	
Provide Consumer Medicine Information: May cause nausea, diarrhoea, rash, headache, dizziness, candidiasis and pain at injection site				
Note: Rapid IV injection of large doses may cause seizures. Give doses > 1 g by infusion over 30 minutes. Can cause severe colitis due to <i>Cl. difficile</i> . If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to a cephalosporins or a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: Contact the MO/NP. See Anaphylaxis, page 102				
				1,5,12

Schedule	4	Flucloxacillin	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	500 mg 1 g	IV	Adult 2 g Child 50 mg/kg to a max. of 2 g	stat
Capsule	250 mg 500 mg	Oral	Adult and child ≥ 12 years 500 mg qid	7 days
Powder for reconstitution to oral liquid	125 mg/5 mL 250 mg/5 mL		Child < 12 years 12.5 mg/kg/dose qid to a max. of 500 mg/dose qid	
Provide Consumer Medicine Information: May cause diarrhoea, nausea and candidiasis. Take on an empty stomach ½ hour before or 2 hours after food				
Note: Can cause cholestatic hepatitis. Rapid IV injection of large doses may cause seizures. Doses ≥ 2 g must be given as an infusion over 30-60 minutes				
Contraindication: History of cholestatic hepatitis with dicloxacillin or flucloxacillin. 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, page 102				

1,6,13

Schedule	4	Cefalexin	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Adult and child ≥ 12 years 500 mg qid	7 days
Powder for reconstitution to oral liquid	125 mg/5 mL		Child > 1 month 12.5 mg/kg/dose qid to a max. 500 mg/dose qid	
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, vomiting, dizziness, headache and candidiasis				
Note: If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to cephalosporins or a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,3,4

1,3,4

Schedule	4	Amoxicillin + clavulanic acid	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RN and RIPRN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	875 mg + 125 mg	Oral	Adult and child ≥ 12 years 875 mg + 125 mg bd	7 days
Powder for reconstitution to oral liquid	400 mg/5 mL + 57 mg/ 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/dose bd (Calculate dose based on the amoxicillin component)	
Provide Consumer Medicine Information: Take with food. May cause rash, diarrhoea, nausea and candidiasis. Can cause severe colitis due to <i>Cl. difficile</i>				
Contraindication: Severe or immediate allergic reaction to a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems. Avoid in women with premature rupture of the membranes as there may be an increased risk of neonatal necrotising enterocolitis				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,10,11

1,10,11

Schedule	4	Clindamycin	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	150 mg	Oral	Adult and child ≥ 12 years 450 mg tds	7 days
			Child > 1 month 10 mg/kg/dose tds to a max. of 450 mg/dose tds	
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, vomiting and abdominal pain. Take with a full glass of water				
Note: Can cause severe colitis due to <i>Cl. difficile</i> There is no oral liquid for children. A 50 mg/mL solution can be made:				
• dissolve contents of 1 capsule in 2 mL water • draw this solution into a syringe and make the volume up to 3 mL (if necessary) • discard any excess solution so that the correct dose remains in the syringe • mix the dose in juice or soft food to disguise the taste before giving it				
Contraindication: Allergy to clindamycin or lincomycin				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,8,9

1,8,9

5. Follow up

- If not evacuated will require close monitoring especially of VA, in consultation with MO/NP
- Advise to see MO/NP at next clinic

6. Referral/consultation

- Consult MO/NP as above

Conjunctivitis - adult/child

Recommend^{1,2}

- To prevent cross infection, the patient should use a separate towel, pillow and box of tissues to clean their eye(s)
- Observe standard infection control precautions as conjunctivitis may be very infectious
- Children should be excluded from school and child care until discharge from eyes has ceased
- Keratitis is an infection of the cornea caused by herpes simplex virus. It is a major cause of blindness from corneal scarring and opacity worldwide. If conjunctivitis is not improving in 3 days consult MO/NP

HMP Bacterial conjunctivitis - adult/child

1. May present with²

- Purulent discharge from eye(s)
- History of contact with a person with conjunctivitis
- Difficulty opening the eye in the morning due to crusting/gluing of eyelashes
- Unilateral red eye that feels gritty. May begin in one eye and spread to the other

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history, including any contact with others with conjunctivitis
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - VA should be normal in bacterial conjunctivitis
 - there should be no corneal staining with fluorescein
 - note type of discharge from the eye

4. Management^{1,2}

- Consult MO/NP if vision affected
- Bacterial swabs are not routinely required, but may be indicated in special cases e.g. for gonorrhoea and chlamydia in acute purulent conjunctivitis in sexually active adults with STI symptoms. See [Sexually transmitted infections, page 615](#)
- Sodium chloride 0.9% or cooled boiled water are used to clean the eye and eyelids as frequently as needed to remove crusting and discharge. Clean from the inner to the outer margin to avoid contamination of the other eye
- Treat with topical chloramphenicol. See [Foreign body and corneal abrasion, page 363](#)

5. Follow up

- Advise to be reviewed the next day
- Consult MO/NP if worsening, not improving after 2 days or persists after 5 days of treatment

6. Referral/consultation¹

- Consult MO/NP as above

Viral conjunctivitis - adult/child

Recommend^{1,2}

- Viral conjunctivitis may be extremely contagious, so hygiene is important e.g. frequent hand washing and not sharing towels

1. May present with^{2,3,4}

- History of contact with a person with conjunctivitis
- During an epidemic of 'pink eye' or 'red eye'
- Both eyes diffusely red - classically begins in one eye and spreads to the other
- Eyes feel gritty
- Watery discharge
- History of viral upper respiratory tract infection
- Photophobia if there is corneal involvement (keratitis) in addition to conjunctivitis
- Burning sensation
- A viral lesion e.g. molluscum papule, cold sore on the eyelid

2. Immediate management Not applicable

3. Clinical assessment^{2,3,4}

- Obtain a complete patient history, including any URTI or contact with others with conjunctivitis
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - VA is usually normal in viral conjunctivitis, but may be reduced if there is corneal involvement e.g. adenovirus
 - there is usually no corneal staining with fluorescein, but it may be present if there is corneal involvement e.g. multiple punctate areas, small branching ulcers
 - note type of discharge from the eye

4. Management^{2,3,4}

- Consult MO/NP about any case with unilateral red eye, photophobia, decreased VA or abnormal corneal findings
- Viral swabs are not routinely required, but may be taken if the cornea is involved or there are any unusual features, and are ordered by MO/NP
- Advise regular hygiene practices:
 - frequent hand washing after touching the face
 - using separate towels and pillows
 - using separate box of tissues to clean their eyes
 - avoid touching the other eye or other people
- Sodium chloride 0.9% or cooled boiled water are used to clean the eye and eyelids as frequently as needed to remove crusting and discharge. Clean from the inner to the outer margin to avoid contamination of the other eye
- Symptomatic relief can be provided by:
 - cool compresses

- simple eye lubricants - drops or gel
- Reassure the patient that viral conjunctivitis is self-limiting, but may take weeks to resolve

5. Follow up⁵

- Advise to be reviewed the next day and consult MO/NP if worsening
- If there has been no improvement in 3 days consult MO/NP who may prescribe acyclovir (Zovirax®) eye ointment 5 times a day if herpes simplex keratitis is suspected or diagnosed

6. Referral/consultation³

- Refer to MO/NP as above

Allergic conjunctivitis - adult/child

1. May present with^{1,2}

- A history of allergies such as asthma/eczema or similar episodes in the past
- Itchy +++, burning, red eyes. Usually both eyes are affected
- Diffusely inflamed conjunctivae
- Clear, stringy discharge
- Mild photophobia
- Changes e.g. papillae, cobblestones in the conjunctival lining of the eyelids if the allergy is long standing

2. Immediate management Not applicable

3. Clinical assessment²

- Obtain a complete patient history
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - VA is normal in allergic conjunctivitis
 - there should be no corneal staining with fluorescein
 - note type of discharge from the eye

4. Management^{3,4,5}

- Cool compresses as required
- Simple lubricants e.g. refrigerated artificial tears to ease irritation
- Consult MO/NP if it is the first episode or is 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 the first episode, advise to be reviewed the next day and repeat examination of both eyes

6. Referral/consultation

- Consult MO/NP or see next MO/NP clinic

Acute gonococcal and chlamydial conjunctivitis - newborn

Recommend^{1,2,3}

- Neonatal gonococcal and chlamydial conjunctivitis is caused by infection during vaginal delivery. They present in the first month of life, are potentially blinding and require urgent treatment
- Swab for MCS and PCR for gonorrhoea and chlamydia in any newborn with conjunctivitis

1. May present with^{1,2,3}

- Purulent discharge in the eyes
- May occur within the first month of life

2. Immediate management³

- Urgent referral to Ophthalmologist if photophobic

3. Clinical assessment

- Review antenatal/birth history notes (if available) otherwise contact facility where baby born
- Examine both eyes

4. Management^{1,2,3}

- Take swab MCS, and dry swab for gonococcal and chlamydial PCR
- Consult MO/NP and treat as advised
- Arrange for the mother and infant to be assessed in an appropriate clinic if baby < 1 month old

5. Follow up¹

- Review result of MCS and treat any [Sexually transmitted infections, page 615](#) in parent and contacts

6. Referral/consultation

- Consult MO/NP/Paediatrician

HMP Trachoma - adult/child

CHLAMYDIA TRACHOMATIS CONJUNCTIVITIS

Background^{1,2,3}

- Trachoma is the leading infectious cause of blindness worldwide, caused by specific serotypes of chlamydia
- Risk factors include poor access to water and overcrowding which facilitates transfer of infected secretions
- Preventative measures include facial cleanliness and reducing fly contact
- Transmission is from ocular and nasal secretions on fingers, use of contaminated shared household items and via eye-seeking flies
- Repeated episodes can cause conjunctival scarring, trichiasis i.e. misdirected eyelashes, entropion (in-turned eyelid margin), corneal ulceration and opacification and blindness
- Diagnosis is clinical with swab confirmation in the conjunctivitis phase, and clinical alone in the scarring/trichiasis phase
- Requires STI treatment and contact tracing

1. May present with^{1,2}

- In childhood, usually:
 - repeated or chronic bilateral conjunctivitis with a mucopurulent discharge
 - upper eyelid conjunctival follicles or velvety redness
- In adulthood:
 - upper eyelid trichiasis and/or entropion
 - corneal opacity
- Upper eyelid conjunctival scarring

2. Immediate management Not applicable

3. Clinical assessment^{1,2,3}

- Obtain a complete patient history, including previous episodes of conjunctivitis for the patient and family, and time spent in regions known to have, or have had, endemic trachoma
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - the position of the upper eyelid margin and its lashes
 - evert the upper eyelids to check for follicles, velvety redness of intense inflammation and/or scarring
 - corneal opacity and/or blood vessel growth onto the cornea
- Assess facial cleanliness and general hygiene including skin sores
- If conjunctivitis present, take conjunctival swab for chlamydia PCR

4. Management

- Consult MO/NP
- Treat the patient with azithromycin as advised by MO/NP. See [Chlamydia/gonorrhoea/trichomonas/mycoplasma genitalium, page 623](#)

- Treat all household contacts/community as advised by MO/NP
- Encourage face and hand washing to reduce spread by contact and flies
- Refer to an Ophthalmologist for treatment of trichiasis and/or entropion

5. Follow up

- Advise to see MO/NP at next clinic

6. Referral/consultation

- Consult MO/NP as above
- Refer to an Ophthalmologist
- Consult Public Health Unit if chlamydia trachomatis identified
- Chlamydia trachomatis is a notifiable disease by pathological diagnosis ①

HMP Corneal ulceration - adult/child

Recommend^{1,2}

- Use fluorescein to ascertain shape and size of any corneal epithelium defect

Related topics

[Foreign body and corneal abrasion, page 363](#)

1. May present with

- A painful red eye, although some ulcers are painless
- Watery discharge due to reflex lacrimation
- Purulent discharge with bacterial ulcers
- Inflammation in the anterior chamber, settling as a collection of pus

2. Immediate management Not applicable

3. Clinical assessment^{1,2,3}

- Obtain a complete patient history, including:
 - similar previous episodes
 - facial cold sores
 - eyelid inflammations and infections
 - eye trauma including foreign bodies
 - wearing of contact lenses
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - if pain restricts examination, instil oxybuprocaine eye-drops. See [Foreign body and corneal abrasion, page 363](#)
 - corneal ulcers tend to be round on fluorescein staining but are typically evident as a white or opaque spot with a penlight or direct inspection
 - VA may be impaired, depending on the location and size of the ulcer
 - evert the upper eyelid and make sure there is no retained foreign body

4. Management^{1,2,3}

- Consult MO/NP to discuss management, including:
 - if can be treated locally. See [Foreign body and corneal abrasion, page 363](#)
 - evacuation if needed for Ophthalmologist review
- Unusual ulceration e.g. herpes dendritic ulcer, large and non-healing ulcers will need Ophthalmologist review
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

5. Follow up

- If not evacuated/hospitalised, advise to be reviewed daily. Check VA, clarity and integrity of cornea, presence of hypopyon until healed
- Consult MO/NP if:
 - worsened on first review
 - not healed on second review
 - VA deteriorates at any time
- Advise to see MO/NP at next clinic

6. Referral/consultation

- Consult MO/NP as above

HMP **Acute iritis (anterior uveitis)** - adult/child

Recommend¹

- Urgent Ophthalmologist referral, ideally with review within 24 hours

Background^{2,3}

- Uveitis is characterised by inflammation of the uvea; the middle portion of the eye including the iris and ciliary body
- Iritis is inflammation of the iris and anterior chamber alone
- In most cases iritis occurs spontaneously for which the cause is unknown. Evidence suggests a possible genetic disposition as a risk factor

1. May present with^{2,3}

- May have previous history of iritis
- Unilateral eye pain and photophobia
- Unilateral red eye, with redness more pronounced over the sclera adjacent to the cornea
- A small, possibly irregular pupil when compared with the other eye
- Inflammatory i.e. pus cells in the anterior chamber that may be sufficiently dense to obscure iris detail, or may settle at the bottom of the chamber as a fluid level (hypopyon)

2. Immediate management Not applicable

3. Clinical assessment^{2,3}

- Obtain a complete patient history, including:
 - previous eye conditions

- previous and present infections, STI, joint and back problems, bowel problems
- family history
- current medications
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - VA may be normal at first, but impaired later
 - there is no corneal fluorescein staining
 - check pupil size, shape and reaction to light
 - check clarity of the anterior chamber, and whether a white collection (hypopyon) has settled
 - check intraocular pressure if have the skill and equipment. Pressure may be high and require treatment
- Ocular findings:
 - red and watering eyes
 - pupil may be:
 - constricted
 - have irregular shape
 - be sluggish to react

4. Management

- Consult MO/NP
- MO/NP may order:
 - treatment with topical steroids and pupil dilatation
 - evacuation for Ophthalmologist review
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

5. Follow up

- As advised by the NP/MO/Ophthalmologist

6. Referral/consultation

- Consult MO/NP as above

HMP Acute glaucoma - adult/child

Background^{1,2}

- **Open-angle glaucoma** is an optic neuropathy characterised by progressive peripheral visual field loss followed by central field loss. It is usually in the presence of elevated intraocular pressure (IOP)
- **Angle-closure glaucoma** is characterised by narrowing or closure of the anterior chamber angle. The normal anterior chamber angle provides drainage for the aqueous humour i.e the fluid that fills the eyeball. When this drainage pathway is narrowed or closed, inadequate drainage leads to elevated IOP and damage to the optic nerve

1. May present with^{1,2}

- Open-angle glaucoma:
 - rarely any symptoms, usually detected incidentally during ophthalmic examination

- Angle-closure glaucoma:
 - decreased vision
 - halos around lights
 - headache
 - severe eye pain
 - nausea and vomiting

2. Immediate management Not applicable

3. Clinical assessment^{1,2,3,4}

- Obtain a comprehensive patient history, including:
 - previous episodes
 - previous eye trauma
 - family history of glaucoma
 - current medications
 - allergies particularly to sulphur drugs
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine both eyes:
 - VA generally becomes impaired as an acute glaucoma episode progresses
 - pupil is frequently mid-dilated
 - pupil light reaction becomes sluggish and then absent as episode progresses
 - there should be no corneal staining with fluorescein
 - cornea becomes swollen and opaque, so iris details may become obscured
 - there is an increase in intraocular pressure (IOP), which must be measured by an Optometrist, Ophthalmologist or someone with the appropriate skill and equipment

4. Management^{1,2,3,4}

- Administer analgesia and/or antiemetic as clinically indicated. See [Acute pain management, page 35](#) and [Nausea and vomiting, page 48](#)
- Consult MO/NP urgently who may order:
 - urgent evacuation to an appropriate facility with Ophthalmological services
 - prompt administration of pressure-lowering eye drops; 1 drop each, 1 minute apart of:
 - 0.5% timolol maleate
 - 2% pilocarpine
 - acetazolamide 500 mg IV or oral
 - IOP assessment every 30-60 minutes
- Specific treatments will involve Ophthalmological consultation

5. Follow up

- As advised by the Ophthalmologist

6. Referral/consultation

- Consult MO/NP as above

Urinary tract problems

HMP Urinary tract infection (UTI) - adult

CYSTITIS/PYELONEPHRITIS

Recommend

- Any woman presenting with low abdominal or suprapubic pain without dysuria or frequency should be considered for pelvic inflammatory disease (PID) and/or ectopic pregnancy

Background

- UTI is more common in females
- UTI is rare in males < 50 years of age. Dysuria in younger males is usually caused by an STI
- After the age of 50 years men may have predisposing factors such as prostatitis and urethral obstruction due to prostatic hypertrophy
- 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; diabetes

Related topics

[Low abdominal pain in female, page 635](#)

[Urinary tract infection in pregnancy, page 516](#)

1. May present with¹

- Abnormal findings on urinalysis - nitrites (breakdown of bacteria)/protein/blood/white blood cells (leukocytes)
- Elderly patients with UTI may present with confusion or falls

Cystitis

- Frequency, urgency, dysuria (discomfort or burning on passing urine), mild low back pain, lower abdominal/suprapubic pain, haematuria

Pyelonephritis

- Fever > 38°C, chills/rigors, flank/loin pain, costovertebral angle tenderness, nausea, vomiting

2. Immediate management

- Consider ectopic pregnancy in sexually active women with lower abdominal pain. See [Ectopic pregnancy, page 511](#)

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
 - STI history
 - medications
- Perform standard clinical observations (full ADDS score or other local Early Warning and Response

Tools) +

- urinalysis
- point of care pregnancy test for women of reproductive age
- if sexually active, do STI check. See [Sexually transmitted infections, page 615](#)
- collect MSU for MCS 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 specimen
- Perform physical examination:
 - palpate abdomen especially for suprapubic or loin tenderness
 - perform complete physical examination if > 65 years

4. Management^{2,3}

- In males with UTI consult MO/NP
- If pregnant see [Urinary tract infection in pregnancy, page 516](#)
- Any woman presenting with low abdominal or suprapubic pain without dysuria or frequency should be assessed for pelvic inflammatory disease (PID). See [Low abdominal pain in female, page 635](#)
- If asymptomatic bacteriuria, cloudy or malodorous urine:
 - no investigations or treatment required unless the patient has other symptoms or signs of a UTI
- In females with cystitis who are symptomatic and not pregnant give:
 - trimethoprim OR
 - if allergic to trimethoprim give nitrofurantoin OR cefalexin
 - **Note:** check patterns of local antibiotic resistance first
- A urinary alkaliniser e.g. Ural®, Citravescent® or 1 teaspoon of sodium bicarbonate in a glass of water may relieve some of the symptoms of UTI
- If pyelonephritis likely, consult MO/NP who may advise:
 - IV ampicillin (or amoxicillin) PLUS gentamicin
 - evacuation/hospitalisation

Schedule	4	Trimethoprim	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH may proceed for females. Must consult MO/NP for males				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	300 mg	Oral	Adult 300 mg daily	Male: 7 days Female: 3 days
Provide Consumer Medicine Information: Take at night to maximise urinary concentration. May cause fever, itch, rash and nausea				
Note: If renal impairment seek MO/NP advice. May increase risk of hyperkalaemia especially in the elderly or when taken in conjunction with an ACEI				
Contraindication: Megaloblastic anaemia				
Use in pregnancy: Avoid in first trimester				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

2,3,4

2,3,4

Schedule	4	Nitrofurantoin	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	50 mg 100 mg	Oral	100 mg bd	Male: 7 days Female: 5 days
Provide Consumer Medicine Information: Take with food or milk to reduce nausea and improve absorption. May cause nausea, vomiting, headache, anorexia, diarrhoea, abdominal pain, allergic skin reactions, headache, drowsiness or dizziness. Report difficulty breathing, development of a cough or numbness or tingling. May turn urine a brownish colour				
Contraindication: Renal impairment				
Management of associated emergency: consult MO/NP. See Anaphylaxis, page 102				

2,5

2,5

Schedule	4	Cefalexin	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH may proceed for females. Must consult MO/NP for males				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	500 mg bd	Male: 7 days Female: 5 days
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, vomiting, dizziness, headache and candidiasis				
Note: If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to a cephalosporins or a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

2,5

2,5

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. Advise to see MO/NP at next clinic

6. Referral/consultation

- Consult MO/NP as above

Skin problems

HMP Impetigo - adult/child

Recommend^{1,2}

- Until culture results are available, suspect *Streptococcus pyogenes* in Aboriginal and Torres Strait Islander (or disadvantaged) communities, or *Staphylococcus*, including MRSA in other areas. Medicines that are active against *Staphylococcus aureus* will also cover *Streptococcus pyogenes*^{3,5}
- For eradication of staphylococcal carriage in people with recurrent staphylococcal infections, mupirocin 2% intranasal ointment and chlorhexidine body washes may be indicated (once all lesions are healed and after nasal and/or perineal swabs taken). Household contacts will also need to be treated

Background²

- Impetigo is highly infectious, it occurs primarily in school age children. It may complicate pre-existing skin conditions such as scabies, eczema, tinea, insect bites and minor abrasions
- Impetigo can lead to serious systemic complications from streptococcal skin infection, including APSGN. See [APSGN, page 700](#) and [Acute rheumatic fever, page 705](#)

Related topics[APSGN, page 700](#)[Acute rheumatic fever, page 705](#)[Cellulitis, page 401](#)[Scabies, page 415](#)**1. May present with³**

- There are two distinct presentations (both are contagious):
 - crusted or non-bullous impetigo presents as yellow crusts and erosions that are itchy or irritating, but not painful
 - bullous impetigo presents as irritating blisters that erode rapidly into ulcers. Bullous impetigo is caused by *Staphylococcus aureus*

2. Immediate management Not applicable**3. Clinical assessment**

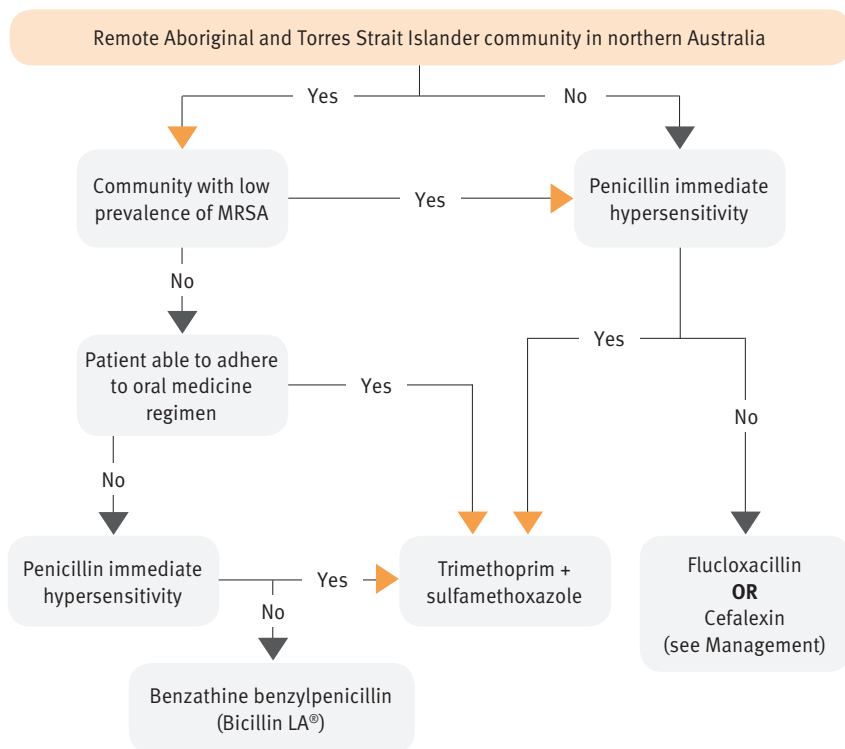
- Obtain a complete patient history
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weight - bare weight if < 2 years
 - urinalysis as a baseline
- Perform physical examination as per skin assessment in [History and physical examination - adult, page 20](#)
 - wear gloves as impetigo is highly contagious

4. Management⁴

- If patient has fever, see [Cellulitis, page 401](#)
- Consult MO/NP if:
 - BP or urinalysis is abnormal it may indicate the presence of APSGN
 - patient is systematically unwell
 - recurrent infections in individual or family
- **In mild/isolated cases** (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** (2 or more lesions):
 - take swabs for MCS. See [Chronic wounds, page 427](#) for how to take a swab
 - use measures outlined above for skin sores, clothing and personal hygiene
 - commence oral antibiotics - check local patterns of resistance first
- In Aboriginal and Torres Strait Islander communities in central and northern Australia give:
 - trimethoprim + sulfamethoxazole OR
 - benzathine benzylpenicillin (Bicillin LA®) - if lack of adherence with oral medicine is anticipated

- In non-remote settings, or communities with low prevalence of MRSA give:
 - flucloxacillin⁷ OR
 - cefalexin - if penicillin hypersensitivity, excluding immediate hypersensitivity to penicillin
 - **note:** cefalexin may also be a more palatable alternative to flucloxacillin as a liquid formulation for children⁴ OR
 - trimethoprim + sulfamethoxazole - if immediate hypersensitivity to penicillin or if reduced dosing frequency will improve adherence use²
- Advise parent/carer/patient that impetigo is highly infectious and that the child/patient should exclude themselves from contact with others - by not attending school, pre-school or child care centre until they have taken antibiotics for at least 24 hours⁶
- Cover sores on exposed areas with a watertight dressing⁶

Antibiotic selection for impetigo^{4,8}



Schedule

4

Trimethoprim + sulfamethoxazole

Extended authority

ATSIHP/IHW/IPAP/RIPRN

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN 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 or 320 mg + 1600 mg daily	For bd doses give for 3 days
Oral liquid	40 mg/5 mL + 200 mg/5 mL		Child ≥ 1 month 4 mg + 20 mg/kg/dose bd up to a max. of 160 mg + 800 mg/dose bd or 8 mg + 40 mg/kg daily up to a max. of 320 mg + 1600 mg daily	For daily doses give for 5 days

Provide Consumer Medicine Information: May cause fever, nausea, vomiting, diarrhoea, itch, rash and, sore mouth. Take with food to reduce stomach upset. Avoid sun exposure. Report sore throat, fever, rash, cough, breathing difficulties, joint pain, dark urine or pale stools

Note: If renal impairment seek MO/NP advice. May increase risk of hyperkalaemia especially when taken in conjunction with an ACEi

Contraindication: Severe or immediate allergic reaction to sulfonamides, megaloblastic anaemia, severe hepatic impairment, elderly and pregnancy

Use in pregnancy: Do not use

Management of associated emergency: Consult MO/NP. See [Anaphylaxis, page 102](#)

3,4,9

Schedule	4	Benzathine benzylpenicillin (Bicillin LA®)	Extended authority ATSIHP/IHW/IPAP/RIPRN			
ATSIHP, IHW, IPAP and RN must consult MO/NP						
RIPRN may proceed						
Form	Strength	Route of administration	Recommended dosage			Duration
Injection (pre-filled syringe)	1.2 million units/2.3 mL (900 mg)	IM	Weight	Dose	Volume	stat
			3 to < 6 kg	225 mg	0.5 mL	
			6 to < 10 kg	337.5 mg	0.8 mL	
			10 to < 15 kg	450 mg	1 mL	
			15 to < 20 kg	675 mg	1.6 mL	
			≥ 20 kg	900 mg	2.3 mL	
Provide Consumer Medicine Information: May cause diarrhoea, nausea and pain at injection site						
Note: Stop injection immediately if patient shows signs of severe pain. See Administration tips for benzathine benzylpenicillin, page 787						
Contraindication: 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, page 102						
2,3,10,11,12,13						

Schedule	4	Flucloxacillin	Extended authority ATSIHP/IHW/IPAP/RIPRN		
ATSIHP, IHW, IPAP and RN must consult MO/NP					
RIPRN 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	
Powder for reconstitution to oral liquid	125 mg/5 mL 250 mg/5 mL		Child > 1 month to ≤ 12 years 12.5 mg/kg/dose qid to a max. of 500 mg/dose qid	Stop earlier if infection has resolved	
Provide Consumer Medicine Information: May cause diarrhoea, nausea and candidiasis. Take on an empty stomach ½ hour before or 2 hours after food					
Note: Can cause cholestatic hepatitis. If renal impairment seek MO/NP advice					
Contraindication: History of cholestatic hepatitis with dicloxacillin or flucloxacillin. 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, page 102					
1,14					

Schedule	4	Cefalexin	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN 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
Powder for reconstitution to oral liquid	125 mg/5 mL		Child < 12 years 12.5 mg/kg/dose qid to a max. 500 mg/dose qid	Cease earlier if infection resolved
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, vomiting, dizziness, headache and candidiasis				
Note: If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to a cephalosporins or a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

15,16

15,16

5. Follow up

- Advise to be reviewed daily initially. Consult MO/NP if not improving
- If antibiotics have been given review in 2 weeks and check BP and urinalysis
- Consult MO/NP if abnormal blood pressure and/or urinalysis. Consider [APSGN, page 700](#)

6. Referral/consultation

- Consult MO/NP as above

HMP Folliculitis/furunculosis (boils)/carbuncles - adult/child

Recommend^{1,2}

- Most cases will resolve spontaneously
- Incision and drainage is the first line of treatment
- 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
- 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

Background^{1,3}

- Folliculitis is an infection of the hair follicle. It presents as a pustule on a small red base
- 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 buttocks
- 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*
- There is insufficient evidence to support the use of magnesium sulfate heptahydrate (magnesium sulfate) paste (Magnoplasm®) and medicinal honey, in the treatment of boils⁴

Related topics

[Cellulitis, page 401](#)

[Impetigo, page 392](#)

1. May present with²

- Folliculitis, furuncle (boil), carbuncle (multiple head abscess)
- Fever and/or malaise

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history +
 - any history of inflammatory bowel disease
- Perform physical examination as per skin assessment in [History and physical examination - adult, page 20](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
 - weight - bare weight if < 2 years
 - urinalysis

4. Management^{2,4}

- Take a swab for MCS to check for MRSA
- Consult MO/NP if:
 - infection in a child requiring incision
 - infection involving the face or hands

- breast abscess. See [Mastitis/breast abscess, page 588](#)
- results of swab show MRSA
- perianal abscess/boil in a patient with inflammatory bowel disease
- recurrent boils/carbuncles (for intranasal mupirocin order)
- sepsis is suspected. See [Sepsis/septic shock, page 80](#)
- Folliculitis:
 - may be treated by the application of moist heat which relieves discomfort, aids in the localisation of infection and promotes drainage
- Boil/carbuncle (cluster of boils):
 - small boils can be treated by the application of moist heat
 - when a head appears and the boil feels fluid-like underneath it is ready for incision and drainage. See **Incision and drainage** below
- Regardless of whether antibiotics are used a swab should be taken for microbiology to look for MRSA
- Antibiotics are indicated when there is/are:^{5,6}
 - a fever
 - multiple lesions, recurrent lesions
 - enlargement of regional lymph nodes, surrounding cellulitis. See [Cellulitis, page 401](#)
 - where the patient is immunosuppressed
 - when there is finger (pulp space) infection, infection on face, infection on breast
 - boils > 5 cm
 - moderate to severe infection (patients with systemic infection or those in which incision and drainage has not worked)
- If indicated, give trimethoprim + sulfamethoxazole^{2,5,6,7,8}
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

Incision and drainage⁹

- **Do not incise any boils in children**
- Do not incise any 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
- 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% lidocaine (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; avoid tightly packing the cavity
- After adequate drainage has occurred, cover lesions with a dry dressing
- Do not suture or perform other closure techniques
- Change dressings at least daily

Schedule	4	Lidocaine (lignocaine)	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	1% 50 mg/5 mL	Subcut	Adult and child ≥ 12 years or > 50 kg up to 3 mg/kg to a total max. of 200 mg Child < 12 years up to max. of 3 mg/kg	stat
Provide Consumer Medicine Information: Report any drowsiness, dizziness, blurred vision, vomiting or tremors				
Note: Use the lowest dose that results in effective anaesthesia				
Management of associated emergency: Ensure resuscitation equipment readily available. Consult MO/NP. See Anaphylaxis, page 102				

10,11

10,11

Schedule	4	Trimethoprim + sulfamethoxazole	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN 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
Oral liquid	40 mg/5 mL + 200 mg/5 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: May cause fever, nausea, vomiting, diarrhoea, itch, rash and, sore mouth. Take with food to reduce stomach upset. Avoid sun exposure. Report sore throat, fever, rash, cough, breathing difficulties, joint pain, dark urine or pale stools				
Note: If renal impairment seek MO/NP advice. May increase risk of hyperkalaemia especially when taken in conjunction with an ACEI				
Contraindication: Severe or immediate allergic reaction to sulfonamides, megaloblastic anaemia, severe hepatic impairment, elderly and pregnancy				
Use in pregnancy: Do not use				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,12

1,12

5. Follow up

- Advise to be reviewed 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
- If skin infection does not respond to antibiotic, 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

HMP Cellulitis - adult/child

Background^{1,2}

- 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 infection

Related topics

[Folliculitis/furunculosis \(boils\)/carbuncles, page 398](#)

[Orbital cellulitis/periorbital cellulitis, page 375](#)

1. May present with^{1,2}

- 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 and often precedes the onset of redness
- Tender regional lymph node involvement is common
- Systemic symptoms - malaise, fever and rigors may develop rapidly
- 'Wispy' lymphangitis along the medial aspect of a limb

2. Immediate management Not applicable

3. Clinical assessment^{1,2}

- Obtain a complete patient history
- 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) as per skin assessment in [History and physical examination - adult, page 20](#)
- Check for deterioration in any underlying medical condition such as diabetes

- Many other medical conditions mimic cellulitis, consider these alternative diagnoses in particular in patients with possible cellulitis but no fever:³
 - venous stasis
 - heart failure
 - liver cirrhosis
 - gout
 - DVT. See [Deep vein thrombosis \(DVT\)](#), page 155
 - contact dermatitis
 - hemosiderin staining (rusty discolouration of lower leg skin caused by chronic venous disease)
- Consider osteomyelitis and septic arthritis if a skin infection is taking a long time to resolve or occurs over a joint and in a patient with diabetes or immunosuppression

4. Management⁴

- If cellulitis caused by foreign body from water, fish spines and other marine creatures, see [Water related wounds](#), page 209
- Consult MO/NP if:
 - infection in a child
 - infection involving the face or hands
 - if MRSA is known or suspected
 - severe cellulitis or systemically unwell
- For severe cases in adults - the MO/NP may advise:
 - blood cultures
 - IV antibiotics - cefazolin + probenecid
 - evacuation/hospitalisation if necessary
- Administer analgesia as clinically indicated. See [Acute pain management](#), page 35
- For mild early cellulitis:
 - give antibiotics (check local patterns of resistance) as below:
- In Aboriginal and Torres Strait Islander communities in central and northern Australia (or if *Streptococcus pyogenes* is confirmed or suspected due to clinical presentation or local disease patterns), if not allergic give:
 - phenoxymethylpenicillin OR
 - IM procaine benzylpenicillin (procaine penicillin) - if a lack of adherence with oral medicine is anticipated OR
- In non Aboriginal and Torres Strait Islander communities, to cover *Staphylococcus aureus* and *Streptococcus pyogenes*, if not allergic give:
 - flucloxacillin OR
 - cefalexin - for children and if penicillin hypersensitivity, excluding immediate hypersensitivity
- If immediate hypersensitivity (anaphylaxis) to penicillin give:
 - clindamycin (check local patterns of resistance first)
- Dress any wound/site of injury:
 - if possible photograph to monitor response to treatment (with appropriately documented permissions)
 - measure by outlining inflamed area by tracing onto Opsite® or use ruler to measure (resolving cellulitis may continue to spread for 24 hours)
- Rest and elevate the affected limb (very important)

Schedule	4	Phenoxymethylpenicillin	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Adult 500 mg qid	5-10 days
Powder for reconstitution to oral liquid	125 mg/5 mL 250 mg/5 mL		Child 12.5 mg/kg/dose qid to a max. of 500 mg/dose qid	
Provide Consumer Medicine Information: May cause diarrhoea, nausea and candidiasis. Food has little effect on absorption				
Contraindication: 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, page 102				
2,6,7,8				

Schedule	4	Procaine benzylpenicillin (procaine penicillin)	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (pre-filled syringe)	1.5 g/3.4 mL	IM	Adult 1.5 g daily Child 50 mg/kg to a max. of 1.5 g daily	for at least 3 days
Provide Consumer Medicine Information: May cause diarrhoea, nausea and pain at injection site				
Note: Stop injection immediately if patient shows signs of severe pain. See Administration tips for benzathine benzylpenicillin, page 787				
Contraindication: 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, page 102				
4,10,11				

Schedule	4	Flucloxacillin	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Adult and child > 12 years 500 mg qid	5-10 days
Powder for reconstitution to oral liquid	125 mg/5 mL 250 mg/5 mL		Child > 1 month to ≤ 12 years 12.5 mg/kg/dose qid to a max. of 500 mg/dose qid	
Provide Consumer Medicine Information: May cause diarrhoea, nausea and candidiasis. Take on an empty stomach ½ hour before or 2 hours after food				
Note: Can cause cholestatic hepatitis. If renal impairment seek MO/NP advice				
Contraindication: History of cholestatic hepatitis with dicloxacillin or flucloxacillin. Severe or immediate allergic reaction to a penicillin. Be aware of cross-reactivity between penicillins, carbapenems and cephalosporins				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

4,5

4,5

Schedule	4	Cefalexin	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Adult and child ≥ 12 years 500 mg qid	5-10 days
Powder for reconstitution to oral liquid	125 mg/5 mL		Child < 12 years 12.5 mg/kg/dose qid to a max. 500 mg/dose qid	
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, vomiting, dizziness, headache and candidiasis				
Note: If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to a cephalosporins or a penicillin. Be aware of cross-reactivity between penicillins, carbapenems and cephalosporins				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

15,16

15,16

Schedule	4	Clindamycin	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	150 mg	Oral	Adult and child $\geq$ 12 years 450 mg tds Child $<$ 12 years 10 mg/kg/dose tds to a max. of 450 mg/dose tds	5-10 days
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, vomiting and abdominal pain. Take with a full glass of water				
Note: Can cause severe colitis due to <i>Cl. difficile</i> There is no oral liquid for children. A 50 mg/mL solution can be made:				
• dissolve contents of 1 capsule in 2 mL water • draw this solution into a syringe and make the volume up to 3 mL (if necessary) • discard any excess solution so that the correct dose remains in the syringe • mix the dose in juice or soft food to disguise the taste before giving it				
Contraindication: Allergy to clindamycin or lincomycin				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
				2,4,14

Schedule	4	Cefazolin	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	1 g	IV/Intraosseous Dissolve 1 g in 9.5 mL of water for injections to give a concentration of 100 mg/mL	Adult 2 g	stat infuse over 5 minutes
Provide Consumer Medicine Information: May cause nausea, diarrhoea, rash, headache, dizziness and pain at injection site				
Note: Rapid IV injection of large doses may cause seizures. Doses up to 2 g can be given over 5 minutes. If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to a cephalosporin or a penicillin. Be aware of cross-reactivity between penicillins, carbapenems and cephalosporins				
Management of associated emergency: Contact the MO/NP. See Anaphylaxis, page 102				
				4,15,16,17,18

Schedule	4	Probenecid		Extended authority ATSIHP/IHW/IPAP
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	Adult only 1 g daily	stat Give at least 30 minutes prior to cefazolin
Provide Consumer Medicine Information: May cause rash, nausea and vomiting. Take with food to reduce stomach upset				
Note: Check for interactions with other medicines prior to giving. Caution if peptic ulcer				
Contraindication: Impaired renal function, blood dyscrasias, uric acid renal stones present				
Use in pregnancy: Contact pregnancy drug information centre for advice				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

4,17,19,20

4,17,19,20

5. Follow up¹

- Advise to be reviewed daily initially, monitor inflammation
- Perform dressings as required
- Consult MO/NP if not improving

6. Referral/consultation

- Consult MO/NP as above

HMP Tinea/ringworm - adult/child

Recommend¹

- Prevent transmission of ringworm. Always treat secondary infection

Background^{1,2}

- 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 red or pink edge as it expands
- Transmission is fostered by overcrowding, shared bathroom facilities, poor hygiene, humid conditions, poorly controlled diabetes 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

[Tinea versicolor \(pityriasis versicolor\), page 411](#)

1. May present with^{1,2}

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 common

Tinea capitis

- 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 children 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 in the groin. Unlike candidiasis, satellite lesions are unusual. Often the inner thigh is affected

Tinea pedis

- Usually occurs between the toes and is characterised by itching, odour, 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
- Examine skin as per skin assessment in [History and physical examination - adult, page 20](#) (wear gloves)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
- Review nutritional status

4. Management¹

- 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 392](#)
- 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 topical terbinafine 1% (preferred)⁵, miconazole 2% or clotrimazole 1%⁴

Schedule	2	Terbinafine	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP and RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Cream	1%	Topical	Apply a thin layer bd	1-2 weeks
Provide Consumer Medicine Information: Clean and dry affected areas thoroughly before applying to the affected and surrounding skin. For this treatment to be successful you have to use it regularly. Do not cover with a dressing. Continue treatment for a few days after your skin looks better				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,5

1,5

Schedule	3	Miconazole	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP and RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Cream	2%	Topical	Apply a thin layer bd	Continue using for 2 weeks after symptoms have gone
Provide Consumer Medicine Information: Apply to the affected and surrounding skin. Pay particular attention to skin folds. For this treatment to be successful you have to use it regularly				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

2,3

2,3

Schedule	2	Clotrimazole	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP and RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Lotion	1%	Topical	Apply a thin layer 2-3 times a day	Until 2 weeks after symptoms cease
Cream				
Provide Consumer Medicine Information: Apply thin layer to affected skin. Generally well tolerated				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

4

4

5. Follow up³

- Advise to be reviewed in 2 weeks
- Advise to see MO/NP at next 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

HMP Candidiasis (skin) - adult/child

Background^{1,2}

- Candidiasis is a yeast infection usually confined to the skin, nails, mucous membranes, vagina 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 355](#)

[Candidiasis/vaginal \(thrush\), page 630](#)

1. May present with^{1,2}

- Cutaneous candidiasis:
 - most commonly found in moist skin folds
 - connecting moist red patches, sometimes with vesicles and satellite pustules
 - 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

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history
- Examine skin as per skin assessment in [History and physical examination - adult, page 20](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL if diabetic or candidiasis is persistent and recurrent
- Review nutritional status

4. Management¹

- Remove/modify predisposing factors where possible
- Investigate for diabetes, treat other skin conditions if present
- Provide education on predisposing factors, personal hygiene and not sharing towels
- Treat with topical miconazole 2% or clotrimazole 1%

Schedule	3	Miconazole	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP and RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Cream	2%	Topical	Apply a thin layer bd	Continue using for 2 weeks after symptoms have gone
Provide Consumer Medicine Information: Apply to the affected and surrounding skin; pay particular attention to skin folds. For this treatment to be successful you have to use it regularly				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

4

4

Schedule	2	Clotrimazole	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP and RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Lotion	1%	Topical	2-3 times a day	Until 2 weeks after symptoms cease
Cream				
Provide Consumer Medicine Information: Apply thin layer to affected skin. Generally well tolerated				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5

5

5. Follow up¹

- Advise to be reviewed in 2 weeks
- Advise to see MO/NP at next clinic if:
 - persistent or recurrent candidiasis
 - fingernails or toenails involved
- These patients may require oral antifungal treatment

6. Referral/consultation

- Consult MO/NP as above

HMP **Tinea versicolor (pityriasis versicolor)** - adult/child

Background^{1,2}

- Pityriasis versicolor (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

Related topics

[Tinea/ringworm, page 406](#)

1. May present with^{1,2}

- Well defined, irregularly shaped macules (a discoloured flat spot on the skin)
- Macules may vary in colour from reddish brown in fair skinned people to hypopigmented lesions in dark skinned people
- The macules may be covered with a fine scale
- Commonly found on the upper trunk, neck and shoulders
- Mild itchiness, more marked after swimming in salt water, or heavy sweating

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history
- Examine skin as per skin assessment in [History and physical examination - adult, page 20](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Review nutritional status

4. Management^{1,2,3}

- 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 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 days
 - 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 treatments:
 - ketoconazole 2% shampoo once daily for 3-5 minutes then wash off for 5 days OR
 - apply econazole 1% foaming solution e.g. Pevaryl® to wet skin and leave overnight for 3 nights and repeat in 1 and 3 months OR
 - 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		
ATSIHP, IHW, IPAP, RIPRN and RN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Shampoo	25 mg/mL (2.5 %)	Topical	Daily Apply to wet skin. Leave on for at least 10 minutes or overnight	7-10 days
Provide Consumer Medicine Information: Complete course. To help prevent recurrence, can be applied 1 or 2 times a month after initial treatment				
Management of associated emergency: Consult MO/NP				

1,3

Schedule	2	Ketoconazole		Extended authority ATSIHP/IHW/IPAP
ATSIHP, IHW, IPAP and RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Shampoo	2%	Topical	Daily Apply and leave on for 5 minutes then wash off	Up to 5 days
Provide Consumer Medicine Information: A single application may be effective				
Management of associated emergency: Consult MO/NP				

1,5

5. Follow up⁴
- Advise to see MO/NP at next clinic if persistent or recurrent tinea versicolor
6. Referral/consultation
- Consult MO/NP as above

Leprosy (Hansen's disease) - adult/child

Recommend

- Leprosy (Hansen's disease) is a notifiable disease ①
- Consider leprosy in any patients with any unexplained peripheral lesion or any chronic skin lesion which fails to respond to 'conventional' treatment, particularly if associated with localised decreased sensation or palpable, thickened nerves
- Because leprosy has a strong social stigma attached, confidentiality is especially important

Background¹

- Leprosy is caused by *Mycobacterium leprae*. It is a slow developing disease (from 1-20 years) and is transmitted via droplets from the nose and mouth but is not highly infectious
- Leprosy can affect the skin, the peripheral nerves, the upper respiratory tract and the eyes
- Leprosy is curable

1. May present with²

- Skin lesions, nerve pain, numbness and tingling, weakness, ulcers and injuries
- Palpable or thickened peripheral nerves
- Areas of skin discolouration may appear coppery on dark skin and pink on fair skin with loss of sensation in the discoloured area
- 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 assessment²

- 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 violet 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. Management²

- Consult MO/NP
- Diagnosis always requires a biopsy or microbiological confirmation
- 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 - dapson, rifampicin and clofazimine
- Public Health Unit will provide contact tracing of household/family and provide advice
- Ensure patient adheres 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
- Regular long term follow up needed
- Advise to present if they have any sudden or increasing weakness/numbness or skin problems

5. Follow up²

- All patients with leprosy require lifelong follow up

6. Referral/consultation

- Consult MO/NP on all occasions if leprosy is suspected
- Leprosy requires immediate notification to the local Public Health Unit ①

HMP Scabies - adult/child

Recommend^{1,2}

- 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 treated
- Severe crusted scabies (Norwegian scabies) requires intensive treatment

Background^{1,2,3}

- Caused by a mite that burrows into the skin. An allergic reaction to the presence of the mite is responsible for the signs and symptoms
- 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
- There is limited evidence that treating clothes, linen, mattresses and furniture helps in control and prevention
- Secondary bacterial infection occurs frequently
- Crusted (Norwegian) scabies occurs when thousands of mites are present rather than the usual 3-50. It is not a different species. It is usually associated with poverty or overcrowding
- Immunocompromised, mentally or physically incapacitated people are at greater risk of crusted scabies
- See Queensland Health Fact Sheet at: <http://conditions.health.qld.gov.au/HealthConditions/2/Infections-Parasites/101/Parasites/545/Scabies>

Related topics

[APSGN, page 700](#)

[Impetigo, page 392](#)

[Acute rheumatic fever, page 705](#)

1. May present with^{3,4,10}

- Marked itchiness, scratching while asleep
- 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:**
 - thickened, scaly patches, often not itchy compared to scabies
 - often, but not always, on buttocks, hands, feet, elbows, armpits
 - scale may have distinctive creamy colour
 - tinea, psoriasis, eczema or dermatitis may look similar

2. Immediate management Not applicable

3. Clinical assessment^{2,3,5}

- Obtain a complete patient history
- Examine skin as per skin assessment in [History and physical examination - adult, page 20](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
 - note in particular BP
- Weight - bare weight if < 2 years
- Do urinalysis
- Look for any signs of secondary infection. See [Cellulitis, page 401](#), and [Impetigo, page 392](#)
 - secondary bacterial infection can lead to APSGN and ARF/RHD
- Consider skin scraping for fungal elements/scabies

4. Management^{2,3,6,10}

- Consult MO/NP if:
 - BP or urinalysis abnormal
 - severe crusted scabies
 - infant < 6 months of age
 - secondary dermatitis from retained mite products - may require topical steroid
- Treat any secondary bacterial infections at the same time. See [Cellulitis, page 401](#), and [Impetigo, page 392](#)
- **To treat scabies use:**
 - permethrin 5% and repeat in 1 week
 - apply to entire body, head to toe
 - can be applied to scratched/broken skin only avoiding open lesions if obvious irritation occurs
 - **Note:** 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
 - if treatment fails, consult MO/NP who may order ivermectin
- **If Norwegian or crusted scabies:**
 - consult MO/NP who will order ivermectin following approval by an infectious diseases specialist or clinical microbiologist
 - apply permethrin 5% every 2nd day after bathing for 1 week, then 2-3 times every week until cured. Apply head to toe and wash off after 24 hours
 - apply Calmurid® (10% urea, 5% lactic acid in moisturising cream) after bathing on alternate days to permethrin 5%, and only to areas of crusted or thickened skin, to soften the skin crusts and help penetration of permethrin 5%:
 - soak or scrub the crusts with a sponge the next day, prior to applying permethrin 5%
 - clothes, bed sheets and towels should be washed in hot water daily and dried in the sun
 - if a washing machine is not available, leave clothes, linen and bedding in a sealed plastic bag to kill any mites
 - vacuum the floors and furniture in the house, and the floors and seats in cars, to remove mites or skin flakes
- Simultaneous treatment of all family members and close personal contacts is crucial otherwise re-infestation is inevitable
- Inadequate coverage is a frequent cause of treatment failure. Fully supervised treatment of patients and contacts increases the likelihood of cure

- If a school-aged child, the school should be notified. Children with scabies can return to school 24 hours after commencement of treatment

Schedule	Unscheduled	Permethrin 5% (Lyclear®)		
ATSIHP, IHW, IPAP, MID, RIPRN and RN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Cream	5% 30 g tube	Topical	Approximate amount of 30 g tube for a single application Adult and Child ≥ 12 years up to 1 Child aged 5 to 12 years up to 1/2 Child aged 1 to 5 years up to 1/4 Infant aged 6 months to 1 year up to 1/8	Apply on day 1 Repeat after 7 days
Provide Consumer Medicine Information: Apply from the chin down and wash off with warm soapy water 8-14 hours later. Rinse thoroughly. Also apply to the scalp, face and ears in children < 2, elderly or immunocompromised people, people with treatment failiure, or those with atypical or crusted scabies				
Management of associated emergency: Consult MO/NP				
1,6,7,10				

Schedule	4	Ivermectin	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW and IPAP must consult a specialist infectious disease physician				
RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	3 mg	Oral	Adult and child ≥ 5 years or ≥ 15 kg 200 microgram/kg (rounded up to the nearest 3 mg) to a max. of 18 mg	For scabies not responsive to permethrin stat repeat in 1 week For crusted scabies once on days 1, 2 and 8
Provide Consumer Medicine Information: May infrequently cause headache, fatigue, dizziness, abdominal pain, vomiting and diarrhoea				
Use in pregnancy: Do not use				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
8,9,10				

5. Follow up⁶

- Repeat treatment with permethrin 5% in 7 days to eradicate newly hatched mites
- If topical treatment fails consider other diagnosis, unidentified source of re-infestation or co-morbid condition (immunocompromised). May require supervised treatment or specialist referral
- 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
- Severe crusted (Norwegian) scabies requires notification to the local Public Health Unit ①

Head lice/nits - adult/child

Background¹

- Head lice are crawling (*Pediculus capitis*) insects the size of a sesame seed, that live on the scalp but lay eggs (nits) on the hair
- 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 minutes
- Applying heat with a hair dryer to small sections of hair for 1-3 minutes over a period of 30 minutes is more effective in killing eggs than live lice - this is more effective in achieving a cure than wet combing²
- See Queensland Health Fact Sheet at: www.conditions.health.qld.gov.au/HealthCondition/condition/14/165/351/headlice

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
- 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
 - use a fine toothed comb to find live lice with thick white hair conditioner applied to hair
- Inspect the nape and occiput of the neck for excoriations and papules - signs of secondary bacterial infection. See [Impetigo, page 392](#)

4. Management^{1,3}

- Treat any secondary bacterial infection at the same time
- Permethrin 1% is the chemical treatment of choice³ and can be applied to scabbed/broken skin, only avoiding open lesions if obvious irritation occurs:
 - repeat treatment 7 days after initial treatment
- An effective non-chemical treatment:
 - 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 minutes
 - use an ordinary comb to de-tangle 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
 - **note:** 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 lice

Schedule

Unscheduled

Permethrin 1% (Quellada®)

ATSHP, IHW, IPAP, MID, RIPRN and RN may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Lotion	1%	Topical	Adult and child > 2 months as required	Apply on day 1 Repeat after 7 days

Provide Consumer Medicine Information: Apply to damp hair after washing with usual shampoo. Leave on hair for 10 minutes before rinsing. Use a fine tooth comb to remove eggs and dead lice. May temporarily increase itch, redness and swelling from lice. Avoid contact with eyes

Management of associated emergency: Consult MO/NP

1,4

5. Follow up

- Advise to repeat Permethrin 1% after 7 days

6. Referral/consultation

- Consult MO/NP if persistent or recurrent head lice

HMP Nappy rash - child

Background¹

- Most nappy rash is a simple irritant dermatitis, but there are many causes
- Irritant nappy rash is due to the loss of the epidermal barrier of the skin due to moisture friction and exposure to urine and faecal enzymes
- Virtually all cases become colonised with *Candida albicans* (thrush)

Related topics

[Candidiasis \(skin\), page 409](#)

1. May present with¹

- Red, weeping skin rash
- Irritability, especially with nappy changing
- Recent antibiotic use

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history:
 - assess bowel movement history; any diarrhoea
 - assess nappy changing routine - frequency, type of nappy used, use of powders, creams, bathing
- Perform physical examination of the skin. Look for:
 - evidence of skin disease elsewhere e.g. atopic eczema, psoriasis
 - satellite lesions - consider [Candidiasis \(skin\), page 409](#)
 - any evidence of secondary bacterial infection. See [Impetigo, page 392](#)

4. Management^{1,2}

- Advise carer of strategies to manage nappy rash at home and to prevent recurrence (see table)
- Always consider non-accidental injury where injury or presentation is inconsistent with history or is unexpected in children or other vulnerable people. See [Child protection, page 760](#)
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Treat secondary bacterial infection or candidiasis if present. See [Impetigo, page 392](#) or [Candidiasis \(skin\), page 409](#)
- Consult Child Health Nurse or MO/NP if severe or not improving after simple measures

Strategies to manage nappy rash at home^{1,2}

Suggest ✓	Avoid ✕
More frequent nappy changes (at least 2 hourly during the day)	Removing barrier cream at every nappy change
Expose skin to air wherever feasible	Using soap
Use damp cloths and a soap substitute	Using wipes containing fragrances or alcohol
Use cotton wool and water to clean perineum, groin and buttocks	Applying talcum powder, cornstarch, baking soda, boric acid powders
Apply a barrier cream to skin to prevent progression of rash e.g zinc oxide	Nappy liners
Apply petroleum jelly over the barrier cream to avoid absorption of cream into nappy	Waterproof nappy covers/pilchers

5. Follow up

- If mild, advise to be reviewed in one week
- If moderate, advise to be reviewed 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 in diabetes**HMP Foot infection in patient with diabetes****Recommend^{1,2}**

- Early treatment (antibiotics and wound care) may prevent the need for the patient to be evacuated, hospitalised and undergo amputation
- Be aware of bone or joint destruction due to underlying loss of sensation, fractures/dislocations with or without trauma and changes in bone metabolism (also known as Charcot's Foot)
- A specialist diabetic foot service is strongly recommended for any patient who has diabetes and a foot lesion/infection

Background³

- Foot infections in patients with diabetes are a serious complication that frequently lead to amputation
- The most likely organisms to infect a superficial ulcer are *Staphylococci*, *Streptococci* and sometimes anaerobes
- Up to one third of people with diabetes are likely to develop a foot ulcer^{1,4}
- Reducing pressure and/or improving vascularisation is required to heal a diabetic foot ulcer
- Precipitating causes of foot ulceration and infection include: previous history of foot ulcer, friction in ill-fitting shoes, untreated or self-treated callus, foot injuries, burns, corn plaster, nail infection, friction or pressure when immobile, foot deformities, poor foot self-care, lack of awareness of risks, diabetic peripheral neuropathy with sensory loss

Related topics

[Osteomyelitis in the foot of patient with diabetes, page 425](#)

1. May present with^{2,3}

- Patient with diabetes with:
 - foot injury/trauma, signs of infection - swollen, inflamed foot
 - ulcer or wound on foot
- 'Painless' foot injury secondary to diabetic peripheral neuropathy
- Signs of sepsis. See [Sepsis/septic shock, page 80](#)

2. Immediate management Not applicable**3. Clinical assessment³**

- 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 practices
 - current medications
 - recent trauma to foot
 - observance with wound care
 - home support
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
- Perform physical examination. Inspect/assess all surfaces of the foot:
 - 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 - 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
- Collect bloods:
 - HbA1c, FBC, CRP, urea, creatinine and GFR, random venous BGL
- Obtain wound swab for MCS. See [Chronic wounds, page 427](#) for technique

4. Management^{1,3}

- Consult MO/NP urgently if limb threatening ischaemia i.e. absent pedal pulses with pain at rest, gangrene or ischemic ulcer
- For severe cases or if systemically unwell MO/NP may advise:

- blood cultures, IV cannula, IV antibiotics
- evacuation/hospitalisation
- For mild to moderate infection with no evidence of osteomyelitis or septic arthritis MO/NP may order:
 - amoxicillin + clavulanic acid OR
 - cefalexin PLUS metronidazole OR
 - if immediate hypersensitivity to penicillin: ciprofloxacin PLUS clindamycin
- Manage hyperglycaemia in consultation with MO/NP and diabetes team. Insulin may be required in the short term to control BGL
- Determine in consultation with specialist diabetic foot service type of primary dressing and secondary dressing where required. See [Chronic wounds, page 427](#)
- 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

Schedule	4	Amoxicillin + clavulanic acid	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RN and RIPRN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	875 mg + 125 mg	Oral	Adult 875 mg + 125 mg bd	7 days
Provide Consumer Medicine Information: Take with food. May cause rash, diarrhoea, nausea and candidiasis. Can cause severe colitis due to <i>Cl. difficile</i>				
Contraindication: Severe or immediate allergic reaction to a penicillin. Be aware of cross-reactivity between penicillins, carbapenems and cephalosporins. Avoid in women with premature rupture of the membranes as there may be an increased risk of neonatal necrotising enterocolitis				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5,6

5,6

Schedule	4	Cefalexin	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	500 mg qid	At least 5 days
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, vomiting, dizziness, headache and candidiasis				
Note: If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to a cephalosporins or a penicillin. Be aware of cross-reactivity between penicillins, carbapenems and cephalosporins				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5,7

5,7

Schedule	4	Metronidazole	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg 400 mg	Oral	Adult 400 mg bd	At least 5 days
Provide Consumer Medicine Information: Avoid alcohol while taking and for 24 hours thereafter. Take with food to reduce stomach upset. May cause nausea, anorexia, abdominal pain, vomiting, diarrhoea, metallic taste, dizziness or headache				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5,8

5,8

Schedule	4	Ciprofloxacin	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	250 mg 500 mg 750 mg	Oral	Adult and child ≥ 12years 500 mg bd	At least 5 days
Provide Consumer Medicine Information: Take 1 hour before, or 2 hours after meals. Drink plenty of fluids. Avoid dairy products, zinc, iron or calcium supplements within 2 hours of taking dose as they reduce absorption. May cause rash, itch, nausea, vomiting, diarrhoea, abdominal pain, dyspepsia and increase effects of caffeine and alcohol. May cause dizziness or faintness. Avoid driving or operating heavy machinery if affected. Stop taking and notify health professional if any tendon soreness or inflammation, or numbness or tingling in your fingers or toes occurs. Avoid sun exposure				
Note: Can cause severe colitis due to <i>Cl. difficile</i> . If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to ciprofloxacin or other quinolones				
Pregnancy: Not recommended. Reserve for severe or life-threatening infections				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5,9,10

5,9,10

Schedule	4	Clindamycin	Extended authority ATSI P/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	150 mg	Oral	Adults 450 mg tds	At least 5 days
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, vomiting and abdominal pain. Take with a full glass of water				
Note: Can cause severe colitis due to <i>Cl. difficile</i>				
Contraindication: Allergy to clindamycin or lincomycin				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5,11,12

5,11,12

5. Follow up

- Advise to be reviewed daily initially to assess progress and change dressings
- Provide ongoing education on good foot care practices
- Ensure feet are inspected at each visit

6. Referral/consultation

- Consult MO/NP/specialist diabetic foot service on all occasions
- Refer to Diabetes Educator for self-management support as good glycaemic control helps to prevent 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

Osteomyelitis in the foot of patient with diabetes

Background^{1,2,3}

- Patient often has a history of diabetic peripheral neuropathy with sensory loss
- Patients with diabetes who have a foot lesion/infection are at risk of having underlying osteomyelitis
- Clinical diagnosis is difficult
- If the ulcer is > 2 x 2 cm or bone is probable, then osteomyelitis is likely. Further non-invasive testing is not necessary to initiate treatment
- Osteomyelitis should be suspected in long term ulcers over bony prominences

Related topics

[Foot infection in patient with diabetes, page 421](#)

1. May present with²

- 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^{2,3}

- Obtain a complete patient history including history detailed in [Foot infection in patient with diabetes, page 421](#) Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL
- Perform physical examination. Inspect all surfaces of the foot and conduct foot assessment as detailed in [Foot infection in patient with diabetes, page 421](#)

4. Management³

- Consult MO/NP/specialist diabetic foot service immediately if a patient with diabetes has suspected osteomyelitis in the foot
- MO/NP/specialist diabetic foot service may advise:
 - IV cannula
 - take bloods:
 - blood cultures
 - HbA_{1c}, FBC, CRP, urea, creatinine and GFR, random venous BGL
 - white cell count (may not be elevated)
 - ESR, CRP - usually > 5 mg/L
 - ± wound swab for MCS. Note that this may identify superficial pathogens and not the organism involved in the bone infection, which requires a bone specimen
 - x-ray plain films (may be normal for up to 6 weeks)
 - IV antibiotics⁴
 - evacuation/hospitalisation

5. Follow up¹

- Follow up patient after discharge from hospital, monitor wound, glycaemic control, nutritional supplements and CRP
- Provide ongoing education on good foot care practices
- Confirm follow up appointment with high risk foot service or other specialist team
- Continue oral antibiotic therapy for 3 months

6. Referral/consultation

- Consult MO/NP on all occasions
- Refer to Diabetes Educator for self-management support as good glycaemic control helps to prevent infections

Chronic wounds

HMP Chronic wounds - adult/child

Recommend¹

- Underlying diseases or factors contributing to poor wound healing should be assessed and their management optimised
- Extreme care must be taken if arterial disease (ischaemia) is suspected due to the risk of lower limb amputation
- Consider wounds of uncommon etiology:³
 - 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

Background^{2,3}

- 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
- 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

Related topics

[Foot infection in patient with diabetes, page 421](#)

1. May present with³

- Ulcer
- Acute wound that is not healing due to:
 - size and nature of wound
 - secondary infection
 - retained foreign body
 - underlying co-morbidities

2. Immediate management Not applicable

3. Clinical assessment^{3,5}

- Obtain complete patient history:
 - relevant medical and surgical history including risk factors:
 - diabetes, smoking history, alcohol use, hypertension, hyperlipidaemia, ischaemic heart disease, cerebrovascular disease, obesity, DVT
 - current medications and allergies
 - previous ulcers; interventions to manage
 - nutritional status
- Ask about wound:
 - likely cause
 - duration/progression
 - pain
 - type and frequency of dressing changes
 - history of wound infection
 - recent investigations e.g. wound swab, biopsy, x-ray, duplex ultrasound scan
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL if diabetes suspected or known
- 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 for lower limb oedema
- See table *Assessment of venous, arterial and neuropathic lower limb ulcers* to assist with differential diagnosis of ulcers
- Take wound swab for MCS if clinically indicated

How to collect a wound swab/culture⁵

- 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

Assessment of venous, arterial and neuropathic lower limb ulcers^{5,6}

	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	History of numbness, parasthesia, burning, loss of sensation in foot. Common in patients with diabetes mellitis
		Patients with neuro ischaemic ulcers may not feel pain	
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

4. Management⁴

- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Consult MO/NP as clinically indicated for:
 - optimising management of underlying co-morbidities
 - thorough clinical assessment

- 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
- wound not healing
- admission to hospital if significant infection is present or patient is systemically unwell

Wound dressings

- Determine appropriate dressing regimen. See **Guidelines for management of chronic wounds**
 - as needed, consult with MO/NP, wound specialist or podiatrist for assistance
- 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 protect periwound skin from regular dressing changes. **Not in feet of a patient with diabetes**
- Diabetic foot wounds should be reviewed regularly (at least twice weekly) and a Podiatrist or specialist high risk foot service/diabetic foot service consulted
- 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)

Dressings for optimal moisture balance⁵

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

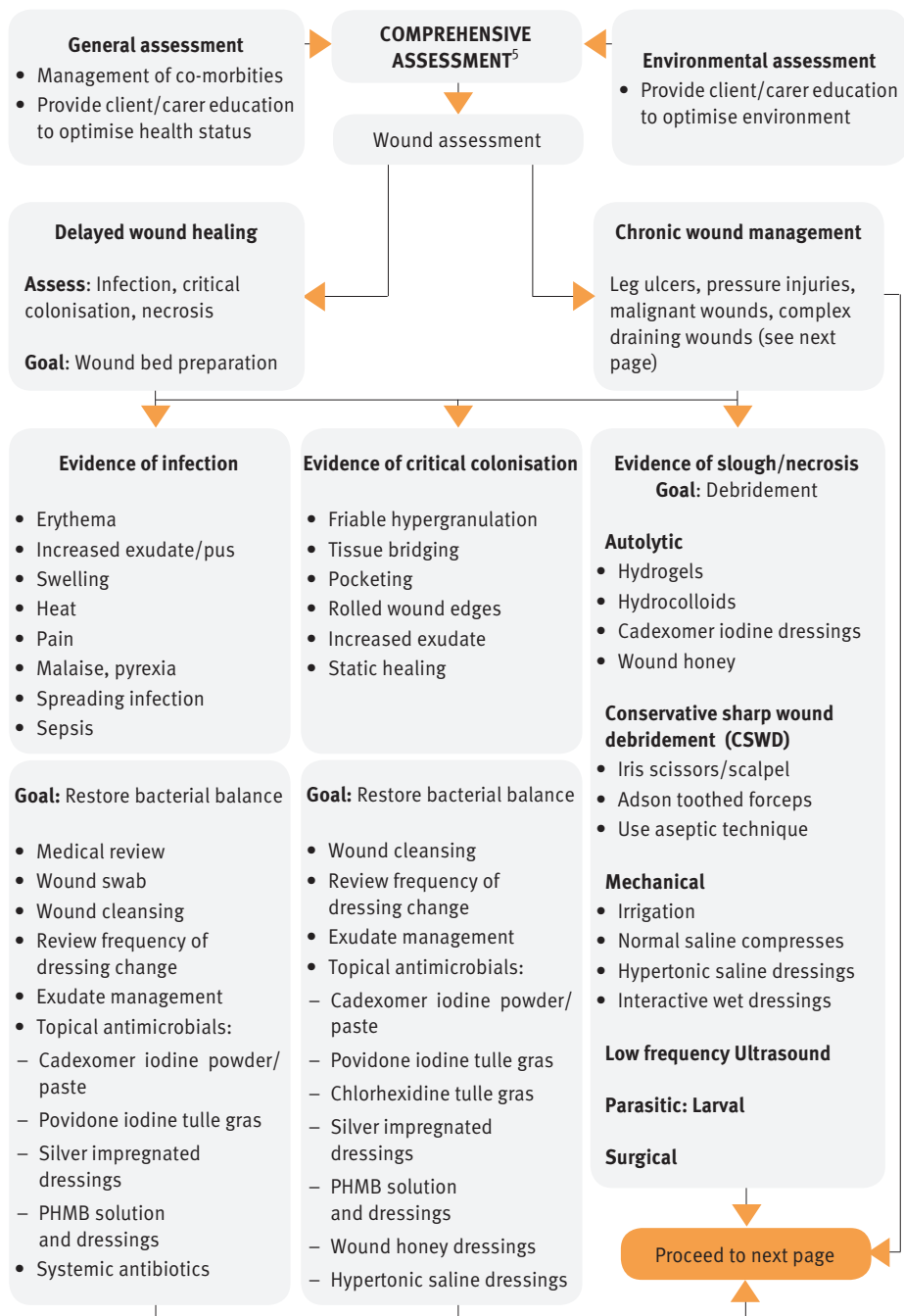
5. Follow up

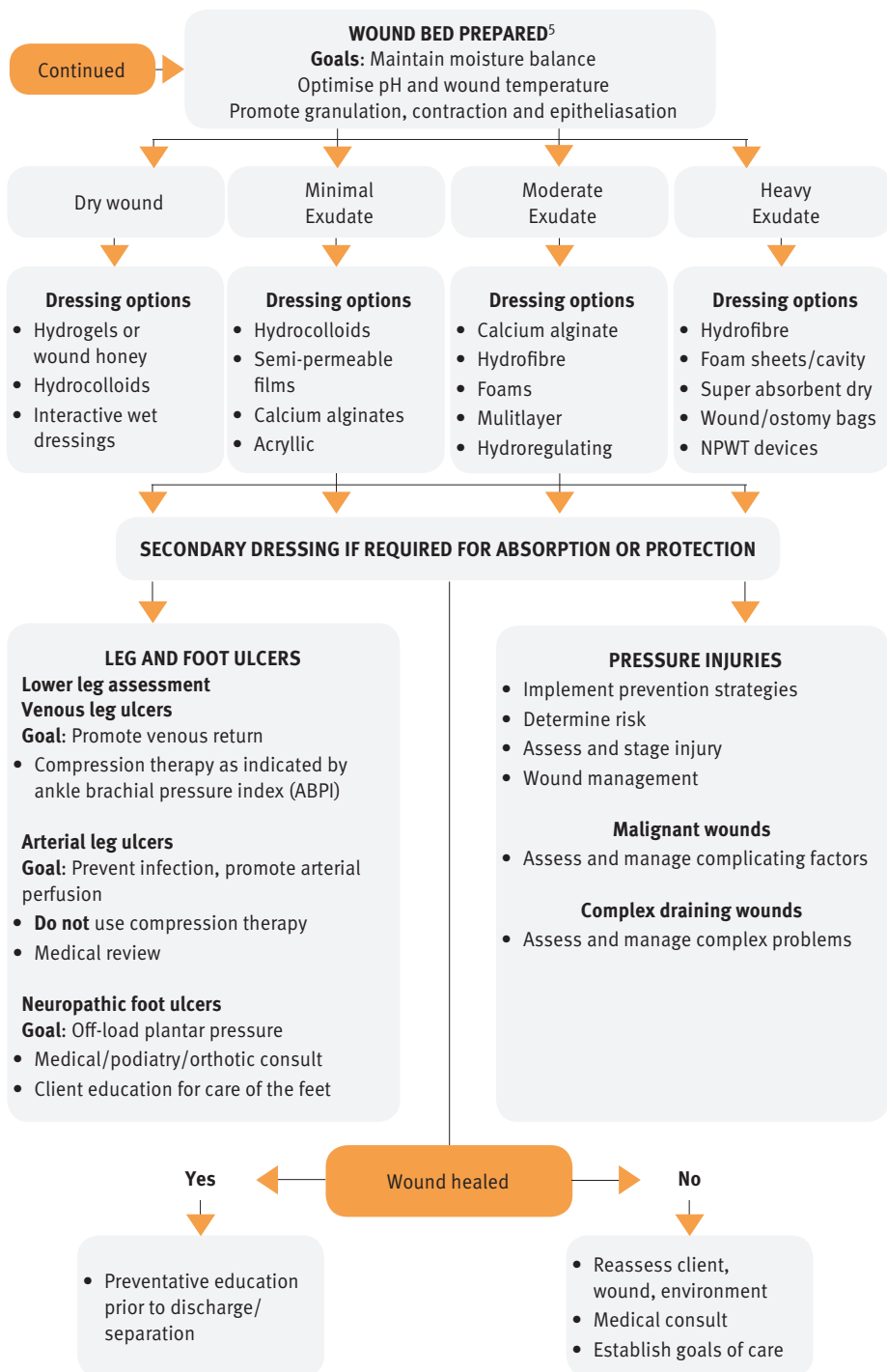
- As determined in consultation with MO/NP, wound specialist or podiatrist

6. Referral/consultation

- 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
- Referral to a Dermatologist may be required

Guidelines for management of chronic wounds





Communicable diseases

Acute hepatitis A - adult/child

Recommend¹

- Acute hepatitis A is a notifiable condition ①
- Vaccinate according to National Immunisation Program schedule and advise avoidance of risk factors
- Perform contact tracing

Background¹

- Transmission of hepatitis A virus (HAV) is by the faecal-oral route, from contaminated food, less commonly through sexual contact in people who participate in sexual practises that involve oral-anal contact
- Incubation period is between 2-7 weeks (average 28-30 days). HAV is self-limiting with a duration around 6 months and never becomes chronic
- HAV is excreted in the stools for 2 weeks before illness is apparent and continues for up to 1 week after onset of jaundice
- Two cases constitute an outbreak
- HAV varies in clinical severity from a mild illness lasting 1-2 weeks to a severely disabling disease lasting several months
- Most cases resolve with complete recovery. Relapsing HAV for up to one year can occur, severity increases with age

Related topics

[Acute hepatitis B, page 435](#)

[Acute hepatitis C, page 437](#)

1. May present with^{1,2}

- No symptoms (particularly in infants and children)
- Fever, malaise, nausea and abdominal discomfort
- Loss of appetite
- Skin and whites of the eyes look yellow (jaundice)
- Dark urine (bilirubinuria)
- Faeces (stools) can be pale-coloured
- Itchy skin (pruritis)
- Laboratory findings:
 - detection of anti-hepatitis A IgM, in the absence of recent vaccination
 - detection of HAV by nucleic acid testing

2. Immediate management Not applicable

3. Clinical assessment¹

- Obtain comprehensive patient history - specifically ask about contact with others with the disease, environmental circumstances, history of travel, medicines, and occupation
- Immunisation history
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and

Response Tools)

- Perform physical examination
- Take bloods for:
 - hepatitis A, B and C serology
 - LFTs
 - INR
- Diagnosis is confirmed with serology for hepatitis A

4. Management^{1,2}

- Consult MO/NP on all occasions jaundice detected or hepatitis A is suspected
- Consult urgently if INR ≥ 1.5
- Treatment of hepatitis A is supportive and symptomatic:
 - rarely require evacuation/hospitalisation
 - bed rest is advised if patient has jaundice
- During the infectious period (7 days after onset of jaundice/dark urine, or 2 weeks after initial symptoms), advise the patient **not** to:
 - donate blood
 - drink alcohol or take paracetamol
 - prepare or handle food for other people
 - have sex
 - attend preschool, child care, school, work
 - provide personal care to others
 - share drug injection equipment
 - share food, drinks, cigarettes or other smoking implements
- Educate the patient and household contacts on transmission of the virus and the appropriate preventive measures. See hepatitis A fact sheet: <http://conditions.health.qld.gov.au/HealthCondition/condition/14/217/72/Hepatitis-A>

5. Follow up¹

- Advise patient to return within 24 hours

6. Referral/consultation

- Consult MO/NP as above
- HAV is a notifiable condition in most jurisdictions ①
- Liaise with Public Health for contact tracing and other control measures

Acute hepatitis B - adult/child

Recommend¹

- Acute hepatitis B is a notifiable condition ①
- Screen all patients who have tested positive for an STI for hepatitis B virus (HBV) and C
- Do not share razors, toothbrushes, nail clippers or similar items

Background^{1,2}

- Chronic hepatitis B is common in Aboriginal and Torres Strait Islander communities and some migrant populations in Australia, but acute HBV infection is rare
- 50-70% of adults and 90% of children with acute HBV have a subclinical infection
- The risk of acute HBV infection developing into chronic HBV infection decreases with age. 90% of infants infected at birth will develop chronic infection, and < 10% of adults will develop chronic HBV infection
- Up to 25% of people living with chronic HBV will die from complications such as liver failure, cirrhosis and liver cancer
- Transmission occurs by three major routes:
 - percutaneous (primarily IV drug use) and permucosal exposure
 - perinatal transmission from mother to child
 - sexual transmission
- Patients with a positive hepatitis B surface antigen (HBsAg) should be fully assessed and the HBsAg should be repeated at 6 months. 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>
- See fact sheet at: <http://conditions.health.qld.gov.au/HealthCondition/condition/8/217/74/hepatitis-b>

Related topics

[Acute hepatitis A, page 433](#)

[Acute hepatitis C, page 437](#)

1. May present with^{1,3}

- No symptoms
- Pain in the abdomen, nausea, vomiting
- Loss of appetite (precedes jaundice by 1-2 weeks)
- General aches and pains, weakness and tiredness (precedes jaundice by 1-2 weeks)
- Low-grade fever
- 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 HBV infection
 - detection of HBV PCR/NAT (nucleic acid testing) with no documented hepatitis B virus infection

2. Immediate management Not applicable

3. Clinical assessment^{2,3}

- Obtain comprehensive patient history - specifically ask:
 - about possible mode of transmission e.g. injection drug use, alcohol use, unsafe sex in previous 45-180 days, and possible contacts
 - family history of HBV infection and liver cancer
 - HBV vaccination history
- Medication history
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination. Palpate abdomen for:
 - enlarged liver
 - right upper quadrant tenderness
 - ascites (fluid in the abdomen)
- Take blood for:
 - anti-HBc
 - HBsAg
 - anti-HBs
 - HBcIgM
 - hepatitis A
 - hepatitis C
 - LFTs
 - INR

4. Management³

- Consult MO/NP on all occasions if jaundice detected and hepatitis B is suspected
- Consult urgently if INR ≥ 1.5
- Treatment is mainly supportive. Will rarely require evacuation/hospitalisation
- If anti-HBc positive and HBsAg positive, then ensure testing for HBeAg
- Diagnosis is confirmed with serology for HBV
- If anti-HBs negative then consider need for hepatitis immunisation
- Advise:
 - rest
 - drink plenty of water
 - avoid fatty/oily foods
 - avoid alcohol and paracetamol during acute illness
- Educate the patient and household contacts on transmission of the virus and the appropriate preventive measures and provide information
- 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*
- Patients with fulminant liver failure require referral to a specialist liver transplant service

5. Follow up¹

- Advise to be reviewed in 24 hours. Repeat education

6. Referral/consultation

- Consult MO/NP as above
- Hepatitis B requires notification to the local Public Health Unit based on pathological diagnosis ①
- Specialist/Liver clinic where applicable

HMP Acute hepatitis C - adult/child

Recommend¹

- Acute hepatitis C is a notifiable condition ①
- Screen all patients who have tested positive for an STI for hepatitis B and C
- Any patient with antibodies to hepatitis C virus (HCV) must have a HCV PCR test and LFTs performed to determine if the infection is still present

Background²

- Acute HCV infection:
 - refers to the 6 month period after being infected
 - is an uncommon presentation; most patients have chronic disease
 - is characterised by the appearance of HCV RNA in the blood within 2-14 days of exposure
 - results in the elevation of liver enzymes, particularly ALT
 - results in the development of HCV antibodies within 30-60 days of exposure
 - spontaneously clears in 20-25% of individuals
- If no spontaneous clearance of HCV after 6 months, patient is considered to have chronic HCV
- 2 or more cases is considered an outbreak³
- There is currently no approved treatment for acute HCV infection¹
- Chronic HCV infection is now curable with a highly effective anti-viral medication that can be prescribed by an MO/NP in primary care settings
- See fact sheet at: <http://conditions.health.qld.gov.au/HealthCondition/media/pdf/14/217/75/hepatitis-c-v11>

Related topics

[Acute hepatitis B, page 435](#)

[Acute hepatitis A, page 433](#)

1. May present with³

- No symptoms (majority of cases)
- Jaundice
- Anorexia
- Nausea, vomiting
- Lethargy
- Upper abdominal pain - uncommon
- Laboratory findings:²
 - detection of anti-HCV antibody

- detection of HCV RNA
- detection of elevated liver-associated enzyme, particularly ALT

2. Immediate management Not applicable

3. Clinical assessment⁴

- Obtain comprehensive patient history. Specifically ask about:
 - the possibility of contact with others with the disease
 - medication history
 - 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
- Take bloods:
 - urea, creatinine, electrolytes
 - LFTs, INR
 - HCV PCR, HIV and hepatitis A serology, HBsAg, HBcAb, HBsAb
- Perform physical examination:
 - inspect for jaundice
 - palpate the abdomen for a tender/enlarged liver

4. Management^{2,3}

- Consult MO/NP on all occasions jaundice detected or hepatitis C is suspected
- Consult MO/NP urgently if INR ≥ 1.5 or if severe illness (may require evacuation/hospitalisation)
- Diagnosis is confirmed with serology
- Bed rest is advised if the patient has jaundice
- Educate the patient and household contacts on transmission of the virus and the appropriate preventive measures, including **not** to:
 - donate blood or other biological material
 - share needles, syringes, spoons, filters or any other injecting equipment
 - share razors, toothbrushes or nail/hair clippers or similar items which could become contaminated with blood
 - drink alcohol
 - take paracetamol
- Vaccinate against hepatitis A and B. See [Immunisation program, page 768](#)
- Perform contact tracing (contacts up to 180 days) in consultation with MO/NP or Public Health Unit

5. Follow up³

- Advise to be reviewed in 24 hours. Repeat education
- Advise to see MO/NP at next clinic
- MO/NP may advise regular LFTs and INR, and a repeat HCV RNA after 6 months
- Advise patient with ongoing risk factors to have an annual HCV RNA blood test

6. Referral/consultation

- Consult with MO/NP as above
- Hepatitis C requires notification to the local Public Health Unit ①
- Referral to Specialist/Liver clinic where applicable

HMP Ross River Virus and Barmah Forest Virus - adult/child

Background^{1,2}

- Ross River Virus (RRV) and Barmah Forest Virus (BFV) are similar arboviral illnesses transmitted by mosquitoes and characterised by fever, rash and joint pains
- These arboviruses are common and widespread in Australia and are caused by a variety of mosquitoes
- The mosquitoes causing these illnesses are most active at dusk and at dawn
- RRV can cause significant arthralgia for several months in some patients, most usually recover in 4-7 months
- RRV and BFV are notifiable conditions ①

1. May present with³

- 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
- Rarely - chills, rigors, delirium

2. Immediate management Not applicable

3. Clinical assessment³

- Obtain complete patient history, including history of recent travel
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform relevant physical examination
- Inspect and palpate joints for swelling, heat and redness

4. Management³

- Consult MO/NP who may advise:
 - taking blood for arbovirus serology (state the virus being tested for on request form)
 - non-steroidal anti-inflammatory medicine for joint problems
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Educate to take precautions against being bitten by mosquitoes and provide information:
 - 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>

5. Follow up³

- Serology may need to be repeated in 14 days to confirm diagnosis
- Advise to see MO/NP at next clinic

6. Referral/consultation

- Consult MO/NP on all occasions of suspected Ross River Fever or Barmah Forest Virus

HMP Dengue fever - adult/child

Recommend¹

- A blood test is needed to confirm suspected dengue. However, notification of dengue does not require blood test results i.e. dengue should be notified on suspicion ①

Background¹

- There are four serotypes (strains or variations) - 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 houses
- One or more confirmed cases of locally acquired dengue is considered an outbreak

1. May present with^{1,2}

- Mild febrile illness
- Classical presentation:
 - sudden onset of fever lasting 2-7 days
 - intense headache, especially in or 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, vaginal bleeding, blood in urine, blood in stool, blood in vomit
 - extreme fatigue
- Severe dengue - as above with any of the following:
 - low BP (shock), rapid weak pulse
 - fluid accumulation in lungs with respiratory distress (pulmonary oedema)
 - severe bleeding
 - severe organ involvement - liver (AST/ALT > 1000 U/L on blood tests), brain (altered level of consciousness), heart and other organs
 - altered consciousness

2. Immediate management³

- If signs and symptoms of severe dengue:
 - consult MO/NP urgently
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
 - See [Shock, page 77](#) for further management

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)
- 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

4. Management³

- Consult MO/NP
- Evacuation/hospitalisation may be needed for:
 - severe dengue
 - pregnant
 - very young children
 - diabetes or kidney disease
 - elderly
- Encourage oral fluids
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
 - **Do not use aspirin, methyl salicylate** (found in some topical pain relief preparations) **and other NSAID** e.g. Ibuprofen as they can lead to bleeding
- Provide preventative mosquito bite education.
- All household members should take measures to avoid being bitten, especially while patient is febrile
- See fact sheet at: <https://www.health.qld.gov.au/cdcg/index/dengue>

5. Follow up^{1,3}

- Advise to re-present if there is any deterioration particularly if there are any signs of bleeding or other signs of severe dengue
- Advise to be reviewed the next day and next MO/NP clinic
- Consult MO/NP if deteriorating

6. Referral/consultation¹

- Consult MO/NP on all suspected cases of dengue
- Dengue requires notification to the local Public Health Unit based on a provisional i.e. suspected

and/or pathological diagnosis ①

Chronic conditions

HMP Secondary prophylaxis for acute rheumatic fever (ARF) - adult/child

Recommend¹

- Strict long term benzathine benzylpenicillin (Bicillin LA®) prophylaxis is critical to prevent recurrences of ARF :
 - 13 injections a year are needed - every 21-28 days
 - every day of non-treatment over 28 days puts the person at high risk of a recurrence of ARF
 - never miss an injection

Background

- RHD is a chronic condition resulting from scarring and deformity of the heart valves. Each recurrent episode of ARF may lead to further damage to the heart valves - hence the requirement for Bicillin LA®
- The QLD RHD Program holds the Bicillin LA® 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
- Recommended resource: *Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease* <http://www.RHDaustralia.org.au>. **Note:** this resource refers to benzathine benzylpenicillin as benzathine penicillin G (BPG) these are the same

Related topics

[Acute rheumatic fever, page 705](#)

1. May present with

- History of acute rheumatic fever (ARF)
- Diagnosis of rheumatic heart disease (RHD)

2. Immediate management Not applicable

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 benzylpenicillin (Bicillin LA®) injection delivery discuss with patient:
 - any medication allergies
 - any problems following previous benzathine benzylpenicillin (Bicillin LA®) injections
 - preferred site to receive injection (thigh, ventrogluteal or buttocks)
 - consider methods of pain control. See [Administration tips for benzathine benzylpenicillin](#),

[page 787](#). As an option for analgesia for regular administration, nitrous oxide can be administered

- administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- 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
- If IM route not possible, has resulted in significant bleeding or is refused, give oral phenoxymethylpenicillin
- If allergic to penicillin, give erythromycin

Schedule	4	Benzathine benzylpenicillin (Bicillin LA®)	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP (or have current order)				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (pre-filled syringe)	1.2 million units/2.3 mL (900 mg)	IM	Adult and child ≥ 20 kg 1.2 million units (900 mg) Child < 20 kg 0.6 million units (450 mg)	Every 21-28 days as per recommended regimen
Provide Consumer Medicine Information: May cause diarrhoea, nausea and pain at injection site				
Note: Stop injection immediately if patient shows signs of severe pain. See Administration tips for benzathine benzylpenicillin, page 787				
Contraindication: 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, page 102				

5,6

Schedule	4	Phenoxymethylpenicillin	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Adult and child > 1 month 250 mg bd	Ongoing on MO/NP advice
Powder for reconstitution to oral liquid	125 mg/5 mL 250 mg/5 mL			
Provide Consumer Medicine Information: May cause diarrhoea, nausea and candidiasis. Food has little effect on absorption				
Contraindication: 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, page 102				
				1,6,7,8

Schedule	4	Erythromycin	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg	Oral	Adult and child > 1 month 250 mg bd	Ongoing on MO/NP advice
Powder for reconstitution to oral liquid	200 mg/5 mL			
Provide Consumer Medicine Information: Take on an empty stomach 1 hour before or 2 hours after food. May cause nausea, vomiting, diarrhoea, abdominal pain, cramps and candidiasis. Can be taken with food if causes stomach upset				
Note: If renal impairment seek MO/NP advice. Use with simvastatin is contraindicated. Interacts with many drugs, including over the counter and herbal products. Use with caution in patients with myasthenia gravis				
Contraindication: Severe or immediate allergic reaction to macrolides. Severe hepatic impairment				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
				1,8

5. Follow up

- Fill out injection card available from <https://www.rhdaustralia.org.au/resources/injection-reminder-card>
- Inform the relevant State RHD Register and Control Program dates of injections
- Discuss strategies to ensure patient returns for next injection

6. Referral/consultation

- Provide ongoing education and support to patient and family using resources including *Strong Heart Strong Body* book <https://www.rhdaustralia.org.au/resources/strong-heart-strong-body-information-about-rheumatic-fever-and-rheumatic-heart-disease> and injection reminder cards from Queensland RHD Register and Control Program
- For ongoing care 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>

HMP Supply of chronic condition medicines by ATSIHP and IHW

Recommend

- This HMP is for Aboriginal and Torres Strait Islander Health Practitioners (ATSIHP) and Authorised Indigenous Health Workers (IHW) to supply medicines for ongoing management of chronic conditions in isolated practice areas only
- This topic is not intended for assessment and treatment of acute conditions

Background

- ATSIHP and IHW may be required to supply medicines prescribed by MO/NP for chronic conditions if < 6 months since last medical consultation

1. May present with

- Diagnosis of chronic condition and medicine(s) prescribed by MO/NP
- Patient requesting supply of medicines for chronic condition e.g. for ongoing management of:
 - diabetes
 - asthma
 - hypertension
 - COPD
 - chronic heart disease
 - chronic kidney disease

2. Immediate management Not applicable

3. Clinical assessment

- Check order for medicine is current and written within last 6 months
- Check medicine is approved for supply by the clinician - it will be listed in the appendix of the relevant Drug Therapy Protocol (DTP):
 - DTP - Aboriginal and Torres Strait Islander Health Practitioner - Isolated Practice Area OR
 - DTP - Indigenous Health Worker Isolated Practice Area OR
 - equivalent document(s) (if the Drug Therapy Protocols are legislatively changed)
 - Access DTPs at: <https://www.health.qld.gov.au/system-governance/licences/medicines-poisons/legislation-standards/acts-regulation>
- Ask how patient is going with medicines:
 - are they taking the medicine as prescribed
 - any side effects
 - any other concerns

Where practical, check and complete actions according to the patient's care plan at the time of supply.

Refer to the *Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* for guidance: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>

- Check medicine allergies

If medicine(s) is for management of diabetes:

- check BGL
- if BGL outside of normal ranges, consult MO/NP for advice
- check and complete care items on diabetes and high-risk foot care plan(s)

If medicine(s) is for management of hypertension:

- check BP
- if BP is outside of normal ranges contact MO/NP for advice
- if systolic BP ≥ 200 mmHg and/or diastolic BP ≥ 130 mmHg contact MO urgently. See [Acute hypertensive crisis - adult, page 151](#)
- check and complete care items on hypertension care plan

If medicine(s) is for management of asthma:

- as appropriate, check inhaler technique
- discuss smoking and passive smoking (if applicable)
- ensure patient has an Asthma Action Plan
- check and complete care items on asthma care plan

If medicine(s) is for management of chronic obstructive pulmonary disease (COPD):

- as appropriate, check inhaler techniques
- discuss smoking and passive smoking (if applicable)
- check and complete care items on COPD patient care plan

If medicine(s) is for management of chronic kidney disease (CKD):

- check and complete care items on CKD patient care plan according to stage of kidney disease

If medicine(s) is for management of chronic heart disease (CHD):

- check and complete care items on chronic heart disease care plan

4. Management

Provide health education/support for management and/or prevention of the chronic condition as relevant:

- Smoking cessation
- Healthy eating
- Alcohol intake
- Exercise

Refer to the *Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* for guidance: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>

- Consult MO/NP if:
 - condition is worsening or not managed well with medicines
 - BGL or BP remains elevated; shortness of breath; any other concerns for their health
 - if patient has any concerns about their medicine
 - any concerns about reading the medicine order
 - any concerns or you are unsure about anything
- Check non-inpatient rural and remote medication chart for medication order:
 - check date order written - ATSIHP and IHW may only supply if order is within last 6 months
 - can you read the order properly
 - is the medicine in stock
 - when did the patient last get the medicine
- Select medicine for supply according to MO/NP order:
 - check the generic name of the medicine - ensure patient is not already taking the same medicine with a different brand name
 - if patient requests more than 1 months supply, contact MO/NP for approval
 - label appropriately
 - record supply
- Offer consumer medicine information as appropriate including:
 - how to take the medicine
 - what it is for, and how it works
 - warnings/precautions, such as when the medicine should not be taken
 - common side effects
 - how to store

5. Follow up

- Discuss need for next MO/NP appointment as appropriate

6. Referral/consultation

- If concern condition is worsening or not managed well with medicines, consult MO/NP
- Refer as appropriate e.g. to diabetes educator, dietician, exercise physiologist, podiatrist, physiotherapist
- Support patient to access specialist appointments

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Mental health and substance misuse



Mental health assessment

Mental health assessment - adult/child

Recommend^{1,2}

- 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 culturally appropriate Health Workers/Mental Health Workers in Aboriginal and Torres Strait Islander communities

Background^{3,4}

- Substance abuse disorder and exposure to trauma commonly co-exist with mental health disorders

Related topics

[Acute severe behavioural disturbance, page 467](#)

[Depression, mania and anxiety, page 484](#)

[Psychotic disorders, page 481](#)

[Suicidal behaviour, page 456](#)

[Delirium, page 161](#)

1. May present with^{2,5}

- Altered cognition, altered consciousness, memory loss, poor concentration, disorientation
- Restlessness, tremor, tardive dyskinesia i.e. involuntary movements such as grimacing, blinking, smacking lips
- Repetitive behaviour e.g. rocking, hand wringing
- Alcohol and other substance intoxication
- Suicidal behaviour i.e. suicide attempt, suicide plan, suicidal ideation
- Self-harm, including injury from self-harm
- Violent, aggressive, angry behaviour
- Danger to self and/or others
- Previous history of mental illness or dementia
- Hallucinations, delusions
- Elevated or depressed mood
- Inappropriate behaviour
- Social withdrawal, neglect
- Altered speech pattern
- Concurrent/pre-existing/underlying medical conditions

2. Immediate management^{5,6,7}

- If relevant, see [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Assess conscious state. See [Glasgow Coma Scale/AVPU, page 785](#)

- Manage:
 - acute injury. See [Acute wound\(s\)](#), page 198
 - poisoning/overdose. See [Toxicology \(poisoning and overdose\)](#), page 259
 - intoxication. See [Acute alcohol intoxication](#), page 487, [Other drugs/substances](#), page 494
 - airway and spinal injury from hanging. See [Traumatic injuries](#), page 163 and [Spinal injuries](#), page 180
- If safety of patient, self or others at risk, see [Acute severe behavioural disturbance](#), page 467
- If presentation is a result of suicide attempt, a suicide plan or suicidal ideation, see [Suicidal behaviour](#), page 456 and [Suicide risk assessment](#), page 464
- Perform rapid mental health assessment for patients who are acutely unwell or in crisis:
 - urgently contact MO/NP/Psychiatrist or local mental health service (if available) for acute mental health assessment
- Evacuation may be required. For specific requirements around transporting a disturbed patient, see [Patient retrieval/evacuation](#), page 29

3. Clinical assessment^{1,2,4,5,6,7}

Important steps and principles for mental health assessments^{1,2}

- **Assess risk**, including:
 - suicide risk. See [Suicide risk assessment](#), page 464
 - violence risk. See [Acute severe behavioural disturbance](#), page 467 **Assessing risk**. See [Acute severe behavioural disturbance](#), page 467 **Assess physical health**. See [History and physical examination - adult](#), page 20, or [History and physical examination - child](#), page 664
- **Assess patient vulnerability**. Consider history of trauma/abuse/domestic violence, age, cognitive impairment, disability, lack of supports
- **Assess for alcohol and other substance use**. See [Acute alcohol intoxication](#), page 487, [Other drugs/substances](#), page 494
- **Perform a Mental State Examination (MSE)**. See MSE observations and questions
- **Additional considerations include:**
 - the culture of the patient you are assessing. Aboriginal and Torres Strait Islander Health Workers are a critical component of meeting the needs of Aboriginal and Torres Strait Islander patients and should be partnered with where possible in completing assessments
 - the collection of collateral information. This must occur as part of management and assessment. Use family/carers/support people to provide collateral information. Other sources may include medical records, ambulance and police officers, other service providers, teachers, social workers
 - ensuring mental health assessments conclude with a mental health management plan, clearly identifying the immediate interventions that reflect the assessment findings
 - consulting MO/NP/Mental Health Practitioner/Psychiatrist/Community Mental Health Team at any time

- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL to exclude glycaemic causes of behaviour changes. See [Hyperglycaemia, page 113](#) and [Hypoglycaemia, page 115](#)
 - SpO₂ to exclude hypoxia as cause of behaviour change⁷
- Perform general health assessment and physical examination as tolerated by patient
- Document description of current situation:
 - use complete risk screening tool available at https://qheps.health.qld.gov.au/__data/assets/pdf_file/0027/579240/a_risk_scr_tool.pdf
- Complete a Rapid Assessment where a patient is not known to be currently under the care of a mental health service and the patient is presenting acutely unwell or in crisis:
 - a Rapid Assessment Form and a Rapid Assessment user guide is available at <https://qheps.health.qld.gov.au/mentalhealth/resources/clinicaldocs>
- Complete a General Assessment if one is not already completed for the patient from the previous 12 months:
 - a General Assessment Form and a General Assessment user guide is available at <https://qheps.health.qld.gov.au/mentalhealth/resources/clinicaldocs>

Note: above tools and user guides only available on Queensland Health Intranet

- Record Mental State Examination (MSE). See [Mental State Examination \(MSE\), page 453](#)
- 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
 - history of suicide attempts and/or self-harm
 - 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
 - trauma/abuse
 - mood - their pre-morbid personality, rather than behaviour
 - absconding
 - medicines adherence
- For children, assess for sudden or significant, unexplained changes of behaviour or emotional state such as:
 - unusual fearfulness or severe distress e.g. inconsolable crying
 - self-harm or social withdrawal
 - aggression or running away from home
 - indiscriminate attention seeking with adults
 - development of new soiling or wetting behaviours, thumb sucking

- Always consider an alternate cause where presentation is inconsistent with history or is unexpected in children or other vulnerable people. See [Child protection, page 760](#)

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 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 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

Mental State Examination (MSE):¹

- An MSE:
 - should be used for patients who present during any mental health presentation
 - involves making observations and asking questions under headings, including appearance, behaviour, speech, mood and affect, perception, thought, judgement, insight and cognition
 - enables health staff to use the same terminology when discussing diagnosis and management
- Severity of symptoms may not be apparent unless identified in a structured way
- Included with the MSE and the mental health history is the formulation of a risk for suicide, self-harm, vulnerability, absence without approval and violence. See [Suicide risk assessment, page 464](#)
- An MSE is part of the General Assessment Form available at <https://qheps.health.qld.gov.au/mentalhealth/resources/clinicaldocs<OV>> (Qld Health only)
- See **MSE observations and questions** on the following page as a guide

MSE observations and questions^{1,8}

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, cooperativeness, 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

4. Management⁹

- Maintain patient and staff safety
- If symptoms have had an acute onset, consider delirium. See [Delirium, page 161](#)
- If there is any evidence of infection. See [Sepsis/septic shock, page 80](#), [Meningitis, page 91](#), [Urinary tract infection \(UTI\) - adult, page 389](#)
- In patients with a history of dementia see [Behavioural and psychological symptoms of dementia \(BPSD\), page 478](#)
- Discuss results of assessment, including risk assessments, with MO/NP/Psychiatrist or Community Mental Health Team
- Use the information obtained to develop a clinical and risk formulation to inform a care or management plan
- Evacuation and hospitalisation may be required for further assessment

5. Follow up⁴

- Liaise with Psychiatrist/Community Mental Health Team
- Determine if patient is a parent/carer or has contact with children and liaise and consider support that may be required. See [Child protection, page 760](#)
- Determine if patient has responsibilities towards other vulnerable people such as people with disabilities or elderly people and consider the support that may be required.

6. Referral/consultation

- 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.healthinfolnet.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-servst10-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: <https://www.health.qld.gov.au/qcmhl>
- Forms relating to the Queensland Mental Health Act 2016 are available at: www.health.qld.gov.au/clinical-practice/guidelines-procedures/clinical-staff/mental-health/act/forms

Suicidal behaviour

Suicidal behaviour - adult/child

Recommend^{1,2,3}

- **Ensure immediate safety of patient, family, carers, staff and especially the needs of children**
- Consult MO/NP/Psychiatrist urgently if there is imminent risk of suicide
- In the case of actual self-harm that has/will cause serious physical harm, contact emergency services immediately
- Assessment of likelihood of suicide focuses on the prevention of suicide rather than predicting suicide
- Clinicians should involve the family or support people - Life Promotion Officer/Aboriginal and Torres Strait Islander Health Workers/Mental Health Workers/Transcultural Mental Health Workers in the care of the suicidal patient wherever possible
- Removing or restricting access to the lethal means (method) of suicide has reduced suicides by 30-50% in some countries

Background^{2,5,6,7}

- Suicidal behaviour includes death by suicide, suicide attempt, suicide plan and suicidal ideation
- Asking about self-harm does not provoke acts of self-harm
- Intoxication is often associated with suicidal behaviour
- Deliberate self-harm is not always associated with suicide and can be used to alleviate distress, as self-punishment, to reduce dissociative feelings, to reduce suicidal thoughts and/or for sensation seeking
- In 2016, suicide was the leading cause of death among all people 15-44 years of age
- Most people who die by suicide have consulted a health professional in the few weeks before they die

Related topics

[Acute alcohol intoxication, page 487](#)

[Acute severe behavioural disturbance, page 467](#)

[Other drugs/substances, page 494](#)

[Suicide risk assessment, page 464](#)

1. May present with^{5,8}

- Verbalises suicidal ideas/suicidal intent
- Depressive symptoms
- Anxiety symptoms
- Distress associated with a recent psychosocial stressor or loss e.g. bereavement, marital separation, relationship breakdown, loss of job
- Ambivalence
- Attempted suicide
- Intoxication, overdose, poisoning
- Self-destructive behaviour
- Violent behaviour
- Self-destructive actions
- Possession of a weapon

- Bleeding from self-inflicted wound
- Loss of consciousness, extreme lethargy
- Unexplained injury or physical signs and suspected self-harm
- 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 or it is life threatening
- Is under an emergency authority. See [Interventions in non-consenting patients, page 474](#)

Considerations for assessing suicidal behaviour in Aboriginal and Torres Strait Islander people when alcohol is involved^{7,9,10}

- When considering risk factors when working with Aboriginal and Torres Strait Islander people, the following factors need to be considered including that they:
 - are less likely to seek help, and are less likely to have sought help in the period leading up to this presentation
 - are more likely to have a mental illness
 - experience social precipitants such as recent events even if they appear trivial
 - may have recent self-harm episodes or suicides in the community (suicide clusters)
- When alcohol is a current factor with suicidal behaviour 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 or Mental Health Practitioner
 - 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
 - ensure active follow up

2. Immediate management^{1,5,7,11}

- As relevant, see [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- **Do not leave patient alone**
- If risk of suicide is imminent or the patient is not suitable for management in the community:
 - urgently contact MO/NP/Psychiatrist or local mental health service (if available) for acute mental health assessment
 - evacuation may be required. For specific requirements around transporting a disturbed patient, see [Patient retrieval/evacuation, page 29](#)
- If a patient is at immediate risk of serious harm, has a major disturbance of mental capacity, and requires immediate examination, treatment or care:
 - in Queensland an ambulance officer or police officer can initiate an **Emergency Examination Authority** under the *Mental Health Act (Queensland) 2016*
 - outside of Queensland, follow your local laws governing compulsory examination of patients at serious risk

3. Clinical assessment^{5,7,8,12,13,14,15}

- See [Acute severe behavioural disturbance, page 467](#)
- Where possible, two staff should conduct assessment. Assessments should not be attempted in

home situation if possible. Assistance from other staff or police should be readily available⁷

- Assess if the person has attempted a medically serious act of self-harm e.g. poisoning/overdose, intoxication, bleeding from wounds, loss of consciousness, extreme lethargy
- Patients who have attempted suicide by hanging may have an obstructed airway and fractured cervical spine. See [Traumatic injuries, page 163](#) and [Spinal injuries, page 180](#)
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Preliminary suicide risk assessment. See [Suicide risk assessment, page 464](#)
- History, including current or past history of mental, neurological and substance use disorders, chronic pain history, extreme emotional distress
- The following general framework may assist in developing an informed opinion of the overall risk and the capability to manage the risk

Protective factors such as good mental health and well-being, the capacity to cope with difficult situations, community involvement, family support and positive educational experiences reduce the influence of existing risk factors across the continuum

Risk factors

- Mental health problems
- Gender (male)
- Family discord, violence or abuse
- Substance misuse
- Social or geographical isolation
- Financial stress
- Bereavement
- Prior suicide attempt
- Bullying

Warning signs

- Hopelessness
- Feeling trapped
- Escalating substance misuse
- Withdrawing from friends, family or society
- No reason for living, no sense of purpose in life
- Uncharacteristic or impaired judgement or behaviour

Tipping points

- Relationship separation
- Loss of status or respect
- Death or suicide of relative or friend
- Debilitating physical illness or accident
- Argument at home
- Being abused or bullied
- Media report on suicide or suicide methods

Imminent risk

- Expressed intent to die
- Has plan in mind
- Has access to lethal means
- Impulsive, aggressive or anti-social behaviour

- Explain the limits of confidentiality to the patient when obtaining a history e.g. *“What you say is confidential, but if I believe you are at serious risk of harm to yourself or others, I may have to disclose some of the information discussed”*
- Develop and maintain rapport (a therapeutic alliance) with the patient. A good therapeutic alliance between the health professional and the patient may be a key protective factor for a patient experiencing a suicidal crisis. Use strategies such as:
 - reflecting on your own values and beliefs in relation to suicide. Be mindful of your own reaction, ensuring they do not interfere with the assessment or management of the patient
 - conveying a sense of warmth, non-judgemental acceptance, and a strong interest in understanding the patient and the nature of the cause of their pain/distress
 - being respectful and empathic. Collaborate with the patient, asking his or her opinion and where possible include them in decision making

- using precise and non-stigmatising language
- using open body language and direct eye contact (if culturally appropriate)
- validating distress e.g. *“I can see you are very upset, and this is difficult for you to talk about”*
- validating strength e.g. *“I know it can be very difficult to talk about thoughts of wanting to die”*
- using reflective listening e.g. *“It sounds like you are saying X and that you feel Y”*
- **Consider the following key questions when assessing a patient with suicidal behaviour¹⁴** (ensure patient has an opportunity to discuss their suicidality alone):

Key area	Questions to ask	Assessment includes
Suicidal thoughts	“Have you thought about suicide/ending your life?”	• Frequency of thoughts • Severity of thoughts • Presence of ambivalence • Communication of thoughts (verbally or written)
Plans/intent	“Have you thought about how you would end your life?” “Have you ever made a plan in the past?”	• Effectiveness of plan i.e. lethality • Potential for rescue • Level of detail • Knowledge of method, preparatory actions for method e.g. tying of noose, loading of gun • Number of times and time frame
Previous attempt(s)	“Have you tried to end your life?”	• Number of attempts • Lethality • Potential for rescue • Knowledge of method, preparatory actions for method e.g. tying of noose, loading of gun • Feelings after surviving the attempt
Previous non-suicidal self-injury (NSSI)	“Have you hurt yourself on purpose without the intent to die?”	• Number of types of injury • Number of times • NSSI occurred in conjunction with an attempt
Current mood	“How are you feeling now?”	• Hopelessness • Helplessness • Worthlessness
Access to means. See “Lethal means” counselling	“Have you a plan to end your life?”	• Ease of access • Knowledge of access • Presence of detailed plans to gain access
Previous help-seeking	“Have you received mental health treatment in the past?”	• Negative or positive experience • Types of services (inpatient, emergency department, other services, recent discharges)

- Seek collateral information from patient's family, friends, or support person and others such as treating health professionals, school counsellor, welfare workers and:
 - advise them of safety plan and risks to the patient
 - obtain consent from the patient where possible
 - reassure patient that the information is being sought for the purpose of providing appropriate treatment and care to them and to ensure their safety

4. Management^{5,7}

- 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 [Spinal injuries, page 180](#)
- 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 2016* (or relevant Act if outside Queensland) may be required. See [Interventions in non-consenting patients, page 474](#)
- 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 2016*
- Refer to local protocols which should specify lines of responsibility and provide access to senior clinicians
- Suicide risk is dynamic. Ongoing assessment and monitoring of a patient's risk is important. Plan to assertively follow-up the patient
- Develop a Safety Plan. See **Safety Plan** on next page

Safety Plan^{4,7,14,16,17}

A Safety Plan is a discharge summary or written list developed in collaboration with the patient and their identified support person. It is a list of coping strategies to enhance safety using internal and external resources. Each Safety Plan is unique to that patient, so each plan will be different. A Safety Plan is **NOT** a “no-suicide contract”

- Safety plans are:
 - not intended to be the only form of support to the patient
 - copied, with copies given to the patient and to their support person
- It is important to consider:
 - if the support person is both willing and able to provide the level of care and support required
 - carer fatigue and burnout as part of the safety planning process
- A free to download Suicide Safety Planning app is available (Apple or Android) from app stores and for desktop and laptop from BeyondNow. See <https://www.beyondblue.org.au/get-support/beyondnow-suicide-safety-planning/create-beyondnow-safety-plan>
- Information on Safety Plans for family and support persons is available at <https://www.beyondblue.org.au/get-support/beyondnow-suicide-safety-planning/information-for-family-and-friends>
- A **Safety Plan** should incorporate:
 - input from all members of the treatment team
 - diagnosis or summary of presentation
 - patient’s contact details and secondary contact details in case they cannot be reached
 - names and contact details of clinicians, teams, and/or carers involved in patient’s care
 - details of the risk assessment that outlines patterns of repeated self-harming and acute suicide risk situations, and indications for evacuation/admission
 - warning signs that a crisis may be developing e.g. thoughts, images, mood, situation, behaviour
 - reasons to live
 - creating a safe environment e.g. stay with friends, minimise alcohol and recreational drug consumption, not driving while distressed
 - internal coping strategies i.e. things that the patient can do themselves, including distraction techniques to manage intense feeling e.g. taking a shower, exercise, holding ice cubes/snapping a rubber band on a wrist, writing out feelings
 - a list of helpful and unhelpful interventions
 - connections with people and places e.g. visit relatives, a café, the library, the park, talk to friends
 - professional support
 - information on 24-hour access and support options

“Lethal means” counselling³

- Limiting access to means and preferred methods can prevent suicide
- Explain to patient that risk can escalate quickly so it is important to consider access to means during these periods of increased risk
- Thoroughly explore with the patient and support persons access to means, identify strategies to:
 - decide who is responsible for managing means
 - remove or restrict access to identified means
- Other considerations include:
 - notifying Weapons Licensing Branch if patient has access to a firearm under the *Queensland Weapons Act 1990* at <https://www.police.qld.gov.au/programs/weaponsLicensing/licenceApplication/applicant/Documents/HealthWeaponsForm.pdf> or applicable procedure in other jurisdictions
 - considering risk of toxicity of any prescribed medicines e.g. opioids, tricyclic antidepressants (TCAs), benzodiazepines
 - arranging reduction in prescriptions for medicines to non-lethal quantities
 - the support person should be holding and dispensing medicines
 - the support person should be disposing of, or placing into locked storage, all non-essential medications in the home
 - considering if the patient’s occupation gives access to lethal means e.g. council workers accessing pesticides, police officer accessing guns, health workers accessing medicines

5. Follow up^{7,8}

- 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 agrees to seek help if suicidal ideas recur
 - patient is not demented, intoxicated, sedated, delirious or psychotic
 - a written Safety Plan has been provided to both the patient and their support person
 - patient does not have access to lethal means such as firearms or medicines. See “Lethal means” counselling, above
 - 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 and/or medical problems
 - family/supports understand and agree with Safety Plan
- If the patient is the primary carer for children, older persons or other vulnerable people, consider alternate arrangements for care.¹⁴ See [Child protection, page 760](#)
- 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
- Avoid minimising the seriousness of the risk of suicide
- Explain the patient’s behaviour to family or friends to reduce their anxiety and anger towards the patient

- A patient may have a chronic risk of self-harm or suicide. The patient may:
 - have an underlying mental illness where they engage in repeated self harm e.g. depressions, substance abuse disorder, eating disorders, post-traumatic stress disorder (PTSD) or borderline personality disorder (BPD), or more than one co-morbid condition
 - repeatedly seek assistance with suicidal ideation or deliberate self-harm
 - be impulsive and lack problem-solving skills; each of which increases risk of suicidal behaviour
 - have a higher risk of developing depression or psychosis which increases suicide risk
 - be acutely sensitive to perceived rejection and require consistency in their care and treatment
- Lethal means counselling - limiting access to means (preferred method of suicide) is one of the most well-evidenced strategies to reduce suicide risk. See "Lethal means" counselling (previous pages)
- Provide brief patient education which enables the patient to understand their condition and treatment options that may facilitate adherence to ongoing care. Include information on:
 - current condition, options for treatment, medicine and medicine adherence
 - effectiveness of treatment. Tell patient that research indicates that treatment will help people recover from suicidal behaviour and feeling if treatment is followed
 - substance use
 - signs of deterioration e.g. increased frequency and intensity of suicidal thoughts
 - times for follow-up appointment
 - when to present again for emergency care. See **Safety Plan** (previous pages)

6. Referral/consultation^{7,16,18}

- If there is a crisis situation with imminent risk of suicide, an emergency referral to mental health or medical services should be made and patient **should not be left alone** until help arrives
- Involuntary admission under the provisions of the *Mental Health Act 2016* (or relevant Act if outside Queensland) may be required if the patient demonstrates risk to self or others. See [Acute severe behavioural disturbance, page 467](#) and [Interventions in non-consenting patients, page 474](#)
- The rationale and decision to transfer/hospitalise a patient should be made on clinical grounds with involvement of the patient and family
- Patients assessed at elevated risk of suicide but considered safe to be managed in the community should have follow up contact within 24 hours with a relevant mental health care provider. Follow up should be linked to the risk assessment
- Make a "warm" referral to support services, which includes:
 - contacting the referral agency to confirm they can accommodate the referral request and arrange the appointment on behalf of the patient
 - ensuring the patient and identified support person is provided with a schedule of follow-up appointments including contact details of services included in the referral. See **Safety Plan**
 - considering the patient's needs and identify and troubleshoot potential barriers to accessing the appointment e.g. transport, employment, availability
- 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
- Advise the patient and their support person to seek further help if the situation deteriorates. See **Safety Plan** (previous pages)
- 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
- **Resources for clinicians:**
 - Centre for Clinical Interventions <http://www.cci.health.wa.gov.au/resources/mhp.cfm>
 - Headspace, Understanding self-harm <http://www.cci.health.wa.gov.au/resources/mhp.cfm>
 - LIFE, suicide prevention <https://www.lifeinmindaustralia.com.au/splash-page/docs/LIFE-framework-web.pdf>
 - Mental Health First Aid training <https://mhfa.com.au/>
 - NSW Health Framework for Suicide Risk Assessment and Management <http://www.health.nsw.gov.au/mentalhealth/programs/mh/Publications/framework-suicide-risk-assess.pdf>
- **Self-help for patients:**
 - coping with suicidal thoughts <https://www.getselfhelp.co.uk//docs/CopingSuicidalThoughts.pdf>
 - dealing with distress <https://www.getselfhelp.co.uk//docs/DealingwithDistress.pdf>
- **Other resources for patients:**
 - for younger patients <https://headspace.org.au>
 - for children, parents/carers, teachers <https://kidshelpline.com.au/>
 - for men <https://mensline.org.au/>
 - for Aboriginal and Torres Strait Islanders <https://www.lifeline.org.au/static/uploads/files/suicide-prevention-aboriginal-torres-strait-island-wfchhzmssysl.pdf>
 - Suicide call back service <https://www.suicidecallbackservice.org.au/>, ☎1300 659 467
 - SuicideLine Victoria <https://www.suiceline.org.au/> ☎1300 651 251 (Victoria only)

Suicide risk assessment^{2,5}

Background

- Suicidality is a dynamic and fluctuating state that can be influenced by a range of factors
- Categorical stratification of suicide risk (low, medium, high) is not helpful in predicting future risk of suicide
- Not all people who attempt suicide have a mental health condition
- **Non-suicidal self-injury (NSSI) or self-harm:**
 - can be associated with subsequent suicide attempts. Each presentation (whether considered NSSI or a suicide attempt) requires appropriate assessment and safety planning.
 - is the intentional harm to one's own body without the intent to cause death e.g., by cutting, burning, banging, biting
 - may be used by an individual to alleviate distress, as self-punishment, to reduce dissociative feelings, to reduce suicidal thoughts and/or for sensation seeking

Related topics

[Suicidal behaviour, page 456](#)

Determining suicide risk:

- Asking directly about suicide and self-harm does not prompt a person to start to think about harming themselves

- Categorical stratification of suicide risk (low, medium, high) is not helpful in predicting future risk of suicide or in determining acceptance of treatment or allocation of resources
- Suicide risk assessment tools have limited predictive value and should not be used in isolation or as a checklist for determining risk and subsequent management
- Look for warning signs, risk factors and protective factors or available resources that contribute to overall suicide risk
- A warning sign is different from a risk factor. Risk factors may increase the probability that a problem will occur, while a warning sign may indicate that a problem has already begun

Characteristics of people most at risk of suicide:

People of all genders, ages, and ethnicity die by suicide, however people most at risk tend to share certain characteristics:

- Prior suicide attempt
- History of mental health conditions - depression, anxiety, bipolar, PTSD and/or substance abuse
- Family history of a mental health conditions or substance abuse
- Losing a friend or family member to suicide
- Relationship problems - conflict with parents and/or romantic partners
- Legal or disciplinary problems
- Access to harmful means such as medication or weapons
- Recent bereavement
- Physical illness or disability
- Psychosocial difficulties (such as financial difficulties, unemployment, impending court case, or custody issues)
- Adverse life events (such as trauma including bullying, abuse, violence, sexual assault, torture, or refugee status)
- Transition points e.g. primary to high school or transitioning in the workforce
- Male (however women are more likely to attempt suicide)
- Identifying as Aboriginal and Torres Strait Islander
- LGBTIQ+ (important: elevated risk commonly found among LGBTIQ+ is not due to sexual orientation, sex or gender identity alone, but rather through key social determinants of health including discrimination and exclusion)
- Social and geographical isolation

Warning signs:

Warning signs are indicators of more imminent risk and are more likely to be targeted for immediate intervention. Warning signs include:

- Talking about or non-verbal e.g. writing expressions of wanting to die or to kill one self
- Looking for a way to kill oneself, such as searching online about methods or buying a gun
- Acquiring the means to end one's life
- Talking about feeling hopeless or having no reason to live
- Talking about feeling trapped or in unbearable pain
- Negative view of self - 'I am worthless', 'I am not good for anything'
- Talking about being a burden to others – 'people would be better off without me'
- Increasing the use of alcohol or drugs
- Anxiousness or agitation
- Engaging in risky behaviour
- Sleeping too little or too much

- Giving away possessions
- Making preparations for death and saying goodbye
- Withdrawing or feeling isolated
- Showing rage or talking about seeking revenge
- Drastic changes in mood and behaviour, or other indications of mental health deterioration

Risk factors:

Risk factors can imply enduring or long-term risk. In isolation, the presence or absence of risk factors does not predict suicide or repetition of self-harm. Risk factors include a wide range of biological, psychological and social factors:

- Mental health conditions - depression, anxiety, bipolar, PTSD and/or substance abuse
- Prior suicide attempt
- Contact with services (particularly post-hospitalisation)
- Male
- Aboriginal and Torres Strait Islander identification
- Patient's from cultural and linguistically diverse backgrounds
- Post-partum
- Pain and physical illness
- Sexual orientation and gender identity
- Social or geographical isolation
- Adverse life events
- Family history of mental health conditions
- Exposure to suicidal behaviour

Protective factors and available resources:

Protective factors may serve to protect or buffer an individual against suicide. Protective factors should not be valued over the presence of warning signs. Protective factors include:

- Therapeutic alliance between clinician and patient
- Family warmth, support and acceptance
- Community support and a strong cultural identity
- Pregnancy (self/partner) or having young children (pregnancy can be a period of elevated risk for women) and child rearing responsibilities
- Strong sense of belonging and connection
- Support from ongoing medical and mental health care relationships
- Skills in coping and problem solving, conflict resolution, and non-violent ways of handling disputes
- Being involved in activities/hobbies that an individual finds meaningful
- Help-seeking behaviour, being amenable to intervention, and access and engagement of professional help
- Cultural and religious beliefs that discourage suicide and support instincts for self-preservation
- Experiences with success and feelings of efficacy
- Interpersonal competence
- Resiliency to change or loss
- Lack of access to a means of suicide, such as restricting the presence or accessibility of guns or medication. See Lethal means counselling in [Suicidal behaviour, page 456](#)
- Available resources are internal and external resources immediately available to the patient and treatment team to support safety and treatment planning. See [Safety plan, page 461](#)

Consider foreseeable changes:

- Foreseeable changes are changes that could occur in the patient's life and rapidly increase a patient's risk
- Identify at least two significant potential changes and ensure a contingency plan is in place should these changes occur
- See [Suicidal behaviour, page 456](#) for guidance on questioning techniques to elicit suicidal intent and acute and non-acute management of a person with suicidal behaviour

Behavioural disturbances

HMP Acute severe behavioural disturbance (ASBD) - adult/child

Recommend

- Speak to MO/NP/Psychiatrist at referring facility as soon as possible in all psychiatric emergencies
- Do not leave the patient alone if at all concerned
- Management should use the least restrictive approach possible, be collaborative and patient centred¹
- 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
- Consider safety of any children or other vulnerable people for whom the patient has care responsibilities
- Mental health statewide suite of clinical documents available at: <https://qheps.health.qld.gov.au/mentalhealth/resources/clinicaldocs>
- Mental Health Act 2016 forms available at: <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/clinical-staff/mental-health/act/forms>

Background²

- A mental health behavioural emergency or acute severe behavioural disturbance (ASBD) is any situation in which the health practitioner becomes aware, either from statements or behaviour of the patient or because 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 illness¹
- Acute confusion can be caused by many physical conditions and may mimic mental illness
- Causes include alcohol, 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
- Psychiatric disorders associated with behavioural emergencies may include schizophrenia, mania, agitated depression, personality disorders and post traumatic stress disorder. Dementia and acquired brain injury may also be contributing causes
- 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[Delirium, page 161](#)[Head injuries, page 175](#)[Toxicology \(poisoning and overdose\), page 259](#)[Transient ischaemic attack \(TIA\) and stroke, page 158](#)**1. May present with^{3,4}**

- Violent behaviour, extreme agitation, restlessness
- Possession of a weapon
- Self-destructive behaviour, aggressive behaviour or threats to others
- Bizarre, disorientated 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
- ‘Command’ hallucinations i.e. hallucinations ordering person to harm themselves
- Hallucinations, delusions, paranoia, grandiosity
- Physical and verbal aggression
- Confusion, delirium
- Ambivalence, withdrawn behaviour e.g. refusing to talk or eat
- Suicidal ideation or attempt (past or current)
- Situational crisis
- Family member seeking help because of strange, disruptive or frightening behaviour by one of their family
- Recurrence/exacerbation of known mental health problem
- A first presentation with a mental health problem

2. Immediate management¹

- Initial brief assessment aimed at determining the most likely cause of agitation and the risk of injury/violence⁵
- Consult MO/NP/Psychiatrist as early as possible
- If presentation is a result of suicide attempt, a suicide plan or suicidal ideation.
See [Suicidal behaviour, page 456](#)
- Rapid mental health assessment for patients who are acutely unwell or in crisis.
See [Mental health assessment, page 450](#)
 - urgently contact MO/Psychiatrist or local mental health service (if available) for acute mental health assessment
 - see [Interventions in non-consenting patients, page 474](#)
 - evacuation may be ordered. For specific requirements around transporting a disturbed patient, see [Patient retrieval/evacuation, page 29](#)

Safety considerations^{1,5} - Code black

In small health facilities and in remote areas, referral and escalation should occur at a much earlier stage. Follow your facility's Emergency Preparedness Plan, including activating a Code Black emergency. Never attempt to manage an ASBD without adequate support and resources. If the patient presents a risk to public safety or their own safety which cannot be managed by resources within the facility, call Police.

- Always have at least one other staff member present, call security personnel if available
- Assess in a space where distractions are minimised and you can give full attention to the patient
- Remove other patients and bystanders from the immediate vicinity (family may have an important role during patient assessment)
- Consider risks in the immediate environment e.g. avenues for absconding, access to a weapon (knives, scissors, IV poles)
- Always consider exits from which staff can quickly escape
- Never approach a patient who has a weapon
- Use a calm, confident manner, avoid sudden or threatening gestures
- Avoid prolonged eye contact, and do not confront, corner or stand over the patient
- Seek help if you feel threatened or at risk
- Be familiar with locality including duress alarms. If available, carry portable, personal duress alarms
- Identify any children (0-18 years) or other vulnerable people for whom the patient has care responsibilities
- Conduct search of patient and possessions according to relevant legislation or local policies, if there is reasonable suspicion that patient has brought potentially dangerous items or drugs into the facility

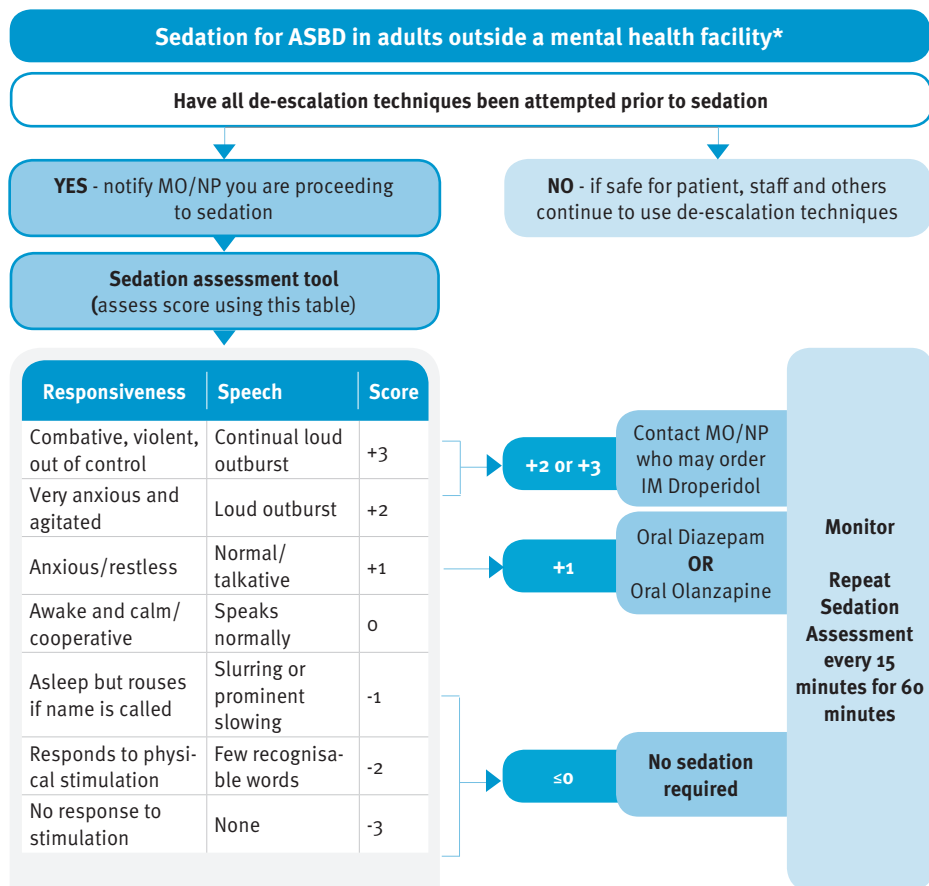
3. Clinical assessment¹

- See Safety considerations/Code black above
- Complete a mental health Rapid Assessment. See form link in [Mental health assessment, page 450](#)
- Once the patient is calm, perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - BGL to exclude glycaemic causes of behaviour changes
 - pulse oximetry to exclude hypoxia as a cause of behaviour changes
- Perform general health assessment and physical examination as tolerated by patient. See [History and physical examination - adult, page 20](#), and [History and physical examination - child, page 664](#)
- Consider whether features of presentation are substance related. See [Acute alcohol intoxication, page 487](#), [Alcohol withdrawal, page 490](#), [Other drugs/substances, page 494](#) and [Toxicology \(poisoning and overdose\), page 259](#)
- Consider mental health conditions that may cause ASBD, including:
 - psychotic disorders
 - mania
 - agitated depression
 - anxiety disorders
 - borderline and anti-social disorders
- Consider general medical conditions that may cause ASBD, including:
 - delirium (especially in the elderly). See [Delirium, page 161](#)
 - head injury, encephalitis, meningitis, seizures

- infections, sepsis
- liver and/or kidney failure
- glucose abnormalities, electrolyte imbalance
- hypoxia
- behavioural and psychological symptoms of dementia (especially in the elderly)

4. Management¹

- Consult MO/NP and provide findings of assessment
- Never 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/Psychiatrist for this presentation
- Evacuation/hospitalisation in appropriately equipped and staffed facility may be required for a comprehensive mental health assessment
- There are special considerations for people who require evacuation by air. Keep nil by mouth. See [Patient retrieval/evacuation, page 29](#)
- If patient does not consent to evacuation/hospitalisation/medicine or does not have the capacity to give consent use of the *Mental Health Act 2016* in consultation with the MO/NP/Psychiatrist may be appropriate. See [Interventions in non-consenting patients, page 474](#)
- Sedation may be required to:
 - control severe behaviour disturbance for patient's safety and safety of others
 - allow diagnostic assessment and management
 - relieve distress



*** For children, adolescents and medically frail patients, consult MO/MP/Psychiatrist**

Medication management of agitation/arousal²

- Consult MO/NP/Psychiatrist
- **Sedation can only be considered after all attempts at de-escalation have been attempted.**
See [De-escalation techniques, page 789](#)
- If patient is not consenting to medication, see [Administration of medicine, patient does not consent to treatment, page 477](#)
- Benzodiazepines are the recommended first line treatment for this group of patients, although the MO/NP may order droperidol in very anxious, violent or out of control 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 IM should never be given with any other benzodiazepine IM⁷
- No sedation protocol is 100% safe. Sedation is used when de-escalation fails. Confirm no other medical cause of patient's altered mental state
- Aim for rousable drowsiness - sleepy when undisturbed but rousable and cooperative to voice or pain

- If dystonic side effects (muscle twisting, contractions, repetitive movements, more common in children and young adults) occur give benztropine⁶
- If respiration rate < 10 breaths/minute following sedation with benzodiazepine, reverse with flumazenil
- Sedated patients should be monitored continuously until evacuated, including:
 - maintain SpO₂ ≥ 94%. See [Oxygen delivery, page 64](#)
 - perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) every 15 minutes
 - Sedation Assessment Tool and GCS. See [Glasgow Coma Scale/AVPU, page 785](#)

Schedule	4	Diazepam	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Note: In non-consenting patients, can only be given by an RN or RIPRN under the instruction of a doctor				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	2 mg 5 mg	Oral	Adult 10 mg	stat
Injection	10 mg/2 mL	IV	Adult 5 mg	stat Repeat once if required
Provide Consumer Medicine Information: May cause drowsiness, oversedation, light-headedness, hypersalivation, loss of coordination, slurred speech and effects on vision				
Note: Inject undiluted at a max. rate of 1 mL/min. Monitor respiratory rate closely. Halve the usual adult dose in the elderly and/or debilitated				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
1,2,7,8,9,14				

Schedule	4	Olanzapine	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN 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 7.5 mg 10 mg	Oral	Adult only 5-10 mg to max. of 20 mg/24 hours	stat Further doses on MO/NP order
Provide Consumer Medicine Information: Caution if moving from lying to sitting or to standing position. May cause sedation				
Management of associated emergency: consult MO/NP. See Anaphylaxis, page 102				

1,6

Schedule	4	Benzatropine	Extended authority ATSIHP/IHW/RIPRN	
ATSIHP, IHW and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	2 mg/2 mL	IM	Adult only 1-2 mg	stat Further doses on MO/NP order
Provide Consumer Medicine Information: May cause drowsiness, dizziness or blurred vision. May increase effects of alcohol				
Note: Used as an antidote for extrapyramidal side effects such as tardive dyskinesia and acute dystonic reaction. Use with caution in heart disease, fever and elderly				
Contraindication: GIT or urinary obstruction, myasthenia gravis				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,10

1,10

Schedule	4	Flumazenil	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN must consult MO/NP unless circumstances do not allow, in which case notify the MO/NP as soon as circumstances do allow				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	0.5 mg/5 mL	IV	Adult Initial dose 200 microgram Second dose 100 microgram Max. dose 1 mg in 24 hours	stat Inject over 15 seconds Second dose may be given after 60 seconds
Provide Consumer Medicine Information: May cause nausea and vomiting				
Note: Use with caution in patients with epilepsy receiving long-term benzodiazepine treatment. Patients may become agitated, anxious or fearful on awakening. Use in those who have mixed overdoses of benzodiazepines and proconvulsant drugs may result in uncontrollable seizures and death				
Pregnancy: Do not use in benzodiazepine-dependent women; risk of precipitating withdrawal in fetus				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

11,12,13,17

11,12,13,17

5. Follow up

- If a patient has required sedation and is not evacuated consider:
 - any underlying mental disorders (dementia, delirium, psychosis, depression) and the impact of these on patient capacity/safety at home
 - that intoxicated patients are not 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 or other vulnerable people for whom the patient has care responsibilities
- Seek details of any medication plans, behaviour support plans or sensory considerations for patients with an intellectual disability or autism
- 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

Interventions in non-consenting patients⁸

Background¹⁴

- In Queensland, the *Mental Health Act 2016* has three main objects:
 - to improve and maintain the health and wellbeing of persons who have a mental illness who do not have the capacity to consent to be treated
 - to enable persons to be diverted from the criminal justice system
 - to protect the community if persons diverted from the criminal justice system may be at risk of harming others
- The main objectives are achieved in a way that:
 - safeguards the rights of persons
 - is the least restrictive of the rights of a person who has a mental illness and
 - promotes the recovery of a person who has a mental illness, and the person's ability to live in the community
- A patient's views in decision making are encouraged as much as possible
- Family, carers and other support persons are involved in decisions about treatment and care

1. Examinations, assessment and treatment authorities¹⁴

- If a patient:
 - is in imminent serious harm to themselves or to others, and
 - has a mental illness, and
 - does not have the capacity to give consent to be treated for the illness, and
 - is suffering serious mental or physical deterioration, then use of the appropriate process under *Mental Health Act 2016* will apply

Summary of processes to examine or transport an involuntary patient

Situation	Who	Mental Health Act 2016 or Public Health Act 2005 process
A patient needs to be examined immediately either with consent or is without capacity to provide consent	Doctor or authorised mental health practitioner	Detention for one hour to determine if a <i>Recommendation for Assessment</i> Form is required
A patient needs to be transported and examined where their behaviour indicates they may be at immediate risk of harm and they need urgent examination either with consent or is without capacity to provide consent	A Police Officer or an Ambulance Officer	<i>Emergency Examination Authority</i> under the <i>Public Health Act 2005</i> ¹⁵
To determine if further treatment is required	A doctor or mental health practitioner who has already examined the patient (up to 7 days prior)	<i>Recommendation for Assessment</i> Form
A member of the public who has concerns about the mental health of a person where a risk is likely to happen in the near future i.e. non-urgent, refer concern to Mental Health Review Tribunal	Member of the public to contact Mental Health Review Tribunal (MHRT)	<i>Examination authority</i> form
Assistance is needed to examine or transport an involuntary patient	Any health practitioner or person appointed by a mental health administrator	<i>Request for Police Assistance</i> Form

Recommendation for Assessment Form:

- A doctor or authorised mental health practitioner may examine a person to decide if a recommendation for Assessment is needed
- A recommendation for Assessment can only be made if the doctor or authorised mental health practitioner has examined the person in the last seven days. When there is no local MO, an evacuating MO can complete this form
- The doctor or authorised mental health practitioner can only make the recommendation for Assessment if satisfied that:
 - the treatment criteria under section 12 of the Act may apply to the person; **AND**
 - there appears to be no other way for the person to receive treatment
- A doctor or authorised mental health practitioner may detain a person for a period of not more than one hour for the purpose of making a recommendation for Assessment
- An assessment under a recommendation for Assessment is conducted by an authorised doctor to determine if further treatment is required for the person
- The recommendation for Assessment is available at: https://www.health.qld.gov.au/__data/assets/pdf_file/0019/574012/f_recommend_assess.pdf

- For more information, see the Chief Psychiatrist Practice Guideline, Examinations and Assessments at: https://www.health.qld.gov.au/__data/assets/pdf_file/0041/573998/pg_examinations_assessments.pdf

Examination Authority Form:

- In non-urgent situations, any adult member of the public may apply to the Mental Health Review Tribunal for an 'Examination Authority'
- The person must obtain advice from a doctor or an Authorised Mental Health Practitioner about the clinical matters for the person who is the subject of the application
- An Examination Authority allows a doctor or Authorised Mental Health Practitioner to go to the person's location in order to conduct an examination to determine if a recommendation for Assessment is required. Available at: <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/emergency-examination-authorities-eas>
- For more information, see the Chief Psychiatrist Practice Guideline, Examination Authorities, at: https://www.health.qld.gov.au/__data/assets/pdf_file/0036/629757/pg_examination_authorities.pdf

Request for Police Assistance Form:

- This form is a formal request to police to provide assistance in transporting a person under the *Mental Health Act 2016*, or to assist in executing an Examination Authority
- A health practitioner must accompany the police officer while assistance is being provided
- If the patient is already subject to a Treatment Authority, Forensic Order or Treatment Support Order (information about a patient's status under the *Mental Health Act 2016* can be accessed via Queensland Health's clinical information portal, The Viewer) and requires inpatient treatment, the treating Psychiatric Registrar or Psychiatrist should be contacted. After hours, contact the on-call Psychiatric Registrar or Psychiatrist at the relevant Authorised Mental Health Service. Immediate return of the patient to the Authorised Mental Health Service with the assistance of police if required can be arranged
- Available at: https://www.health.qld.gov.au/__data/assets/pdf_file/0020/574013/f_req_police_assist.pdf

Emergency Examination Authority:¹⁵

- Police officers and ambulance officers may detain and transport persons under the emergency examination authority provisions of the *Public Health Act 2005* to a public sector health service in emergency circumstances. The emergency examination authority provisions apply if the police officer or ambulance officer reasonably believes that:
 - a person's behaviour indicates that the person is at immediate risk of serious harm e.g. by threatening to commit suicide, and
 - the risk appears to be the result of major disturbance in the person's mental capacity caused by illness, disability, injury, intoxication or other reason, and
 - the person appears to require urgent examination
- When the patient arrives at the public sector health service, the police officer or ambulance officer must immediately make an Emergency Examination Authority and give it to health staff
- The patient may be detained at the facility while the Emergency Examination Authority is being made. An Emergency Examination Authority enables the person to be detained and examined without consent
- The decision made by the examining clinician will determine the person's treatment needs. A possible outcome is making a recommendation for Assessment under the *Mental Health Act 2016*. Available at: https://www.health.qld.gov.au/__data/assets/pdf_file/0039/639777/329_170206_v1-oo_PH-Emergency-Examination-Authority_LIVECYCLE-4.pdf

- For more information, see Emergency Examination Authorities: Guidelines for Hospital and Health Services at: https://www.health.qld.gov.au/__data/assets/pdf_file/0038/639785/Guide-line-for-Emergency-Examination-Authorities.pdf

2. Administration of medicine where a patient does not consent to treatment^{1,4,8}

Medicine administration can be carried out if the following conditions exist:

- The patient is being treated under an emergency examination authority (in Queensland a patient's status under the *Mental Health Act 2016* [the Act] can be accessed via the Queensland Health's clinical information portal – The Viewer), or a recommendation for assessment has been completed for involuntary assessment under the Act (see below) and
- The patient is to be transported to an Authorised Mental Health Service
- Additionally, the Act 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
 - may be administered with the help, and using the force, that is reasonable in the circumstances. See Avoiding physical restraint below
- If an MO or an authorised health practitioner is not available to complete paperwork for Involuntary Assessment:
 - Section 63 of the Queensland *Guardianship and Administration Act 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
 - the health care should be carried out urgently to meet imminent risk to the patient's life or health
- Information for patients about medicines used in mental health available at: <https://www.choiceandmedication.org/queenslandhealth/>

3. Avoiding physical restraint^{1,16}

- Physical restraint is only attempted after all other methods and alternatives for managing the patient have been exhausted. See [De-escalation techniques, page 789](#)
- Physical restraint must only be implemented by a qualified health professional
- Physical restraint can only be used where a patient presents a severe risk to themselves or others
- There are strict requirements around physical monitoring of patients who are being restrained
- The Queensland Health Guideline *Management of patients with Acute Severe Behavioural Disturbance in Emergency Departments* must be used and is available at https://www.health.qld.gov.au/__data/assets/pdf_file/0031/629491/qh-gdl-438.pdf

Dementia

HMP Behavioural and psychological symptoms of dementia (BPSD) - adult

Recommend^{1,2}

- Utilise non-pharmacological strategies as a first-line measure to manage the symptoms of dementia, including environmental, behavioural and social strategies
- For information on Dementia, refer to *The Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>

Background^{2,3,4}

- People living with dementia will experience a good quality of life for long periods. As dementia progresses, behavioural and psychological symptoms of dementia (BPSD) occur in 80% of people. BPSD may be expressions of unmet need by a person living with dementia. BPSD may include agitation, aggression, and depression. Intervention strategies can alleviate these symptoms
- Incidence rates of dementia for Aboriginal and Torres Strait Islander people are up to 3-4 times higher and occur 10-15 years earlier than for the whole population

Related topics

[Delirium, page 161](#)

[Acute severe behavioural disturbance, page 467](#)

[Depression, mania and anxiety, page 484](#)

1. May present with^{1,5,6}

- A patient with **known** dementia may present with:
 - arguing with caregivers, complaining, becoming easily upset
 - inappropriate crying out, screaming, verbal and physical aggression
 - repetitive questioning
 - pacing, wandering
 - hoarding, rummaging
 - inappropriate robing and disrobing
 - rejection of care
 - sleep disturbances
 - inappropriate sexual behaviour

2. Immediate management^{1,2,7}

- Ensure safety of patient, self and others. See [Mental health assessment, page 450](#) and [Acute severe behavioural disturbance, page 467](#) See [De-escalation techniques, page 789](#)
- Communicate in a slow, calm manner. Allow time for patient to express themselves
- Allow familiar people to be present if felt appropriate e.g. carer/family member
- The MO/NP may order acute sedation only if there are immediate risks to the person, carers, staff

3. Clinical assessment^{1,2,5,7}

- Conduct assessments and management in quietly, in a calm manner, with a familiar person present
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Physical examination +
 - medicines
- Consider other related conditions such as delirium and depression. See [Delirium, page 161](#), [Depression, mania and anxiety, page 484](#)
- Use the ABC model to assess BPSD:
 - antecedent, identify the trigger of the BPSD
 - behaviour, describe what happened i.e. verbal aggression, use of a weapon
 - consequence, what was the consequences of the behaviour
- Identify the antecedents or triggers for BPSD including:
 - environmental stimuli
 - unmet needs
 - medical conditions
 - patient-caregiver conflict
- Identify possible causes of BPSD such as:
 - pain, constipation
 - unmet needs such as hunger, thirst, warmth
 - presence of wounds
 - sensory impairment (vision, hearing difficulties)
 - side effects of medicines
 - temperature extremes
 - separation from family
 - use of psychotropic medicines
- Consider non-accidental causes where presentation is inconsistent with history or is unexpected in older people or other vulnerable people

Signs and symptoms of delirium, dementia and depression⁸

	Delirium	Dementia	Depression
Onset	Acute illness, medical emergency	Chronic, progressive	Relatively rapid over weeks to months, episodic
Course	Fluctuates hourly	Stable during day, progresses	May be self-limiting, recurrent, or chronic. Worse in morning, improves during day
Duration	Hours to weeks, resolves with treatment	Progressive, irreversible	Months or years, resolves with treatment
Orientation	Disoriented to time and place	Impairment progressively worse, loss of ability to recognize function of everyday objects	Selective disorientation
Memory	Impaired short term	Impaired short term, unconcerned about memory loss	May be impaired, concerned about memory loss
Speech	Incoherent, loud, belligerent	Repetitive, trouble finding words, confabulates	Quiet and minimal, can be belligerent, aggressive. Language skills intact
Sleep	Disturbed, changes hourly	Disturbed, day/night reversal	Disturbed, early morning wakening, sleepy during day
Contributing factors	Infection, drug side-effect, renal failure, head trauma, substance use	Cause may be unknown, advancing age, cardiovascular deficits, substance dependence	Recent or cumulative loss, medicine toxicity

4. Management^{1,2}

- Consult MO/NP/General Physician/Geriatrician/Psychiatrist
- Where safe, use non-pharmacological actions to prevent behaviour escalating
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Consult MO/NP who may consider a pharmacological strategy should other interventions fail, minimising medicines which affect cognitive functioning.² See [Acute severe behavioural disturbance, page 467](#)
- Prepare a behavioural management plan with patient, carer and family, consider factors such as:
 - access to dangerous items
 - access to exits where patient is wandering
 - overstimulation - too many people in house, excessive noise, clutter
 - under stimulation-lack of activities or items of interest to patient such as gardening, cooking, music, access to pets
 - regular exercise, in particular walking
- If Dementia Kit is available, supply to family and carer

5. Follow up²

- According to MO/NP instructions
- Regular review if commenced on pharmacological management

6. Referral/consultation²

- Referral to Geriatrician/Psychiatrist/Older Persons Mental Health Team where behavioural and psychological symptoms (BPSD) occur
- 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
- Tools are available through Dementia KT Dementia Outcomes Measurement Suite (DOMS): <http://dementiakt.com.au/doms/>
- Alzheimer's Australia: See <https://www.dementia.org.au/> (can supply Dementia Kits)
- National Dementia Helpline ☎1800 100 500, Dementia Support Australia/Dementia Behaviour Management Advisory Service Helpline ☎1800 699 799
- National guidelines for indigenous people in remote areas: http://www.dementiaresearch.org.au/images/dcrc/output-files/364-rr3_guidelines.pdf

Psychotic disorders

Psychosis, schizophrenia, drug-induced psychosis and 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
- Puerperal psychosis is considered a psychiatric emergency. The 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
- Clinical guidelines and procedures available at: <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/clinical-staff/mental-health/guidelines>

Background¹

- 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[Delirium, page 161](#)[Suicidal behaviour, page 456](#)[Acute severe behavioural disturbance, page 467](#)[Other drugs/substances, page 494](#)**1. May present with²**

- Positive signs and symptoms (thoughts, behaviours, or sensory perceptions that are not usually present in the general population):
 - delusions
 - hallucinations (visual and auditory)
 - disorganised thought and speech
 - disorganised behaviour
- Negative signs and symptoms (thoughts or behaviours that the person used to have before they became ill but no longer have or have to a lesser extent):
 - social withdrawal
 - flattened affect, reduced ability to express emotions
 - 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. See [Suicidal behaviour, page 456](#)
- Elevated or depressed mood

2. Immediate management²

- Ensure safety of patient, self and others
- Consult MO/NP/Psychiatrist

3. Clinical assessment³

- See [Mental health assessment, page 450](#)
- Always consider non-accidental injury where injury or presentation is inconsistent with history or is unexpected in children or other vulnerable people. See [Child protection, page 760](#)
- Full Q-ADDS/CEWT score or other local Early Warning and Response Tools
- Conscious scale. See [Glasgow Coma Scale/AVPU, page 785](#)
- BGL, lactate
- Obtain patient history, seek history from family members if patient unable to give a history
- Medication history, including non-prescription and illicit drugs. See [Other drugs/substances, page 494](#)
- Consider other conditions that may mimic a primary psychotic disorder, including another psychiatric disorder, a delirium, medical conditions, or a drug induced psychosis. Non-primary conditions include:
 - adverse medication event, substance use (including marijuana) or withdrawal
 - infections, sepsis, encephalitis, HIV, syphilis
 - head injury, trauma, seizures, stroke, TIA, headaches, brain tumour, epilepsy, sleep deprivation

- hyperglycaemia, hypoglycaemia, electrolyte or metabolic disorder, thyroid disorder, SLE
- hypoxia
- Parkinson disease, Huntington disease
- other psychiatric disorders such as mood disorders, delirium, dementia

4. Management²

- 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 [Acute severe behavioural disturbance, page 467](#)
- 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
 - closely monitor until intoxication has resolved and then reassess

5. Follow up²

- As per MO/NP instructions
- Psycho-education
- Family support and education
- Monitoring of adverse effects of antipsychotic medication include:
 - regular physical health checks
 - metabolic monitoring
 - managing 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 nonexistent support network

Mood disorders

Depression, mania and anxiety - adult/child

Recommend^{1,2}

- These topics are covered in detail in 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>
- Consult MO/NP and provide details of symptoms and signs elicited from the history and examination of the patient
- Involve culturally appropriate 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
- Statewide Mental Health forms available at: <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/clinical-staff/mental-health>

Background^{3,4,5,6}

- 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
- Depression is the most common mental health disorder and is often encountered in the primary care setting
- Some groups are at higher risk of depression e.g. those who are psychotic, have recently experienced loss or stress, women in the perinatal period, the chronically ill, people with physical disorders
- 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 includes:
 - panic disorder
 - generalised anxiety disorder
 - post-traumatic stress disorder (PTSD)
 - obsessive compulsive disorder
 - social phobia
 - specific phobias
- Further information about the full range of anxiety disorders can be found at: www.beyondblue.org.au

Related topics

Suicidal behaviour, page 456

Acute severe behavioural disturbance, page 467

1. May present with

- Existing history of depression, mood disorders, mania and/or anxiety disorders

Depression presentations may include:³

- Suicidal ideation/attempts. See [Suicidal behaviour, page 456](#)
- Insomnia or other sleep pattern changes
- Appetite changes
- Irritability, low mood, tiredness,
- Difficulty concentrating
- Concerns about social problems such as financial or marital difficulties
- Expressed feelings of helplessness or hopelessness
- Headaches
- Use of alcohol or other substances

Mania presentations may include:⁷

- **Acute mania is a medical emergency**, see [Acute severe behavioural disturbance, page 467](#) 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

Anxiety presentations may include:⁴

- Restlessness or feeling 'keyed up' or 'on edge'
- Being easily fatigued
- Difficulty concentrating or mind 'going blank'
- Irritability
- Muscle tension
- Sleep disturbance (difficulty falling or staying asleep, or restless unsatisfying sleep)
- Preoccupation with, or excessive response to, physical health and physical health related symptoms. Symptoms may be somatic or medically unexplained⁸

2. Immediate management

- See [Acute severe behavioural disturbance, page 467](#)
- Consult MO/NP

3. Clinical assessment

- See [Mental health assessment, page 450](#)
- 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>
- If tolerated, perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools) +

- BGL to exclude glycaemic causes of behaviour changes. See [Hypoglycaemia, page 115](#), [Hyperglycaemia, page 113](#)
- SpO₂ to exclude hypoxia as cause of behaviour change⁷
- Perform general health assessment and physical examination as tolerated by patient. See [History and physical examination - child, page 664](#) and [History and physical examination - adult, page 20](#)
- Consider differential diagnoses such as:
 - thyrotoxicosis
 - alcohol use or withdrawal. See [Alcohol withdrawal, page 490](#)
 - drug use (or withdrawal) such as benzodiazepines, opiates. See [Other drugs/substances, page 494](#)

4. Management

- Consult MO/NP
- 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>
- Exclude medical reason for presentation

5. Follow up

- According to MO/NP instructions

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)
 - the patient is difficult to assess and manage
- Refer to ATODS with patient's consent if alcohol or drug misuse is a problem
- For women in the perinatal period:
 - consult MO/NP or midwife
 - consider the impact of maternal mental illness on their capacity to safely care for their child
 - consider the quality of the mother-infant relationship⁵
 - refer to child health services or infant/child and youth mental health services if concerned

Alcohol and other drugs

Acute alcohol intoxication - adult/child

ETHANOL, METHANOL, ETHYLENE GLYCOL

Recommend^{1,2,3}

- 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 management of ongoing misuse of alcohol
- 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 abated
- Do not leave an intoxicated patient alone
- Always give thiamine before administering glucose (including dextrose 5% IV) for hypoglycaemia

Background^{1,4}

- Alcohol intoxication is potentially fatal
- Alcohol intoxication results from ingesting large amounts of alcoholic beverages or from ethanol containing products such as medicines, mouthwashes, perfumes and hand sanitiser
- 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. Those with no such history are likely to recover uneventfully

Related topics

[Alcohol withdrawal, page 490](#)
[Head injuries, page 175](#)

[Acute severe behavioural disturbance, page 467](#)
[Fits/convulsions/seizures, page 109](#)

1. May present with^{4,5,6}

- Acute intoxication with no associated medical condition:
 - poor motor coordination
 - slurred/incoherent speech
 - poor concentration
 - mood instability/impulsivity/sexual or aggressive behaviour
 - impaired judgement or memory
 - sedation
 - insomnia
 - blackouts/stupor, respiratory depression and coma may occur with very high doses
- As above due to intoxication plus any of the following contributing factors:
 - trauma (falls, motor vehicle crash, assault)
 - intoxication due to another substance
 - head injury

- hypoglycaemia
- hypothermia (low body temperature)
- epilepsy
- hypotension/shock due to blood loss or sepsis
- organic brain disease
- respiratory failure
- stroke, brain injury
- brain tumour
- acute alcohol withdrawal. See [Alcohol withdrawal, page 490](#)
- 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 54](#)
- 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
 - See [De-escalation techniques, page 789](#)
 - explain what is happening at all times. Reassure the patient and avoid confrontation. See [Acute severe behavioural disturbance, page 467](#) and consult MO/NP

3. Clinical assessment⁴

- 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. See [Toxicology \(poisoning and overdose\), page 259](#)
 - 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
- Assess suicidal intent. See [Suicidal behaviour, page 456](#). 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

4. Management⁴

- Consult MO/NP
 - as per alerts in the Q-ADDS/CEWT score
 - if GCS < 14. See [Glasgow Coma Scale/AVPU, page 785](#)
 - abnormal BGL
 - other significant findings
 - if patient is assessed as being at risk to themselves or others
- MO/NP may order:
 - diazepam to prevent acute withdrawal
 - IM or IV thiamine.¹
 - in patients showing no clinical features of Wernicke's encephalopathy or memory impairment thiamine is recommended as a prophylactic measure³
 - if signs and symptoms of Wernicke's encephalopathy present or patient has suspected or is at high risk of Wernicke's encephalopathy, it is a vitamin emergency
- Thiamine dose, route and duration depend on patient's nutritional status as follows:³
 - healthy patients with good dietary intake should commence on oral thiamine 300mg daily for 3-5 days
 - patients with poor dietary intake, poor nutritional status or are chronic alcohol drinkers may be ordered IM thiamine 300mg daily for 3-5 days, with oral thiamine 300mg daily for several weeks. 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 thiamine administration in patients with alcohol withdrawal, see [Alcohol withdrawal, page 490](#)
- An intoxicated patient should not be left alone
- Protect airway and nurse in a semi-prone position to avoid aspiration⁵
- 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
- If allowed home, patient should be discharged into the care of a responsible person
- Consider child protection for parents and carers of children.³ See [Child protection, page 760](#)
- Consider family violence and safe transport for patients being discharged³
- 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

5. Follow up^{4,5}

- 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 490](#)

- Advise to be reviewed the next day

6. Referral/consultation

- Consult MO/NP
- Consider referral to alcohol and other drugs service:
 - to obtain advice 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 withdrawal if patient motivated but cannot safely withdraw 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
 - Queensland Alcohol and Drug Information Service ☎ 1800 177 833

HMP Alcohol withdrawal - adult

Recommend^{1,2}

- Treat any alcohol dependent patient presenting in a state of established withdrawal as a potential medical emergency. Delirium tremens (DT) is a medical emergency with a significant mortality rate if not treated appropriately
- There is no role for antiepileptic medicines in DT - benzodiazepines are indicated
- Children and youth should be managed with a Specialist MO

Background³

- Progression from mild to moderate/severe withdrawal can occur quickly without treatment
- 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 expectations

Related topics

[Acute alcohol intoxication, page 487](#)

[Acute severe behavioural disturbance, page 467](#)
[Fits/convulsions/seizures, page 109](#)

1. May present with

- Variable symptoms depending on degree of dependence and time since last drink

Mild withdrawal^{1,3}

- Tremor
- High pulse rate
- High blood pressure
- Raised temperature
- Anxiety, agitation/restlessness
- Insomnia

- Nausea and vomiting
- Sweating
- Headache
- Palpitations

Severe withdrawal^{1,3}

- 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. Clinical features are:
 - confusion and disorientation, extreme agitation or restlessness - ensure safety of staff, visitors and other patients. See [Acute severe behavioural disturbance, page 467](#) 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

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- See [Fits/convulsions/seizures, page 109](#)
- 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 3-4 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
 - for additional information, see [Mental health assessment, page 450](#), [Delirium, page 161](#) and [De-escalation techniques, page 789](#)
- Urgent hospital admission is required for people with:⁴
 - significant medical problems e.g. delirium, visual/auditory hallucinations
 - significant psychiatric problems e.g. psychosis, suicidal behaviour
 - seizures

3. Clinical assessment³

- 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 intoxi-

cation with stimulants e.g. amphetamines. See [Toxicology \(poisoning and overdose\)](#), page 259

- Perform standard clinical observations (full Q-ADDs/CEWT score or other local Early Warning and Response Tools) +
 - BGL
 - observe for confusion, eye signs (paralysis of extra-ocular muscles), walking abnormality and poor nutrition (signs of Wernicke's encephalopathy)
- Alcohol withdrawal scale to assess severity of withdrawal and to monitor changes - 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/clinical-practice/guidelines-procedures/medicines/drugs-of-dependence?a=167070>
- Observe outstretched hands for tremor
- Expose and examine the patient systematically:
 - start 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 withdrawal³

- 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. See [Glasgow Coma Scale/AVPU](#), page 785
 - observe for 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 below
- Administer antiemetic as clinically indicated.³ See [Nausea and vomiting](#), page 48
- Underlying disease or infection should be attended to

Severe withdrawal¹

- 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**
 - MO/NP will order IM or IV thiamine 300 mg daily for 3-5 days then oral thiamine 300 mg daily for several weeks^{2,4}
- 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
- Administer antiemetic as clinically indicated.³ See [Nausea and vomiting](#), page 48
- Always act on GCS < 14 or falling GCS
- Diazepam is the sedative of choice for alcohol withdrawal³
- If patient is fitting, has delusions or is having hallucinations give IV diazepam. Administer with ready access to emergency equipment. See [Acute severe behavioural disturbance](#), page 467 for antedote (flumazenil)

Schedule

4

Diazepam

Extended authority
ATSIHP/IHW/IPAP/RIPRN

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	2 mg 5 mg	Oral	Adult 10 mg	stat
Injection	10 mg/2 mL	IV	Adult 5 mg	stat Repeat once if required
Provide Consumer Medicine Information: May cause drowsiness, oversedation, light-headedness, hypersalivation, ataxia, slurred speech and effects on vision				
Note: Inject undiluted at a max. rate of 1 mL/min. Monitor respiratory rate closely. Halve the usual adult dose in the elderly and/or debilitated				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

2,5

5. Follow up

- Before allowing any patient home it is especially important to assess suicidal intent. See [Suicide risk assessment, page 464](#). 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
- Consider transfer to residential treatment units which exist in some regional and remote areas,⁴ where patient:
 - has moderate to severe alcohol withdrawal
 - has a history of complication e.g. seizures, delirium, hallucinations
 - is withdrawing from multiple substances
 - has concurrent acute medical problems
 - has an unsuitable home environment for withdrawal
 - has repeated failure with home withdrawal attempts
- If allowed home, patient should be discharged into care of responsible adult and may require:⁴
 - a safe, alcohol-free environment
 - a reliable adult to regularly monitor progress
 - daily review for 7 days by a health worker for clinical assessment of withdrawal (use same scoring method that was used at initial presentation),⁶ and for supply of daily benzodiazepine
 - withholding benzodiazepines if resumes alcohol use
 - a clear plan in case of deterioration or emergency⁷
 - consideration of child protection for parents and carers of children.⁴ See [Child protection, page 760](#)
 - consideration of family violence and safe transport needs⁴
- Advise to be reviewed the next day and at next MO/NP clinic, consider commencing naltrexone or

acamprostate

- Offer advice and information regarding the harmful effects of excessive alcohol intake. 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>
 - advice from a health professional can be influential in modifying drinking patterns

6. Referral/consultation¹

- Consult MO/NP as above:
 - as per alerts in Q-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 alcohol and other drugs service, 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 withdrawal if motivated but cannot safely withdraw 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
 - Queensland Alcohol and Drug Information Service ☎1800 177 833
 - NSW Drug and Alcohol Information Services ☎1800 422 599
 - Victoria DirectLine, alcohol and other drugs support, advice and referral ☎1800 888 236

Other drugs/substances - adult/child

Recommend

- The *Queensland Health Dual Diagnosis Clinical Guidelines* available at: http://www.dualdiagnosis.org.au/home/images/documents/Qld_DDx_Guidelines_2011.pdf
- *Queensland Alcohol and Drug Withdrawal Clinical Practice Guidelines* available at: <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/medicines/drugs-of-dependence?a=167070>

Related topics

Sniffing petrol/glue/aerosol, page 289
Psychotic disorders, page 481

Toxicology (poisoning and overdose), page 259
Fits/convulsions/seizures, page 109

1. May present with¹

- Acute intoxication/overdose
- Dependence/tolerance issues such as asking to quit using (elective withdrawal)
- Crisis (physical) withdrawal
- Under the influence
- Altered level of consciousness
- Seizures
- Drug induced psychosis

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient](#), page 54
- Consult MO/NP in the event of respiratory or cardiac arrest, continue CPR (EAR ± ECC) until MO/NP advises to stop
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- See [Toxicology \(poisoning and overdose\)](#), page 259

3. Clinical assessment¹

- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Take comprehensive patient history
- Consider which substance or substances have been used, which may include:
 - inhalants (petrol, glue, aerosols)
 - recreational drugs such as cannabis, amphetamines, heroin, bath salts, party drugs, ecstasy, GHB, cocaine, LSD, magic mushrooms, ketamine, PCP
 - prescription medicines such as benzodiazepines, methadone, morphine, oxycodone/oxycotin, steroids, pain killers
 - other substances such as mouthwash, methylated spirits
- For each substance used, record the:
 - quantity
 - frequency
 - duration and pattern of use
 - time and amount of last use
 - route of administration
 - average daily consumption
- For prescribed medicines, record the prescribed dose

4. Management

- Consult MO/NP if required
- Contact Poisons Information Centre ☎13 11 26

5. Follow up

- As per MO/NP instructions

6. Referral/consultation

- Consult MO and consider referral to:
 - alcohol and other drugs Health Worker/Service if available
 - Queensland Alcohol and Drug Information Service ☎1800 177 833
 - or local state/territory services
- 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>
- Outside of Queensland - refer to local protocols

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Obstetrics and neonatal



Antenatal

Unintended pregnancy

Recommend¹

- For legal issues/consent regarding termination of pregnancy, see Queensland Clinical Guideline *Therapeutic Termination of Pregnancy*: <https://www.health.qld.gov.au/qcg/publications#maternity>
- If the health professional has a conscientious objection to involvement with decision making around termination of pregnancy care, they have a professional responsibility to ensure appropriate transfer of care within a reasonable time frame for the circumstances
- Facilitate women in rural and remote areas to access termination of pregnancy services as would occur for any specialist procedure. Ensure referral and transfer systems are in place with other service level facilities
- A request for a termination of a pregnancy is managed in partnership with the woman (and her family where appropriate) and her health care professional. It is led by the woman, with the health professional mindful of her physical, mental and psychosocial needs

Background¹

- The choice of a medical termination of pregnancy (MTP) or surgical termination of pregnancy (STOP) is determined by factors such as; gestation, co-morbidities, certain medications, allergy to medicines, woman's choice

Related topics

[Antenatal care, page 500](#)

1. May present with

- Missed period
- Positive pregnancy test

2. Immediate management Not applicable

3. Clinical assessment^{1,2}

- Confirm pregnancy by point of care pregnancy test
- Provide support to woman and respect her choices
- Obtain history of this pregnancy:
 - expectations, experiences
 - first day of LMP, usual menstrual cycle
 - does the woman wish to continue with pregnancy
- Calculate gestational age:
 - if available, offer USS for accurate assessment of gestation
 - can be performed locally by Midwife/MO - who have specific training
- Social and emotional assessment:
 - consider sexual assault, family violence, mental health issues, safety and privacy issues
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or other local Early Warning and Response Tools)

4. Management¹

- For routine pregnancy care. See [Antenatal care, page 500](#)
- If woman is unsure if she wants to continue the pregnancy, and/or considering termination of pregnancy, as early as possible in pregnancy:
 - obtain gynaecological, obstetric and sexual health history
 - confirm gestational age - this may impact on termination method
 - if USS not able to be done on site, may require transfer – arrange promptly
 - take routine 1st visit antenatal pathology. See [Antenatal care, page 500](#)
 - include STI screen and serum quantitative β -hCG
 - offer Cervical Screening Test if due
- If symptoms of STI, treat at this visit. See [Sexually transmitted infections, page 615](#)
- Options for woman to assist with decision making and counselling may include:
 - The Tabbot Foundation: <https://www.tabbot.com.au> ☎ 1800 180 880
 - specialise in medical termination support, including for rural and remote areas
 - Children by Choice: <https://www.childrenbychoice.org.au/>
 - Marie Stopes: <https://www.mariestopes.org.au/>
 - Queensland Clinical Guideline *Therapeutic Termination of Pregnancy*: <https://www.health.qld.gov.au/qcg/publications#maternity>
- Consider involving social worker in decision making if appropriate/available
- Women who request termination require assessment by a medical officer (who is not a conscientious objector)
- Ideally, termination of pregnancy should occur within 2 weeks of the decision to proceed being agreed

5. Follow up

- Advise woman to have follow up within 1-2 days:
 - further support woman in her decision making, or as appropriate to individual circumstances
 - check pathology results and treat as appropriate

6. Referral/consultation¹

- In all cases of a woman considering termination, ensure support and appropriate referral is provided

Antenatal care

Recommend^{1,2}

- Antenatal care should be woman centred - focus on woman's unique needs, expectations, aspirations, right to self-determination in terms of choice, control, continuity of care; consider social, emotional, physical, psychological, spiritual and cultural needs and expectations
- In uncomplicated pregnancies, aim for around 10 visits for first pregnancy, and 7 in subsequent pregnancies
- Accurate establishment of gestation is important
- Dipstick testing is the least accurate method to ascertain true proteinuria (high false positives). Where possible use point of care automated analyser for dipstick. Alternatively send urine sample to pathology for PCR which is more accurate
- If woman is reluctant to present for antenatal care, refer to a MO/Midwife/Aboriginal and Torres Strait Islander Health Worker or other relevant support person; ensure culturally safe environment
- Cervical Screening Test can be done at any time in pregnancy, using a cyto-broom. Do not insert cytobrush or combi-brush into cervix which may cause bleeding and distress the woman
- Queensland Health use the Pregnancy Health Record to guide antenatal visits. Available from <https://qheps.health.qld.gov.au/caruc/clinical-pathways/maternity>

Background^{1,3}

- There has been a resurgence in syphilis in Aboriginal and Torres Strait Islander people in regional and remote areas of Northern Australia. This has resulted in several deaths associated with congenital syphilis infection in north Queensland. Contact the Queensland Syphilis Surveillance Centre for recommendations for treatment ☎ 1800 032 238 North-Qld-Syphilis-Surveillance-Centre@health.qld.gov.au
- There is limited evidence to support testing for all women for vitamin D status in pregnancy. The benefits and harms of vitamin D supplementation in pregnancy remain unclear
- See Queensland Clinical Guidelines: <https://www.health.qld.gov.au/qcg/publications#maternity>
- Multicultural Edinburgh Postnatal Depression Scales (EPDS) available at <https://www.dchealthcheck.net/documents/10-2015-EPDS-Translations.pdf>

1. May present with

- Missed period
- Urinary symptoms
- Gestational diabetes
- Positive pregnancy test

2. Immediate management Not applicable

3. Clinical assessment

- Confirm pregnancy by urine/blood test (β -hCG)
- Establish a shared plan of care early in pregnancy with Midwife, MO/Obstetrician, Aboriginal and Torres Strait Islander Healthworker as appropriate, and birthing facility
- On first presentation non-Midwife should still take initial bloods if Midwife not available
- If late first presentation, perform all antenatal care activities recommended for first antenatal visit

plus those which correspond to current gestation, especially if greater than 32 weeks gestation

- Woman may require transfer to a facility with adequate capacity for birthing in consultation with obstetric staff/MO at 36-38 weeks gestation (as per local policy) or earlier based on individual woman's needs

If transfer out of community planned/required

- Assess the need for planned transfer and discuss with the woman at each visit throughout pregnancy: consider social, cultural and medical situation
- Document care plan for 36 weeks and each week thereafter. Review and update at each visit
- If transfer is required, plan transfer at a gestation that:
 - optimises maternal and neonatal outcomes
 - minimises dislocation from supports
 - minimises disruption to the family unit

Routine Antenatal Care¹

- Visits require flexibility considering each woman's clinical and emotional needs and preferences

First visit (Midwife/MO) - preferably before 10 weeks¹

- Advise woman this will be a long visit

Obtain history of this pregnancy

- Planned, unplanned, wishes to continue with pregnancy:
 - see [Unintended pregnancy, page 498](#)
- Expectations, experiences
- First day of LMP; usual menstrual cycle
- Calculate due date:
 - offer ultrasound for accurate assessment of gestation and for early identification of multiple pregnancies (best performed at 8-13 weeks +6 days). Performed locally by Midwife/MO (who have specific training) or arrange transfer to appropriate facility
 - if only LMP is available, calculate from first day of LMP + 282 days

Obtain past history¹

- **Obstetric** - previous pregnancies, gestation, place of birth, duration and type of labour (induced/spontaneous), type of birth, birth weight of baby, infant feeding, any complications e.g. PPH, APH, pre-eclampsia, diabetes, baby with early onset Group B *Streptococcal* disease, preterm labour
- **Gynaecological** - last pap smear/Cervical Screening Test, fertility problems, STIs
- **Medical/Surgical** - hypertension, rheumatic heart disease, haematological (blood) conditions, thyroid problems, asthma, mental health/emotional e.g. depression, post-natal depression, anxiety, eating disorder, diabetes/previous gestational diabetes mellitus (GDM), operations, oral health
- **Medications:**
 - review existing medication(s) for safety in pregnancy
 - immunisation e.g. influenza
- Social/family - support available, financial issues, social environment
- Smoking, alcohol, drugs/substance misuse - use screening tools and initiate brief intervention. See Queensland Health Pregnancy Health Record⁴
- Physical activity, nutrition
- Travel - has women or partner travelled to a Zika affected area in previous 6 months.⁵ See <http://www.health.gov.au/internet/main/publishing.nsf/content/ohp-zika-health-practitioners.htm>

(continued)

Physical examination¹

- Weight, height, calculate BMI:
 - if BMI < 20 or > 30 woman is at increased risk of complications.⁶ See Queensland Clinical Guideline *Obesity in Pregnancy*: <https://www.health.qld.gov.au/qcg/publications#maternity>
- BP - if elevated see [Hypertension in pregnancy, page 526](#)
- Auscultate heart (if skilled) for murmurs in areas with high prevalence of rheumatic heart disease⁷
- If ≥ 12 weeks assess:
 - fundal height (cm)
 - fetal heart rate (FHR)

Pathology tests¹

- Bloods - non-Midwife to take at first presentation if Midwife not available:
 - FBC, BGL, blood group and antibodies, rubella antibodies
 - Hepatitis B (HBsAg), Hepatitis C
 - Syphilis serology, HIV (with pre-test information and consent)
 - HbA1c, iron studies - in Aboriginal and Torres Strait Islander/other high risk women
- Also consider:
 - Vitamin D if risk factors: dark skin, limited sunlight exposure or pre-pregnancy BMI > 30¹
 - if BMI > 30 - LFT, UE⁶
 - thyroid function test (TFT) - if age > 30, ≥ 2 previous pregnancies or other risk factors for thyroid dysfunction. See Pregnancy Care Guidelines, Part D for risk factors: <http://www.health.gov.au/internet/main/publishing.nsf/Content/pregnancycareguidelines>
 - cytomegalovirus (CMV) - only if in frequent contact with large numbers of very young children e.g. child care worker
- Urine:
 - dipstick and MSU for MCS (for asymptomatic bacteriuria). See [Urinary tract infection in pregnancy, page 516](#)
 - urine PCR to establish baseline proteinuria¹
 - chlamydia PCR + for Aboriginal and Torres Strait Islander/other high risk people also obtain gonorrhoea PCR and trichomonas PCR. See [Sexually transmitted infections, page 615](#)
- Offer:
 - Cervical Screening Test (CST) if due²
 - HVS for asymptomatic bacterial vaginosis if previous preterm birth¹

Discuss chromosomal anomalies testing options to all women (regardless of age)^{1,7}

- Every effort should be made to support rural and remote women to access this screening
- Screening tests:
 - combined first trimester tests:
 - fetal nuchal translucency 11-13 weeks + 6 days (ultrasound), combined with
 - maternal serum of pregnancy associated placental protein-A (PAPP-A) and chorionic gonadotrophin (β-hCG) between 9-13 weeks + 6 days gestation
 - OR NIPT (non-invasive pre-natal screening test) - from 10 weeks gestation (if applicable/available)⁴
- Diagnostic tests may be offered after counselling if increased probability of chromosomal anomalies detected in screening test or according to woman's preference:
 - chorionic villus sampling < 14 weeks
 - amniocentesis > 15 weeks

Offer ultrasound scan (morphology) at 18-20 weeks¹

Book appointment

(continued)

Risk assessments to complete on first visit and provide advice/plan care as appropriate^{1,6,8,10}

- Venous Thromboembolism (VTE) prophylaxis e.g. as per the Queensland Pregnancy Health Record
- Psychosocial screening:
 - Edinburgh Postnatal Depression Scale (EPDS), and at least once more antenatally. Available at www.blackdoginstitute.org.au/docs/CliniciansdownloadableEdinburgh.pdf
 - *SAFE Start Psychosocial Form* (Qld) - including routine domestic violence questions (or similar tool), repeating as necessary. Available at https://qheps.health.qld.gov.au/__data/assets/pdf_file/0031/417748/mr63ak.pdf
- Assess risk factors for:
 - pre-eclampsia. See [Preeclampsia/eclampsia, page 530](#) and advise if at risk, low-dose aspirin in early pregnancy may help prevent it (preferably < 16 weeks), and calcium supplements if dietary intake low
 - gestational diabetes mellitus (requires a GTT in first trimester). See [Diabetes in pregnancy, page 521](#)
 - preterm birth. See <https://www.health.qld.gov.au/qcg/publications#maternity> and advise on risk and protective factors
 - women with obesity in pregnancy. See <https://www.health.qld.gov.au/qcg/publications>

Midwife to assess for indications requiring further discussion, consultation, or referral as per the *National Midwifery Guidelines for Consultation and Referral*. See <https://www.midwives.org.au/resources/national-midwifery-guidelines-consultation-and-referral-3rd-edition-issue-2>

Recommend

- Folic acid 500 microgram daily - pre-conception until 12 weeks:¹
 - increase dose to 5 mg daily if diagnosed with diabetes, previous pregnancy with neural tube defect, close family history of neural tube defects, or taking antiepileptic
- Iodine 150 microgram daily - pre-conception, pregnancy and while breastfeeding (except if pre-existing thyroid condition. Seek further advice)¹¹
- Although routine iron supplementation is not recommended¹ a multivitamin which also contains iron such as Elevit® may be the preferred way to provide folic acid and iodine supplementation in your community. Check local policies
- Influenza vaccine - recommended to be given to all women at any stage of pregnancy, timing depends on time of year/availability of vaccine.¹² See [Immunisation program, page 768](#)

Discuss¹

Using a woman centred approach start maternal counselling/education, discussing for example:

- Models of care and preference identified
- Birth options, including transfer out of the community at 36-38 weeks (if required as per local policy)
- Support/counselling for issues that may arise as a result of leaving the community for birth, such as child care, being away from family, financial support, interruption to partners work, support person to travel with woman, cultural factors
- Booking in referral (send)
- Offer support for psychosocial concerns/issues

(continued)

Continuing antenatal care

At every visit¹

- Standard clinical observations (use Q-MEWT Rural and Remote - Antenatal/other early warning tool)
- Weeks/gestation calculation
- Weight - offer woman the opportunity to be weighed and encourage self-monitoring of weight gain
- BP
- urine dipstick (if possible, use point of care analyser for increased accuracy of measure of protein). For an initial result detecting 1+ or greater of protein, confirm by urine PCR¹
- MSU if indicated

12 weeks onwards:

- fundal height (cm)
- FHR

20 weeks onwards:

- consider pre-eclampsia i.e. proteinuria and raised BP at every visit
- discuss fetal movements (usually felt from 16-20 weeks) - advise importance of maternal awareness of fetal movements, and to contact health care professional immediately if any concerns about decreased or absent movements.¹³ **Do not wait until the next day**

Additionally:¹

- Check influenza vaccine has been given
- Discuss test results as appropriate
- General wellbeing/health check
- Offer information on health in pregnancy/early parenthood/other antenatal education
- Support woman to share her expectations/experiences
- Discuss any concerns, including psychosocial support and mental health issues
- Re-visit counselling on tobacco/drug/alcohol cessation as needed
- Support the woman to prepare/plan emotionally, culturally, financially, and socially if required to travel out of community for birth¹⁴

Midwife to continually review risk assessment throughout antenatal care for indications developed or discovered during pregnancy requiring further discussion, consultation or referral as per the *National Midwifery Guidelines for Consultation and Referral*. See <https://www.midwives.org.au/resources/national-midwifery-guidelines-consultation-and-referral-3rd-edition-issue-2>

(continued)

Additionally at 12-18 weeks

- Morphology ultrasound scan due at 18-20 weeks - write woman's BMI on request form
- At 16-24 weeks - in a syphilis outbreak-declared area, an additional syphilis tests is required
See Queensland Clinical Guideline *Syphilis in Pregnancy*: <https://www.health.qld.gov.au/qcg/publications#maternity>

Additionally at 20 weeks**Discuss:**

- Anti-D for RhD negative women - why required, when to have i.e. 28, 34 weeks and at birth, additionally within 72 hours of any sensitising events¹⁵
- dTpa vaccination for pertussis - recommended anytime from 20-32 weeks gestation. Give every pregnancy regardless of time since last dose¹²

Additionally at 24-26 weeks

- Ongoing support and education

Additionally at 28 weeks¹**Pathology due** between 24-28 weeks:

- OGTT unless already diagnosed diabetes mellitus.¹⁰ See [Diabetes in pregnancy, page 521](#)
- FBC
- Syphilis serology
- RhD Antibody blood screen (prior to administering 1st Anti-D)¹⁵
- Urine for gonorrhoea and chlamydia PCR for Aboriginal and Torres Strait Islander women and other women with risk factors
- Trichomonas PCR - only if symptomatic

Give:

- dTpa vaccination if not already given - ideally given at 20-32 weeks. Give every pregnancy regardless of time since last dose.¹² See [Immunisation program, page 768](#)
- First dose of Anti-D for RhD negative women. Take bloods for antibody titre prior to 28 week dose. See [Rh\(D\) immunoglobulin \(anti-D\) prophylaxis, page 508](#)

Additionally at 31 weeks

- If placenta over cervical os at 18-20 week ultrasound scan, offer repeat scan at 32 weeks¹

Discuss:

- Planning/support for transfer to regional maternity service for birth at 36-38 weeks (as per local policy); birth preferences/length of hospital stay, supports available, expectations, concerns, time of discharge, return to community, postnatal support
- Recommend family/close contacts of baby have dTpa booster (if not had in previous 10 years) at least 2 weeks prior to contact with baby¹²

Additionally at 34 weeks¹⁵

- EPDS reviewed and repeated
- Review 28 week pathology and ensure has been actioned
- Give 2nd dose of Anti-D for RhD negative women.¹⁵ See [Rh\(D\) immunoglobulin \(anti-D\) prophylaxis, page 508](#)

(continued)

Additionally at 34-36 weeks¹

Pathology due:

- FBC
- Additionally, for Aboriginal and Torres Strait Islander women, or women with other risk factors:
 - syphilis serology, HIV
 - gonorrhoea and chlamydia PCR
 - trichomonas PCR - only do if symptomatic

See [Sexually transmitted infections](#), page 615

Assess:

- Fetal presentation from 36 weeks via abdominal palpation:
 - if suspected mal-presentation, arrange for confirmation by ultrasound if available in collaboration with MO
- Recalculation of VTE risk assessment⁴
- Risk factors for early onset Group B *Streptococcus* disease:¹⁶
 - see [Group B Streptococcus prophylaxis](#), page 540
- BMI - as relevant, discuss how a high BMI may influence ongoing clinical decision making:⁴
 - see <https://www.health.qld.gov.au/qcg/publications>

Discuss:

- Signs of early labour and when to go to hospital/seek advice
- If not cephalic presentation, discuss options in collaboration with MO e.g. external cephalic version for breech presentation

Plan:

- Book elective caesarean if applicable
- Transfer to obstetric facility at 36-38 weeks as per local policy (or earlier based on individual woman's needs)
- Send original Pregnancy Health Record with woman. Copies in woman's medical record and for woman

Additionally > 36 weeks

Continue to review weekly in collaboration with MO until transferred

4. Management

- Discuss with MO risk assessments undertaken and any concerns identified
- Review all test results from each visit, and treat in collaboration with MO as needed:
 - syphilis - contact Queensland Syphilis Surveillance Centre for recommendations for treatment
 ① 1800 032 238 North-Qld-Syphilis-Surveillance-Centre@health.qld.gov.au
 - trichomonas - asymptomatic trichomonas should not be treated. If woman is symptomatic and tests positive for trichomonas, treat with metronidazole stat 2 g (at any stage of pregnancy).¹⁷
 See [Chlamydia/gonorrhoea/trichomonas/mycoplasma genitalium](#), page 623
 - other STIs, see [Sexually transmitted infections](#), page 615
 - positive BV, see [Bacterial vaginosis](#), page 628
 - if Hb low, anaemia may need investigation and treatment.¹⁸ Discuss with MO
 - other test results - discuss with MO as needed

General counselling and education^{1,4}

- Nutrition, physical activity, mental health, domestic/family violence
- Financial and housing issues - availability of support services, food security
- Lifestyle risks such as alcohol, tobacco and other drug use and benefits of cessation, fetal alcohol syndrome
- Normal breast/body changes
- How to manage common pregnancy symptoms. See <https://www.thewomens.org.au/health-information/pregnancy-and-birth/a-healthy-pregnancy/common-concerns-in-early-pregnancy/>
- Breastfeeding (BF). See <https://www.breastfeeding.asn.au/>
 - skin to skin contact at birth, rooming in, feeding on demand, partner support, safe infant formula feeding if woman chooses to formula feed
 - initiation of BF/baby led feeding
 - positioning and attachment of baby
 - exclusive BF, how to get BF off to a good start, signs baby is getting enough milk
 - why teats/dummies discouraged whilst establishing BF
 - benefits of exclusive BF for around 6 months
- SIDS and SUDI. See <https://www.betterhealth.vic.gov.au/health/healthyliving/sudden-unexpected-death-in-infants-sudi-and-sids>
- Plans for pregnancy, birth, family support, cultural considerations
- Preparation for birth, signs of labour, managing the pain of normal labour, birth process
- Risk factors for Early Onset Group B *Streptococcal* disease. See [Group B Streptococcus prophylaxis, page 540](#)
- Warning signs of complications during pregnancy

General lifestyle considerations during pregnancy¹

Tobacco smoking	Can have negative effects on pregnancy and baby
Food-acquired infections	To prevent listeriosis, drink only pasteurised or UHT milk, avoid ripened soft cheese, pate, uncooked or under-cooked prepared meals
Physical activity	Ok to commence or continue moderate exercise. Avoid scuba diving, contact or high impact sports that may risk abdominal trauma, falls or excessive joint stress
Cannabis	Avoid during pregnancy
Medicines	Limit use to where the benefits outweigh the risk
Herbal medicines	Avoid in first trimester
Vitamins	Supplements of vitamins A, C and E are not of benefit during pregnancy and may cause harm
Travel	Correct use of 3 point seat belts during pregnancy 'above and below the bump, not over it' Compression stockings during long haul air travel Discuss travel vaccinations with Midwife or MO
Oral health	Safely provided during pregnancy, advise to have check/treatment if required ⁷
Sexual intercourse	Not associated with adverse outcomes during pregnancy

5. Follow up

- Follow up test results, and treat as needed

6. Referral/consultation

- As required as part of shared plan of care and/or for risks or concerns identified
- Dietitian if diabetes, or BMI indicates obesity or under weight

HMP Rh(D) immunoglobulin (anti-D) prophylaxis

Recommend^{1,2}

- All RhD negative pregnant women who have not actively formed their own anti-D should be offered Rh(D) immunoglobulin at 28 and 34 weeks of pregnancy, and for any sensitising events, including birth

Background^{1,2}

- About 1 in 7 women have a rhesus (D) negative blood group. If the baby's blood group is positive there is a risk that the baby's blood might stimulate an immune response in the mother's blood (sensitisation). This may result in maternal antibodies crossing the placenta and destroying the baby's cells causing haemolytic disease of the fetus and the newborn (HDFN). Administration of Rh(D) immunoglobulin prevents HDFN
- HDFN has devastating effects to the baby, such as severe anaemia or neurological damage
- IgG antibodies against other Rh antigens and blood group antigens can occur but are rare
- *Frequently Asked Questions About the Use of Rh(D) Immunoglobulin* are available at <http://resources.transfusion.com.au/cdm/ref/collection/p16691coll1/id/822>
- Patient handout: <https://www.ranzcog.edu.au/Womens-Health/Patient-Information-Guides/Patient-Information-Pamphlets/Red-Blood-Cell-Alloimmunisation>

1. May present with

- Pregnancy with Rh(D) negative blood group identified through routine antenatal bloods
- Sensitising event of a woman with Rh(D) negative blood group

2. Immediate management Not applicable

3. Clinical assessment¹

- Establish current gestation
- For routine doses of Rh(D) immunoglobulin given as part of antenatal care to Rh(D) negative women:
 - establish that the woman has a Rh(D) negative blood group and have not actively formed their own anti-D antibodies (review 1st visit bloods)
 - if unsure still give
- If a sensitising event:
 - determine nature of event, trimester, and assess if Rh(D) immunoglobulin is indicated (see table)

Sensitising events requiring Rh(D) immunoglobulin^{1,3}

First trimester weeks 0-12	Second and third trimester beyond week 12	Postpartum
• Chorionic villi sampling • Miscarriage • Termination of pregnancy (TOP) (medical or surgical) • Ectopic pregnancy • Hydatidiform mole A threatened miscarriage before 12 weeks gestation does NOT require anti-D	• Revealed or concealed antepartum haemorrhage (each occasion) • Amniocentesis • Cordocentesis • Fetoscopy • External cephalic version (whether successful or not) • Abdominal trauma • Miscarriage • TOP • Any other suspected intrauterine bleeding or sensitising event	• Following birth of a Rh(D) positive baby

4. Management^{1,2,3}

Routine administration

- All Rh(D) negative women who do not have preformed antibodies should receive Rh(D) immunoglobulin at:
 - 28 weeks and
 - 34 weeks and
 - within 72 hours of birth
- Take bloods for antibody titre at 28 weeks just PRIOR to administering the first dose of Rh(D) immunoglobulin to detect those who have already become immunised:
 - no need to repeat bloods at 34 weeks, if the 28 week dose of Rh(D) immunoglobulin was given
- If not logistically possible to give at these dates, it is acceptable to give within 2 weeks of the recommended timing
- If the 28 week dose is inadvertently missed, give as soon as recognised, and then give the second dose 6 weeks after the first dose

For a sensitising event

- If a sensitising event for an Rh(D) negative woman or if maternal blood group unknown:
 - consult MO
 - take bloods for: group and antibodies and Kleihauer Test
 - then administer Rh(D) immunoglobulin as soon as possible, but ideally within 72 hours of the event
- Follow up blood results promptly in collaboration with MO:
 - Note: bloods are to assess for existing maternal antibodies and the magnitude of the fetomaternal haemorrhage (FMH) to determine if more than one dose is needed to ensure sufficient immunoprophylaxis
 - if FMH quantification indicates a bleed larger than 6 mL additional Rh(D) immunoglobulin dose(s) may be required
 - if further dose(s) are required, they should preferably be given within 72 hours
- Routine 28 and 34 week Rh(D) immunoglobulin should still be given regardless if additional dose(s) are given for a sensitising event

Schedule	4	Rh(D) Immunoglobulin		Extended authority MID
RN and RIPRN must consult MO/NP				
MID may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection		IM	Routine antenatal prophylaxis 28 and 34 weeks 625 units	
	250 units		Sensitising event in the 1st trimester Single pregnancy 250 units Multiple pregnancy e.g. twins 625 units	stat Inject deep and slowly
	625 units		Sensitising event beyond the 1st trimester 625 units	If more than 5 mL is required give in divided doses in different sites
			Postpartum Unless the baby is known to be Rh(D) negative 625 units	
Provide Consumer Medicine Information:				
Note: For women with a BMI of ≥30, consider factors which may impact on adequacy of injection, including site given and needle length				
Contraindication: A baby, an Rh(D) positive woman				
Management of associated emergency: Consult MO. See Anaphylaxis, page 102				

1,3

1,3

5. Follow up

- If maternal antibodies are present in antenatal bloods consult with MO as ongoing monitoring may be required

6. Referral/consultation

- For sensitising events consult with MO

Pregnancy complications

HMP Ectopic pregnancy

Recommend^{1,2}

- Ectopic pregnancy must be considered in all women of child bearing age (12-52) who present with abdominal pain and/or vaginal bleeding even if the woman does not think she is pregnant. Always do a pregnancy test
- The woman's psychological needs should be acknowledged and considered at all times

Background^{1,3}

- An ectopic pregnancy occurs outside of the uterus, usually in the fallopian tube (96%)
- Diagnosis cannot be excluded on physical examination
- Rupture of an ectopic pregnancy can result in life-threatening haemorrhage
- Diagnosis is based on a combination of transvaginal ultrasound scan (TVS) and serum β -hCG
- Symptoms of ectopic pregnancy typically appear 6-8 weeks after the last normal menstrual period (LNMP), but may occur later e.g. if the site somewhere other than the fallopian tube
- See Queensland Clinical Guideline *Early Pregnancy Loss*: <https://www.health.qld.gov.au/qcg/publications#maternity>

Related topics

[Acute abdominal pain, page 238](#)

[Low abdominal pain in female, page 635](#)

[Vaginal bleeding in early pregnancy, page 513](#)

1. May present with¹

- Woman may not know she is pregnant
- Low abdominal pain:
 - can also be in middle or upper abdomen
 - timing, character and severity of pain may vary
 - diffuse or to one side
- Irregular vaginal bleeding (spotting) may or may not be present:²
 - volume and pattern of bleeding may vary
- Ruptured ectopic pregnancy may result in haemorrhage in abdominal cavity. Symptoms include:
 - shoulder tip or diaphragmatic pain
 - signs of shock⁴
 - $\uparrow$ HR, $\downarrow$ BP, $\uparrow$ RR
 - restlessness
 - sweating
 - cool, clammy skin
 - decreased urine output
- May be asymptomatic or resemble common signs and symptoms of other conditions:⁵
 - e.g. UTI, PID, miscarriage, appendicitis

2. Immediate management

- **If signs of shock:**
 - call for help

- urgently contact MO/NP for advice/arrange evacuation
- insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- take blood for urgent FBC, group and hold
- commence fluid/other resuscitative measures. See [Shock, page 77](#)
- if ruptured ectopic pregnancy, woman will require urgent surgery²
- take rapid history

3. Clinical assessment²

- Take history of this presentation. Ask about:
 - bleeding/spotting - amount, when did it start, any clots
 - lower abdominal pain or cramping, where, how severe
 - shoulder tip pain
 - feeling faint when standing
 - any recent abdominal trauma
 - date of first day of last normal menstrual period
 - any dysuria/frequency of urine
 - any other symptoms/concerns
- Obtain past history, including:
 - antenatal history if pregnancy known - check records
 - has pregnancy location been confirmed by transvaginal USS - is fetus in the uterus
 - estimate fetal age based on dating scan if available
 - check documentation of blood group and antibody status
 - obstetric history - prior pregnancies, miscarriages, previous ectopic pregnancy, tubal surgery, infertility, contraceptives, intrauterine device use
 - bleeding disorders
 - medicines and allergies
 - chronic diseases - diabetes, thyroid disease, polycystic ovary syndrome, celiac disease
 - any known anomalies of the reproductive tract
 - STIs, when, treatment, last tested
 - pelvic inflammatory disease (PID) - when, treatment
- Perform physical examination:
 - standard clinical observations (full Q-ADDS Rural and Remote or other local Early Warning and Response Tools)
 - do pregnancy test even if the woman does not think she is pregnant
 - estimate amount and rate of blood loss as applicable - check loss on pad:
 - colour of blood - bright, dark, presence of clots, size
 - urinalysis + MSU if indicated
 - gently palpate abdomen - any tenderness, rigidity, guarding, distension

4. Management

- If location of fetus is not known treat as ectopic pregnancy until proven otherwise
- Consult MO/NP urgently
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- Take blood for FBC, group and hold
- Evacuation will be required for USS confirmation of location of fetus
- Keep nil by mouth
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

- If Rh(D) negative with no pre-formed anti-D antibodies and > 12 weeks gestation offer Rh(D) immunoglobulin.⁶ See [Rh\(D\) immunoglobulin \(anti-D\) prophylaxis, page 508](#)

5. Follow up

- Consider grief counselling if appropriate

6. Referral/consultation

- Consult MO/NP on all occasions of woman with suspected ectopic pregnancy

HMP Vaginal bleeding in early pregnancy

UP TO 20 WEEKS GESTATION

Recommend¹

- Location of fetus must be established to exclude ectopic pregnancy in all women who present with bleeding in early pregnancy
- The woman's psychological needs should be acknowledged and considered at all times
- If products of conception (POC) are obtained, send for histopathology to confirm pregnancy, exclude ectopic pregnancy or detect unsuspected gestational trophoblastic disease (GTD)
- For further information see: Queensland Clinical Guideline *Early Pregnancy Loss* available at: <https://www.health.qld.gov.au/qcg/publications#maternity>

Background^{1,2}

- Most common causes of bleeding in early pregnancy include viable intrauterine pregnancy, threatened miscarriage and ectopic pregnancy
- Other obstetric causes include implantation bleeding (about 9 days after ovulation), sub chronic haemorrhage, embryonic demise, anembryonic pregnancy, incomplete or threatened abortion, hydatidiform mole
- Serum β -hCG first becomes positive at 9 days post conception. β -hCG > 5 units/L confirms pregnancy
- A single β -hCG value does not differentiate between a viable and non-viable pregnancy

Related topics

[Antepartum haemorrhage \(APH\), page 535](#)

[Ectopic pregnancy, page 511](#)

1. May present with^{1,2}

- Pregnancy $\leq$ 20 weeks gestation with:
 - vaginal spotting or bleeding
 - abdominal and/or shoulder tip pain
 - backache
 - passage of products of conception (POC)
- If bleeding very heavy, may have signs of shock:^{3,4}
 - $\uparrow$ HR, $\downarrow$ BP, $\uparrow$ RR
 - restlessness
 - sweating
 - cool, clammy skin
 - decreased urine output

2. Immediate management¹

- If signs of shock:
 - call for help
 - consult MO/NP urgently
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
 - commence fluid/other resuscitative measures. See [Shock, page 77](#)
 - insert IDC to empty bladder
 - take blood for urgent FBC, group and hold
 - if skilled, perform urgent speculum examination to remove POC from cervix/vagina - this may stop bleeding and restore BP
- For persistent bleeding where ectopic pregnancy has been excluded MO may consider/order:
 - ergometrine 250 microgram IV or IM, AND/OR
 - misoprostol 800-1000 microgram per rectum AND/OR
 - activation of massive transfusion protocol
 - See [Primary postpartum haemorrhage, page 572](#)
- Always suspect ectopic pregnancy regardless of amount of bleeding/pain:⁵
 - if pregnancy location unconfirmed i.e. woman has not had an USS to confirm pregnancy is in the uterus. See [Ectopic pregnancy, page 511](#)

3. Clinical assessment^{1,2}

- Obtain history of this presentation:
 - bleeding/spotting - amount, when did it start, any clots
 - lower abdominal pain or cramping, where, how severe
 - shoulder tip pain - may indicate intra-abdominal bleeding
 - feeling faint when standing
 - any recent abdominal trauma
 - date of first day of last normal menstrual period
 - any other symptoms/concerns
- Obtain past history, including:
 - antenatal history - check records
 - has pregnancy location been confirmed - is fetus in the uterus confirmed by Transvaginal USS performed by experienced sonographer:
 - if not confirmed always consider ectopic pregnancy until proven otherwise. See [Ectopic pregnancy, page 511](#)
 - estimate fetal age - based on dating scan if available
 - check documentation of blood group and antibody status
 - obstetric history - prior pregnancies, miscarriages, previous ectopic pregnancy, tubal surgery, infertility, contraceptives, intrauterine device use
 - bleeding disorders
 - medicines and allergies
 - chronic diseases - diabetes, thyroid disease, polycystic ovary syndrome, coeliac disease
 - any known anomalies of the reproductive tract
 - STIs, when, treatment, last tested
 - pelvic inflammatory disease (PID) - when, treatment
- Perform physical examination:
 - standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or if not available other local Early Warning and Response Tools)
 - confirm pregnancy by urgent serum quantitative β -hCG:

- use urine β -hCG if serum result is likely to be delayed
- estimate amount and rate of blood loss - check loss on pad:
 - colour of blood - bright, dark, presence of clots, size
- urinalysis + MSU if indicated
- gently palpate abdomen - any tenderness, rigidity, guarding, distension

4. Management¹

- For women with unconfirmed/uncertain pregnancy location (not known if in the uterus) consider ectopic pregnancy until proven otherwise. See [Ectopic pregnancy, page 511](#)
- Keep nil by mouth
- Consult with MO/NP on all occasions of bleeding in early pregnancy who may advise:
 - blood for FBC + blood group, serial β -hCG levels
 - evacuation for USS, further investigations and/or treatment
 - IV antibiotics - if fever or offensive cervical discharge
 - STI check. See [Sexually transmitted infections, page 615](#)
 - speculum examination if clinician skilled, to check for:
 - blood coming through os
 - os closed or open/products of conception protruding - gently remove with sponge forceps
 - offensive cervical discharge
- If Rh(D) negative with no pre-formed anti-D antibodies and > 12 weeks gestation offer offered Rh(D) immunoglobulin.⁶ See [Rh\(D\) immunoglobulin \(anti-D\) prophylaxis, page 508](#)

5. Follow up

- Consider grief counselling for parents who have experienced miscarriage/intrauterine fetal death
- If not evacuated/hospitalised advise patient to be reviewed according to MO instructions
- If applicable follow up STI test results and treat

6. Referral/consultation

- Consult MO on all occasions of vaginal bleeding in pregnancy

HMP Urinary tract infection in pregnancy

Recommend

- Ectopic pregnancy and pelvic inflammatory disease must be considered in any woman of childbearing age (12-52) who present with low abdominal pain¹
- Treat all asymptomatic bacteriuria (ASB) and urinary tract infections (UTI) in pregnancy with antibiotics²
- MSU culture is the standard for diagnosing ASB. In rural and remote areas, dipstick tests may be used to exclude asymptomatic bacteriuria, with positive results confirmed by urine culture. Appropriate storage of dipsticks is essential for accuracy³

Background

- UTI is associated with threatened preterm labour²
- ASB has been associated with preterm birth (PTB) and an increased risk of pyelonephritis in pregnant women¹
- Antimicrobial therapy significantly reduces a pregnant woman's risk of developing pyelonephritis⁴

Related topics

[Group B Streptococcus prophylaxis, page 540](#)

1. May present with

Asymptomatic bacteriuria^{1,3}

- Detected on routine antenatal screening MSU
- Leucocytes/nitrites/protein on urinalysis
- No other signs or symptoms

Cystitis - acute infection of the bladder¹

- Dysuria - discomfort/burning on passing urine
- Urgency
- Frequency
- Haematuria without evidence of systemic illness
- Lower abdominal pain and sometimes mild low back pain
- Leucocytes/nitrites/protein on urinalysis

Pyelonephritis - acute infection of the kidney¹

- Fever, rigors, nausea, vomiting
- Flank pain

2. Immediate management Not applicable

3. Clinical assessment^{3,4}

- Obtain history of this presentation. Ask about:
 - current urinary symptoms - dysuria, frequency, urgency, haematuria
 - abdominal pain
 - suprapubic pain

- vaginal discharge
- fever, rigors, flank tenderness
- nausea, vomiting
- anorexia
- altered mental status - suspect sepsis. See [Sepsis/septic shock, page 80](#)
- fetal movements - feeling as normal or decreased
- any other symptoms/concerns
- Obtain past history, including:
 - antenatal history - check records
 - estimate fetal age based on dating scan if available; or LNMP
 - previous UTIs - when, treatment
 - relevant medical history - e.g. diabetes, anatomical abnormalities with urinary tract
 - STIs, when, treatment, last tested
- Perform physical examination:
 - standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or if not available use other local Early Warning and Response Tools)
 - palpate abdomen. Any:
 - tenderness in loin, groin, or suprapubic area - may indicate calculi or upper tract infection
 - contractions, tightening
 - FHR (if skilled) - maternal systematic infection can increase FHR
- Obtain:
 - MSU for MCS on all pregnant women prior to treatment⁵
 - STI tests for gonorrhoea, chlamydia and trichomonas PCR and bacterial vaginosis. See [Sexually transmitted infections, page 615](#)
 - syphilis serology if not already completed antenatally, or due. See [Antenatal care, page 500](#)

4. Management

- If symptomatic, ensure differential diagnosis are considered.¹ See:
 - [Ectopic pregnancy, page 511](#)
 - [Low abdominal pain in female, page 635](#)
 - [Preterm labour, page 544](#)
 - [Sexually transmitted infections, page 615](#)
 - [Acute abdominal pain, page 238](#) e.g. appendicitis
- Consult with MO if uncertain
- **If pyelonephritis or signs of sepsis:**⁶
 - consult MO urgently
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
 - MO will order IV ceftriaxone and arrange evacuation/hospitalisation
 - ensure MSU taken prior to giving antibiotics, unless clinically inappropriate
- **If asymptomatic bacteriuria (ASB):**⁵
 - treat based on results of urine MCS
 - if dipstick suggests ASB e.g. nitrite, protein, blood, leukocyte AND there are concerns treatment might be delayed while waiting for results of MCS e.g. difficulty to recall woman:³
 - consider commencing antibiotics without waiting for results
 - treat as per acute cystitis
- **If acute cystitis:**⁵
 - start antibiotics based on symptoms
 - check local patterns of resistance before selecting antibiotic

- give:
 - nitrofurantoin - except if near term or delivery OR
 - amoxicillin + clavulanic acid OR
 - cefalexin
- ensure MSU for MCS is obtained prior to starting antibiotics
- check results and modify treatment based on culture and susceptibility testing
- encourage increasing fluid intake and complete bladder emptying⁷

If Group B Streptococcus on culture, **antibiotic cover in labour is required** even if previously treated. Make a note in antenatal record and advise woman
See [Group B Streptococcus prophylaxis, page 540](#)

Schedule	4	Nitrofurantoin	Extended authority ATSIHP/IHW/IPAP/MID/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
MID and RIPRN 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 to reduce nausea and improve absorption. May cause nausea, vomiting, headache, anorexia, diarrhoea, abdominal pain, allergic skin reactions, headache, drowsiness or dizziness. Report difficulty breathing, development of a cough or numbness or tingling. May turn urine a brownish colour				
Contraindication: Renal impairment. Women near term or delivery due to risk of neonatal haemolytic anaemia				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5,9

5,9

Schedule

4

Amoxicillin + clavulanic acid

Extended authority

ATSIHP/IHW/IPAP/RIPRN/MID

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN and MID may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg + 125 mg	Oral	Adult 500 mg + 125 mg bd	5 days

Provide Consumer Medicine Information: Take with food. May cause rash, diarrhoea, nausea and candidiasis. Can cause severe colitis due to *Cl. difficile*

Contraindication: Severe or immediate allergic reaction to a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems. Avoid in women with premature rupture of the membranes as there may be an increased risk of neonatal necrotising enterocolitis

Management of associated emergency: Consult MO/NP. See [Anaphylaxis, page 102](#)

5,8

Schedule

4

Cefalexin

Extended authority

ATSIHP/IHW/IPAP/MID/RIPRN

ATSIHP, IHW, IPAP and RN must consult MO/NP

MID and RIPRN 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: May cause rash, diarrhoea, nausea, vomiting, dizziness, headache and candidiasis

Note: If renal impairment seek MO/NP advice

Contraindication: Severe or immediate allergic reaction to a cephalosporin or a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems

Management of associated emergency: Consult MO/NP. See [Anaphylaxis, page 102](#)

5,10

Schedule	4	Ceftriaxone	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, MID, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	1 g	IV	Adult 1 g	stat
Provide Consumer Medicine Information: May cause nausea, diarrhoea, rash, headache, dizziness, and candidiasis				
Note: Inject over 2-4 minutes. Can cause severe colitis due to <i>Cl. difficile</i> . If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to a cephalosporins or a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: Contact the MO/NP. See Anaphylaxis, page 102				

11,12,13

11,12,13

5. Follow up⁵

- Check results of MSU. Modify treatment if required, based on culture and susceptibility testing
- If Group B *Streptococcus* on culture, antibiotic cover in labour required, even if treated. Make a note in antenatal record and advise woman. See [Group B Streptococcus prophylaxis, page 540](#)
- Repeat MSU 1-2 weeks after treatment completed. If persistent bacteriuria, treat with a second course of antibiotics
- Following resolution, repeat MSU at antenatal visits to monitor
- If recurrent infections, or at risk of complications e.g. has diabetes, consider prophylaxis for remainder of pregnancy - discuss with MO
- Follow up STI test results and treat as required. See [Sexually transmitted infections, page 615](#)
- Consult MO if UTI persists or recurs after treatment

6. Referral/consultation

- Consult MO/NP as above

Diabetes in pregnancy

Recommend¹

- Pre-existing diabetes should be treated as a complicated pregnancy
- It is strongly recommended that pre-pregnancy and pregnancy care of women with pre-existing diabetes is provided by a multidisciplinary team
- Encourage women with pre-existing diabetes to obtain as near as non-diabetic glycaemic control as possible prior to becoming pregnant
- High dose folate supplementation is recommended pre-pregnancy for women with diabetes:
 - 5 mg per day, commencing 1 month prior to pregnancy

Background^{1,3}

- Women with pre-existing diabetes (types 1 and 2) are more prone to complications of pregnancy, such as higher rates of preeclampsia, prematurity and caesarean section
- Principles of management of diabetes in pregnancy include:
 - aiming for BGL as close to the normal (non-diabetic) range as possible
 - ensure risks for maternal hypoglycaemia are minimised
- Basic management includes:
 - monitoring BGLs
 - adopting healthy eating pattern
 - physical activity
- See Queensland Clinical Guideline *Gestational Diabetes Mellitus*: <https://www.health.qld.gov.au/qcg/publications#maternity>

Related topics

[Antenatal care, page 500](#)

1. May present with¹

- Pregnant with:
 - pre-existing diabetes - type 1 or 2 diagnosed prior to pregnancy
 - risk factor(s) for gestational diabetes mellitus (GDM)
 - diagnosis of GDM

2. Immediate management Not applicable

3. Clinical assessment

- If pre-existing diabetes and pregnancy test positive:
 - obtain medication history
 - promptly discuss with MO/Pharmacist regarding the need for/safety of use of current medicines in pregnancy
 - oral hypoglycaemics may need to be substituted with insulin
 - refer to MO/obstetrician for further assessment and pregnancy care planning
- For gestational diabetes mellitus (GDM) - see following flowchart

Screening and diagnosis of GDM²

Assess all pregnant women
for risk factors

Risk factors for GDM

- BMI $> 30 \text{ kg/m}^2$ - pre-pregnancy or on entry to care
- Ethnicity - Asian, Indian subcontinent, Aboriginal, Torres Strait Islander, Pacific Islander, Maori, Middle Eastern, Non-white African
- Previous GDM
- Previous elevated BGL
- Maternal age ≥ 40 years
- Family history DM - 1st degree relative or sister with GDM
- Previous large for gestational age - birth weight $> 4500 \text{ g}$ or $> 90^{\text{th}}$ percentile
- Previous perinatal loss
- Polycystic ovarian syndrome
- Medications - corticosteroids, antipsychotics
- Multiple pregnancies

GDM diagnosis

OGTT - preferred test for diagnosis
One or more of:

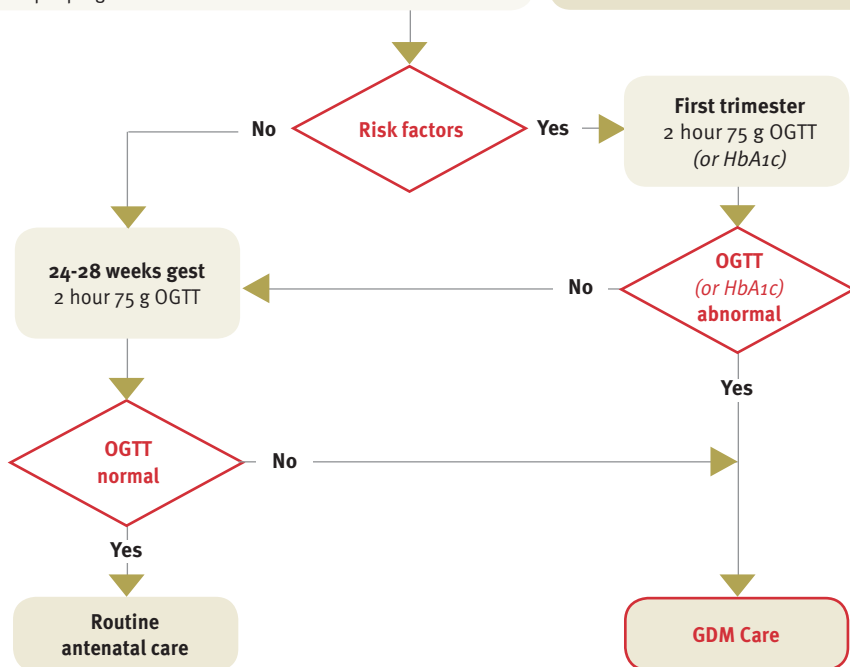
- Fasting $\geq 5.1 \text{ mmol/L}$
- 1 hour $\geq 10 \text{ mmol/L}$
- 2 hour $\geq 8.5 \text{ mmol/L}$

HbA_{1c} (if OGTT not suitable)

- 1st trimester only
- Result $\geq 41 \text{ mmol/mol}$ (or 5.9%)

OGTT advice for women:

- Fast (except for water) for 8-14 hours prior to OGTT
- Take usual medications



Flowchart adapted from: Queensland Clinical Guideline: Gestational Diabetes Mellitus (2015)

4. Management

- Multidisciplinary approach recommended:
 - include the woman, Midwife, Obstetrician, Endocrinologist (or physician experienced in diabetes care during pregnancy), Diabetes Educator and Dietitian
 - consider optometrist and dental input
 - ensure early referral(s)
- Provide advice on the importance of monitoring and controlling BGL during pregnancy
- Provide emotional support to the woman

Pre-existing diabetes in pregnancy^{1,3}

- First antenatal visit should occur as soon as possible once pregnancy confirmed
- Initial evaluation may include:
 - usual antenatal testing. See [Antenatal care, page 500](#)
 - serum glucose, HbA_{1c}, lipid profile, TSH, thyroid peroxidase antibodies, urine albumin/creatinine ratio, creatinine clearance, Hb, serum ferritin
 - if > 35 years of age, resting ECG
 - recommend and continue high dose folate (5 mg/day) until 12 weeks gestation
- A management plan will be developed to achieve near-normal glycaemia. This may include:
 - individualised dietary advice
 - encouraging daily physical activity
 - self-monitoring BGL - fasting and 1-2 hours postprandial (after meals)
 - insulin in place of oral hypoglycaemics, titrated as needed
- Additionally specialist may consider:
 - examination of retina during each trimester, more frequent if retinopathy is present
 - USS monitoring of fetal growth and amniotic fluid volume 4 weekly from 28-36 weeks
 - close surveillance for new diabetes complications and monitoring of existing complications

Gestational diabetes mellitus (GDM)^{1,2}

- See Antenatal schedule of care for GDM (table)
- Suggested BGLs for GDM are:
 - fasting ≤ 5.0 mmol/L
 - 1 hour after commencing meal ≤ 7.4 mmol/L
 - 2 hours after commencing meal ≤ 6.7 mmol/L
- Insulin may be required for optimal control:
 - must be calculated and ordered by clinician with expertise in diabetes in pregnancy
 - will need regular review and titration to achieve glycaemic goals

Antenatal schedule of care for GDM²**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 (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

Hypoglycaemia in pregnancy²

- Fasting BGLs tend to decrease in pregnancy
- Levels of 3.5 mmol/L may be physiologically normal and asymptomatic
- Hypoglycaemia is uncommon in women with GDM:
 - if asymptomatic confirm the accuracy of results prior to treatment
 - for symptoms. See [Hypoglycaemia, page 115](#)
- Mild hypoglycaemia:
 - BGL < 4.0 mmol/L
 - may or may not have symptoms of low BGL
- Severe hypoglycaemia:
 - BGL very low, generally < 3.0 mmol/L
 - confusion, potential loss of consciousness

Treating hypoglycaemia in women on glucose lowering medication²

- Give 15 g serve of fast acting carbohydrates, such as:
 - 5-7 glucose jelly beans
 - glass of soft drink - not diet
 - Lucozade® 100mL
 - 3 heaped teaspoons of sugar or honey dissolved in water
- If after 15 minutes symptoms persist or BGL < 4.0 mmol/L
 - repeat one serve of above
 - do not over treat with fast acting carbohydrates, as may lead to rebound hyperglycaemia
 - when BGL is $\geq$ 4.0 mmol/L give sandwich, crackers, a glass of milk (longer lasting carbohydrate) or usual meal if within 30 minutes

5. Follow up

- As per individualised plan of care

6. Referral/consultation

- Early referral for a multidisciplinary approach to care as per local protocols/individualised plan of care

HMP Hypertension in pregnancy

Recommend¹

- Severe hypertension in pregnancy is life threatening and should be treated as a medical emergency
- 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/Obstetrician
- Correct BP measurement techniques are critical to correct diagnosis

Background^{1,2}

- Pre-existing hypertension is a strong risk factor for preeclampsia
- Hypertensive disorders of pregnancy:
 - **gestational hypertension** - arises after 20 weeks with no features of pre-eclampsia and resolves within 3 months postpartum. Up to 25% of women will be in the process of developing preeclampsia but have not yet developed proteinuria or other manifestations
 - **chronic hypertension** - hypertension confirmed preconception or < 20 weeks without a known cause (essential, secondary, white coat)
 - **preeclampsia** - a multi-system disorder characterised by hypertension and involvement of one or more other organ systems and/or the fetus
 - **preeclampsia superimposed on chronic hypertension** - where a woman with pre-existing hypertension develops systemic features of preeclampsia after 20 weeks gestation
- Dipstick testing is the least accurate method to ascertain proteinuria (high false positives):
 - where possible use point of care automated analyser for dipstick and confirm proteinuria of 2+, 3+ or repeated 1+ with urine protein/creatinine ratio (urine PCR)^{2,3}
- See Queensland Clinical Guideline *Hypertensive Disorders of Pregnancy*: <https://www.health.qld.gov.au/qcg/publications#maternity>

Related topics

[Preeclampsia/eclampsia, page 530](#)

1. May present with²

- Pregnant woman with:
 - new onset of hypertension arising > 20 weeks gestation
 - normotensive with rise in sBP $\geq$ 30 mmHg and/or rise in dBP $\geq$ 15 mmHg
 - pre-natal diagnosis of chronic hypertension with increase in BP
 - $\pm$ signs of preeclampsia. See [Preeclampsia/eclampsia, page 530](#)

Hypertension definitions in pregnancy¹

systolic BP (sBP) $\geq$ 140 mmHg AND/OR diastolic BP (dBP) $\geq$ 90 mmHg	Hypertension
sBP $\geq$ 141 mmHg to 159 mmHg AND/OR dBP $\geq$ 91 mmHg to 109 mmHg	Moderate hypertension
sBP $\geq$ 160 mmHg AND/OR dBP $\geq$ 110 mmHg	Severe hypertension
sBP $\geq$ 170 mmHg with or without dBP $\geq$ 110 mmHg is a medical emergency	

Note: a rise in sBP $\geq$ 30 mmHg and/or rise in dBP $\geq$ 15 mmHg may be significant in some women (who are not hypertensive), and require further investigation for features of preeclampsia

2. Immediate management¹

- Consult MO/Obstetrician urgently if:
 - severe hypertension
 - and/or any signs of preeclampsia. See [Preeclampsia/eclampsia, page 530](#)
 - and/or any concerns about fetal wellbeing e.g. decreased fetal movements
- If severe hypertension:
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
 - antihypertensive required urgently if sBP $\geq$ 160 and/or dBP $\geq$ 100 mmHg
 - consider giving antihypertensive if sBP $\geq$ 140 or dBP $\geq$ 90 mmHg
 - when giving antihypertensive aim:
 - to reduce the sBP to 130-150 mmHg and dBP to 80-100 mmHg
 - for gradual and sustained lowering of BP to avoid maternal hypotension and fetal compromise
 - monitor BP 15-30 minutely until stable
 - continual monitoring of FHR should occur via CTG - if available and if skilled
 - urgent evacuation required for specialist Obstetric care

Schedule**4****Nifedipine****Extended authority**

ATSIHP/IHW/IPAP/MID/RIPRN

ATSIHP, IHW, IPAP and RN must consult MO

RIPRN must consult MO unless circumstances do not allow, in which case notify the MO as soon as circumstances do allow

MID may proceed to a max. of 2 doses

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet (conventional release)	10 mg 20 mg	Oral	10-20 mg	stat May be repeated after 45 minutes on MO orders to a max. dose of 80 mg

Provide Consumer Medicine Information: May cause nausea, headache, flushing, dizziness, hypotension, peripheral oedema

Note: May increase effects of magnesium sulfate and risk of hypotension; use cautiously

Management of associated emergency: Consult MO. See [Anaphylaxis, page 102](#)

1,2,3

Schedule	4	Hydralazine		Prescribing guide
MID, RIPRN and RN only. Must be ordered by an MO				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	20 mg	IV	*Intermittent bolus dose 5-10 mg injected over 3-10 minutes Repeat doses of 5 mg, 20 minutes apart if required (to max. of 30 mg) Infusion (via controlled infusion device) Commence at 10-20 mg/ hour and titrate to BP	stat Cease if maternal pulse greater than 125 beats/minute
Provide Consumer Medicine Information: May cause tachycardia, headache, flushing and palpitations				
Note: *5 mg if fetal compromise. Monitoring BP and pulse every 5 minutes during administration and until stable. Detailed administration advice available in Appendix C of <i>Queensland Maternity and Neonatal Clinical Guideline: Hypertensive disorders of pregnancy</i> , available at: https://www.health.qld.gov.au/qcg/publications				
Contraindications: Severe or immediate allergic reaction to hydralazine. SLE, severe tachycardia, myocardial insufficiency and right ventricular heart failure				
Management of associated emergency: Consult MO. See Anaphylaxis, page 102				

1

3. Clinical assessment^{1,2}

- Refer to Midwife/MO for clinical assessment. If Midwife not available, complete what you can within your scope of practice, and always consult with MO
- Take patient history including:
 - any symptoms of preeclampsia. See [Preeclampsia/eclampsia, page 530](#)
 - other associated symptoms
 - obstetric history:
 - current gestation, BP during this pregnancy, pre-existing proteinuria - if so, has this increased
 - ask about fetal movements - normal, decreased, any concerns. See [Antenatal care, page 500](#)
 - past history. Ask about:
 - diabetes, kidney disease, endocrine disorders - Cushing's syndrome, SLE
 - known pre-natal hypertension
 - medicines
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or if not available other local Early Warning and Response Tools)
- Perform physical examination, including:
 - weight
 - urinalysis dipstick for protein - use point of care automated analyser if possible
 - if ≥ 2+, 3+ or repeated 1+ proteinuria, or preeclampsia is suspected, obtain urine PCR
 - FHR if skilled
 - inspect for signs of preeclampsia. See [Preeclampsia/eclampsia, page 530](#)

4. Management^{1,2}

- Consult MO for all occasions of hypertension in pregnancy
- Take pathology:
 - blood tests for FBC, UEC, urate, LFT including LDH
 - if proteinuria if positive on dipstick obtain urine PCR
- Monitor FHR - use CTG if accessible, > 24 weeks gestation and skilled
- MO may advise USS for fetal growth, amniotic fluid volume and umbilical artery Doppler assessment
- Admission to hospital likely if:
 - fetal wellbeing a concern
 - sBP > 140 mmHg or dBP > 90 mmHg
 - symptoms of preeclampsia, proteinuria or abnormal bloods
- If non-severe hypertension:
 - confirm by measuring BP over several hours
 - if sBP < 140 mmHg and dBP < 90 mmHg on subsequent checks and no symptoms of preeclampsia or proteinuria, MO may suggest continued review/antenatal appointments according to the woman's clinical needs

5. Follow up^{1,2}

- Ongoing close monitoring is required to detect the development of preeclampsia in collaboration with MO
- If diagnosed with gestational or chronic hypertension, advise woman to present immediately if any symptoms of preeclampsia arise. See [Preeclampsia/eclampsia, page 530](#)

6. Referral/consultation

- Always consult with MO and refer to Obstetrician for this presentation and ongoing antenatal care

HMP Preeclampsia/eclampsia

Recommend¹

- Women who have preeclampsia must be evacuated/hospitalised and monitored closely under the care of an obstetrician
- Magnesium sulfate is the anticonvulsant medicine of choice for prevention and treatment of eclampsia

Background^{2,3,4}

- Preeclampsia:
 - is a major cause of morbidity and mortality for a woman and her baby
 - is a multisystem disorder characterised by hypertension arising after 20 weeks gestation and accompanied by one or more signs of organ involvement
 - can progress at an unpredictable rate
- Raised BP is commonly (but not always) the first manifestation
- Eclampsia is the development of one or more convulsions superimposed on preeclampsia in the absence of other neurological conditions that could account for the seizure
- Proteinuria is the most commonly recognised feature after hypertension, but is not mandatory for a clinical diagnosis
- Dipstick testing is the least accurate method to ascertain proteinuria (high false positives). Where possible use point of care automated analyser for dipstick and confirm proteinuria of 2+, 3+ or repeated 1+ with urine protein/creatinine ratio (urine PCR)
- **Risk factors for preeclampsia:** past history of preeclampsia, preexisting medical conditions (diabetes, chronic hypertension, systemic lupus erythematosus, chronic kidney disease), pre pregnancy BMI > 25, multiple pregnancy, family history of preeclampsia, first pregnancy, prior placental insufficiency, advanced maternal age, use of assisted reproductive technology
- See Queensland Clinical Guideline: *Hypertensive Disorders of Pregnancy*: <https://www.health.qld.gov.au/qcg/publications#maternity>

Related topics

[Hypertension in pregnancy, page 526](#)

1. May present with²

- Pregnant woman with:
 - hypertension arising > 20 weeks gestation
 - accompanied by one or more features of preeclampsia
- The degree of hypertension and proteinuria, and presence/absence of other clinical manifestations of preeclampsia is highly variable

Features of preeclampsia in addition to hypertension^{1,2,4}

- Proteinuria on dipstick - 2+, 3+ or repeated 1+
- Fetal growth restriction
- Severe features:
 - systolic BP ≥ 160 or diastolic BP ≥ 110 (confirmation within 15-30 minutes is sufficient)
 - persistent new and/or severe headache: 'worst headache of my life'
 - visual disturbances - blurred vision, flashing lights or sparks, dark areas or gaps in visual field, double vision, blindness in one eye
 - altered mental state/confusion
 - severe epigastric pain and/or right upper quadrant pain
 - hyper-reflexia and ankle clonus
 - dyspnea, pulmonary oedema
 - oliguria
 - nausea and/or vomiting
 - stroke

Imminent eclampsia - at least two of the following:¹

- Frontal headache
- Visual disturbance
- Altered level of consciousness
- Hyper-reflexia
- Epigastric tenderness

Eclampsia - fitting**2. Immediate management^{1,2}****If fitting (eclampsia)**

- Send for help
- Urgently consult MO
- Commence resuscitative measures. See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Ensure patent airway, give O₂ by mask. See [Oxygen delivery, page 64](#)
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- Magnesium sulfate will be ordered by the MO
- Midazolam IV or IM may be given if:
 - the seizure is prolonged while initiating magnesium sulfate OR
 - if seizures reoccur during administration of magnesium sulfate
 - see [fits/convulsions/seizures, page 109](#) (note: seizures are normally self-limiting)
- Arrange urgent evacuation
- Be guided by MO for further management whilst awaiting evacuation, including:
 - perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or other local Early Warning and Response Tools)
 - BP and HR every 5 minutes
 - SpO₂
 - conscious state. See [Glasgow Coma Scale/AVPU, page 785](#)
 - insert IDC and monitor urine output hourly, strict fluid balance monitoring
 - RR and patella reflexes hourly

- monitor fetal HR
- continuous CTG if > 24 weeks pregnant if available/skilled to use

If features of severe preeclampsia or imminent eclampsia¹

- Urgently consult MO
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- Arrange urgent evacuation for further management
- Monitor standard clinical observations every 5 minutes
- MO may order:
 - nifedipine or hydralazine to treat hypertension. See [Hypertension in pregnancy, page 526](#) and/or
 - magnesium sulfate to prevent eclampsia

If magnesium sulfate ordered¹

- See Queensland Clinical Guideline *Hypertensive Disorders of Pregnancy* for detailed administration advice: <https://www.health.qld.gov.au/qcg/publications#maternity> - or relevant local policy
- Prior to commencing ensure:
 - calcium gluconate monohydrate 10 % in 10 mL vial available in case of respiratory depression/overdose
 - resuscitation/ventilator support immediately available
 - dedicated IV line available
- Take base line observations:
 - BP, HR, RR, level of consciousness
 - SpO₂, patella reflex, abdominal palpation, FHR - if skilled
- Monitor during loading dose:
 - BP, HR, RR 5 minutely until stable - for minimum of 20 minutes
 - SpO₂ continuously
 - FHR 15-30 minutely. Monitor via continuous CTG - if available and skilled in use
 - observe for side effects
- After loading dose - check deep tendon (patella) reflexes
- Cease the infusion and consult MO/Obstetrician immediately if:
 - RR < 12 breaths/minute or > 4 breaths/minute below baseline
 - absent deep tendon reflexes, OR
 - diastolic BP decreases > 15 mmHg below baseline

Schedule	Unscheduled	Magnesium sulfate	Prescribing guide	
MID, RIPRN and RN only. Must be ordered by an MO				
Use local protocols for administration of magnesium sulfate if available				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	2.47 g/5 mL	IV	Loading dose 4 g Ampoule/vial Draw up dose and dilute to a total of 20 mL with sodium chloride 0.9% Prefilled syringe No dilution required	stat Infuse over 20 minutes using controlled infusion device e.g. syringe pump
Pre-filled syringe (Baxter®)	<i>Loading dose</i> 4 g/20 mL water for injections		Maintenance dose 1 g/hour Commence after last seizure or birth whichever comes first Ampoule/vial Draw up 10 g and further dilute with sodium chloride 0.9% to a total of 50 mL Prefilled syringe No dilution required	Infuse at 5 mL/hour for 24 hours using controlled infusion device
	<i>Maintenance dose</i> 10 g/50 mL water for injections		New onset or persistent seizures while on magnesium sulfate Give a further 2 g diluted in a minimum of 10 mL sodium chloride 0.9%	Infuse over 5 minutes Repeat in 2 minutes if seizures persist
Provide Consumer Medicine Information: May cause nausea, vomiting and transient hot flushing				
Note: If impaired renal function, reduce maintenance dose to 0.5 g/hour. Monitor for signs of magnesium toxicity: nausea, vomiting, flushing, hypotension, muscle weakness, muscle paralysis, blurred or double vision, CNS depression and loss of reflexes				
Management of associated emergency: Contact MO/Obstetrician. Cease infusion. Calcium gluconate 10% in 10 mL should be readily available in case of respiratory depression/overdose. Hypotension alone will generally respond to IV fluids and parenteral calcium is rarely necessary. Also see Anaphylaxis, page 102				

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1,5,6,7,9

Schedule	Unscheduled	Calcium gluconate monohydrate	Prescribing guide	
MID, RIPRN and RN only. Must be ordered by an MO				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	0.22 mmol in 1 mL	IV	2.2 mmol (10 mL)	stat Inject slowly over 5-10 minutes in a large peripheral vein
Provide Consumer Medicine Information: Given for overdose of magnesium sulfate				
Note: High risk medicine which can be rapidly fatal in overdose. Hypotension alone will generally respond to IV fluids and parenteral calcium is rarely necessary. Avoid extravasation as will cause tissue necrosis. Subcut and IM route contraindicated				
Management of associated emergency: Consult MO/Obstetrician. See Anaphylaxis, page 102				

5,8

3. Clinical assessment^{2,4}

- Refer to Midwife/MO for clinical assessment. If no Midwife available, complete what you can within your scope of practice and always consult with MO
- Obtain history of presenting concern:
 - any associated symptoms
 - specifically ask about signs of preeclampsia
- History of current and previous pregnancy. See [Antenatal care, page 500](#)
- Establish current gestation:
 - ask about fetal movements - normal, decreased, any concerns
- Past history - any:
 - renal disease, preexisting hypertension
 - risk factors for preeclampsia
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or other local Early Warning and Response Tools)
- Fetal HR
- Dipstick for proteinuria - use point of care automated analyser if available for increased accuracy
- Confirmation of proteinuria 2+, 3+ or repeated 1+ by urine PCR
- Check for signs of preeclampsia

4. Management²

- Promptly refer to MO for further investigations and management for all women who present with hypertension in pregnancy with symptoms of preeclampsia.
- These women will likely require evacuation/hospitalisation for further investigations

5. Follow up⁶

- If not evacuated/hospitalised review according to MO instructions
- Once a diagnosis of preeclampsia is established, testing for proteinuria is no longer useful
- Consult MO promptly if BP raised again

6. Referral/consultation

- Consult MO on all occasions of BP > 140/90 mmHg in pregnancy

HMP Antepartum haemorrhage (APH)

VAGINAL BLEEDING AFTER 20 WEEKS GESTATION

Recommend^{1,2}

- APH associated with maternal or fetal compromise should be treated as an obstetric emergency
- Do not perform digital vaginal examination
- Suspect placenta praevia in any woman > 20 weeks who presents with vaginal bleeding

Background¹

- Antepartum haemorrhage (APH) is bleeding > 20 weeks gestation which is unrelated to labour or delivery. Causes may include:
 - **placenta praevia** (20%) - placenta partially or completely overlies the cervical os
 - **placental abruption** (30%) - part of the placenta has separated from the uterine wall:
 - bleeding may be concealed - retained in the uterine cavity
 - uterus tender ± uterine contractions
 - always consider in women with history of trauma e.g. motor vehicle crash, fall, domestic violence
 - **vasa praevia** (rare) - fetal blood vessels are present in the membranes covering the cervical os:
 - rupture of the vasa previa is an obstetric emergency and may lead to fetal death
 - **uterine rupture** (rare)
 - **unknown cause**
- See Queensland Clinical Guideline *Early Pregnancy Loss*: <https://www.health.qld.gov.au/qcg/publications#maternity>

Related topics

[Vaginal bleeding in early pregnancy, page 513](#)

1. May present with¹

- Vaginal bleeding > 20 weeks gestation - symptoms may vary depending on cause:
 - minor spotting
 - blood-stained amniotic fluid
 - like a period
 - massive haemorrhage
 - onset - sudden or gradual
- May have:
 - abdominal pain or cramping
 - back pain
 - contractions
 - been provoked by sexual intercourse
 - history of recent trauma
- If bleeding very heavy, may have signs of shock:³
 - ↑ HR, ↓ BP, ↑ RR

- restlessness
- sweating
- cool, clammy skin
- decreased urine output

2. Immediate management^{2,4}

- If blood loss is heavy or continuing, or increased HR, or hypotension/shock:
 - call for help
 - consult MO/NP urgently
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
 - commence sodium chloride 0.9% or Hartmann's solution 1000 mL - then as ordered by MO
 - continuously monitor - or at least every 15 minutes:
 - standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or other local Early Warning and Response Tools) + SpO₂
 - obtain rapid history/examination - **do not perform digital vaginal examination**
 - take blood for FBC, coagulation studies, group and x-match, LFT, UE
 - lie woman in left lateral position - not supine

3. Clinical assessment^{1,2}

- Obtain history of this presentation, including:
 - bleeding - amount, when did it start, any clots
 - was the bleeding provoked by sexual intercourse
 - any pain - where, how severe, continuous/intermittent:
 - consider placental abruption if continuous, or labour if intermittent
 - any recent trauma to abdomen - accidental or domestic violence
 - fetal movements - feeling as normal/decreased
 - smoking and drug use during this pregnancy
 - any other symptoms/concerns
- Obtain past history, including:
 - antenatal history - check records
 - estimate fetal age based on dating scan if available or LNMP
 - USS results if available - check location of placenta in the uterus
 - blood group and antibody status
 - obstetric history - prior pregnancies/vaginal birth or caesarean, previous placenta praevia or placental abruption, miscarriages/TOP
 - medicines and allergies
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or other local Early Warning and Response Tools)
- Perform physical examination:
 - estimate amount and rate of blood loss - check loss on pad
 - consider possibility of concealed bleeding - in uterine cavity
 - FHR (if skilled) - needs confirming with USS if not heard
 - palpate abdomen - is uterus soft, hard, tender, non-tender, contracting; check fundal height
 - if minor bleed take blood for FBC, group and hold

4. Management^{2,5}

- Consult MO on all occasions
- All women with APH heavier than spotting and with ongoing bleeding require evacuation/

hospitalisation

- USS required to exclude placenta praevia - irrespective of previous imaging results
- Keep nil by mouth
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- MO may request woman be catheterised
- Continue to monitor blood loss, pain, and standard clinical observations
- If Rh(D) negative with no pre-formed anti-D antibodies gestation offer Rh(D) immunoglobulin.⁶ See [Rh\(D\) immunoglobulin \(anti-D\) prophylaxis, page 508](#)
- If at risk of preterm birth, corticosteroids may be considered. See [Preterm labour, page 544](#)
- Further management in accordance with MO

5. Follow up

- Offer grief counselling for parents who have experienced antepartum haemorrhage with fetal death

6. Referral/consultation

- Consult MO on all occasions of vaginal bleeding in pregnancy

HMP Preterm prelabour rupture of membranes

Recommend^{1,2}

- Antibiotics are recommended to reduce the risk of neonatal and maternal infection, and delay the onset of preterm labour (prolong latency) and the need for indicated preterm delivery

Background¹

- PPRM refers to membrane rupture before the onset of uterine contractions < 37+0 weeks gestation
- PPRM is associated with potentially serious infections - chorioamnionitis, septicaemia - and risks to the fetus including cord prolapse, abruptio placentae and fetal malpresentation
- Genital tract infection is the single most common identifiable risk factor for PPRM
- The majority of pregnancies with PPRM deliver within a week of membrane rupture
- Diagnosis is generally based on visualisation of amniotic fluid in the vagina of a woman who presents with a history of leaking fluid, confirmed by laboratory tests if uncertain
- Nitrazine test (Amnicator®) is generally not recommended as a diagnostic tool for PPRM^{3,4}
- See Queensland Clinical Guideline: *Early Onset Group B Streptococcal Disease*: <https://www.health.qld.gov.au/qcg/publications#maternity>

1. May present with^{1,5}

- Pregnant woman < 37+0 weeks gestation who reports:
 - a gush of clear or pale yellow fluid from vagina
 - intermittent or constant leaking of small amounts of fluid
 - sensation of wetness within the vagina or on the perineum
 - seeing or feeling umbilical cord protruding from vagina

2. Immediate management⁶

- If umbilical cord is protruding treat as an obstetric emergency. See [Umbilical cord prolapse or presentation, page 569](#)

- Auscultate FHR if skilled - normal is 110-160/min:
 - if tachycardia or bradycardia:
 - reposition woman and recheck
 - check for cord prolapse
 - contact MO urgently

3. Clinical assessment¹

- Wherever possible a woman who is thought to have ruptured membranes should be assessed by a midwife or MO
- Ask about this presentation:
 - when did she first notice the fluid - date/time
 - how much - gush, small leak, just wetness
 - still leaking
 - colour of fluid - clear, yellow, green, bloody
 - any odour
 - fetal movements - feeling as normal/decreased
 - any abdominal or pelvic pain, contractions
 - fever, nausea/vomiting
 - any other symptoms/concerns
- Ask about this pregnancy:
 - antenatal history - check records
 - gravida/para
 - estimated gestation based on dating scan if available; or LNMP
 - any concerns or problems - diabetes, hypertension
 - STI tests performed, when, results
- Assess Group B *Streptococcus* risk. See [Group B Streptococcus prophylaxis, page 540](#)
- Obtain past history:
 - medicines, allergies
 - reproductive, sexual history
- Perform physical examination:
 - standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or other local Early Warning and Response Tools)
 - check for obvious vaginal fluid loss (check pad) - colour, offensive odour
 - urinalysis and collect MSU for MCS
 - FHR
 - abdominal examination - tenderness, fundal height, fetal lie and presentation, contractions (strength/length/frequency)
- Digital vaginal examination should be avoided due to risk of causing infection
- Perform sterile speculum examination if skilled to:
 - exclude cord prolapse
 - observe the cervix for dilation and/or effacement
 - check for pooling of amniotic fluid:
 - if fluid not immediately visible, ask woman to push on her fundus, Valsalva, or cough to provoke leakage of amniotic fluid from the cervical os
 - if PPROM is not obvious after visual inspection, Amnicator® can be used however is associated with false results (positive and negative)
 - collect LVS for MCS + LVS for chlamydia, gonorrhoea and trichomonas PCR. See [Sexually transmitted infections, page 615](#)

- Obtain combined LVS-anorectal swab for GBS.² See [Group B Streptococcus prophylaxis, page 540](#) for technique

4. Management

- If cord prolapse. See [Umbilical cord prolapse or presentation, page 569](#)
- Consult MO on all occasions
- MO may advise:
 - evacuation/hospitalisation
 - antibiotics:^{2,9}
 - erythromycin oral for 10 days OR
 - ampicillin (or amoxicillin) IV 6 hourly for 48 hours (followed by oral amoxicillin and erythromycin for 7 days)
 - betamethasone to accelerate fetal lung maturation.¹ See [Preterm labour, page 544](#)
- Continue to monitor woman and fetus until evacuation as per MO instructions

Schedule	4	Erythromycin	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, MID, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg	Oral	Adult 250 mg qid	10 days
Provide Consumer Medicine Information: Take on an empty stomach 1 hour before or 2 hours after food. May cause nausea, vomiting, diarrhoea, abdominal pain, cramps and candidiasis. Can be taken with food if causes stomach upset				
Note: If renal impairment seek MO/NP advice. Interacts with many drugs, including over the counter and herbal products. Use with caution in patients with myasthenia gravis.				
Contraindication: Severe or immediate allergic reaction to macrolides. Severe hepatic impairment				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

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Schedule	4	Ampicillin		Extended authority ATSIHP/IHW/IPAP
ATSIHP, IHW, IPAP, MID, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Powder for injection	500 mg 1 g	IV	2 g	stat Inject over 10-15 minutes
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, pain and inflammation at injection site				
Contraindication: Severe hypersensitivity to penicillins, carbapenems, and cephalosporin antibiotics. Do not mix with aminoglycosides e.g. gentamicin				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

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5. Follow up

- Evacuation/hospitalisation for ongoing management

6. Referral/consultation

- Consult MO on all occasions of suspected prelabour rupture of membranes

Labour and birth

HMP Group B *Streptococcus* prophylaxis

Recommend¹

- Assess all pregnant women for risk factors for Group B *Streptococcus* (GBS) antenatally and in early labour - to identify if intrapartum antibiotic prophylaxis (IAP) is recommended
- IAP should be given at least 4 hours prior to delivery where possible
- Routinely provide information to women about GBS and early onset GBS disease including: risk factors, risks and benefits of IAP to themselves and baby. See *Consumer information* at <https://www.health.qld.gov.au/qcg/publications#maternity>

Background¹

- GBS is the most frequent cause of early onset neonatal sepsis
- Maternal colonisation of the lower genital tract of GBS increases the risk of neonatal infection
- IAP given to at risk women can substantially reduce the rate of early onset GBS disease
- Queensland recommends a 'risk based approach' for the identification of women for whom IAP is indicated
- See Queensland Clinical Guideline *Early Onset Group B Streptococcal Disease*: <https://www.health.qld.gov.au/qcg/publications#maternity>

1. May present

- Routine antenatal visit
- Pregnant woman with urine pathology result of GBS
- Preterm labour with or without rupture of membranes (ROM)
- Term pre-labour rupture of membranes (PROM)

2. Immediate management Not applicable

3. Clinical assessment¹

- Review GBS risk factors if woman presents:
 - in labour
 - with rupture of membranes
 - for routine antenatal care
- If in labour and/or ruptured membranes, check:
 - gestation
 - have membranes ruptured, when
 - has woman reported a fever, when started, temperature - if known
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or other local Early

Group B *Streptococcus* (GBS) risk factors¹

- Preterm labour < 37+0 weeks
- Rupture of membranes ≥ 18 hours prior to birth
- Maternal T ≥ 38°C intrapartum or within 24 hours of giving birth
- GBS colonisation in current pregnancy
- GBS bacteriuria in current pregnancy - any colony count
- Previous baby with early onset GBS disease

All women with risk factors will require antibiotics in labour

4. Management:

- **If risk factors are detected as part of routine antenatal care:**
 - document the presence of GBS risk factors in health record
 - check allergy for penicillin and document
 - advise woman she will need antibiotics during labour
 - give information about GBS and intrapartum antibiotic prophylaxis (IAP)
- **If woman presents in labour and/or ROM and has GBS risk factors:**
 - always contact MO early for advice
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- **If risk factor is intrapartum maternal T ≥ 38°C (or T ≥ 38°C within 24 hours of birth):**
 - notify MO immediately
 - this may affect neonatal management
- **If PRETERM pre-labour rupture of membranes (PPROM):**
 - take culture for GBS
 - if imminent risk of birth - within 24 hours - give intrapartum antibiotic prophylaxis (IAP)
 - otherwise for management. See [Preterm prelabour rupture of membranes, page 537](#)

Culture for GBS¹

- Either vaginal-rectal swab OR vaginal perianal swab - woman may self-collect
- Use one single dry swab stick - insert into vaginal opening and then:
 - for vaginal-anorectal - insert into anus
 - for vaginal-perianal - swab the perianal surface without penetration of the anal sphincter
 - place into standard bacterial transport medium
 - label 'GBS screening in pregnancy'
- **If TERM pre-labour rupture of membranes (PROM) irrespective of GBS status:**
 - only commence antibiotics at onset of established labour if:
 - ROM duration is ≥ 18 hours at onset of established labour OR
 - during established labour, the duration of ROM reaches or exceeds 14 hours AND
 - birth is assessed as unlikely to occur before duration of ROM reaches 18 hours i.e. do not wait for the duration of ROM to equal 18 hours before commencing antibiotics

Antibiotics to give in labour i.e. Intrapartum Antibiotic Prophylaxis (IAP):

- If 1 or more risk factors for GAS - give antibiotics to women in active labour
- Commence after onset of labour - aim to give at least 4 hours prior to birth
- If not allergic to penicillin give:
 - benzylpenicillin 3 g IV once (loading dose) followed 4 hours later by:
 - benzylpenicillin 1.8 g IV every 4 hours until birth
- If allergic to penicillin give:
 - lincomycin 600 mg IV 8 hourly

If antibiotics (IAP) are given < 2 hours prior to birth i.e. birth too quick:

- Contact MO urgently
- If baby < 37+0 weeks they will require:
 - antibiotics within 30 minutes of birth
 - FBC with differential + blood cultures
 - see Queensland Clinical Guideline *Early Onset Group B Streptococcal Disease*: <https://www.health.qld.gov.au/qcg/publications#maternity>
- If baby > 37+0 weeks they will require:
 - FBC and observation for signs of infection for 48 hours

Schedule	4	Benzylpenicillin		Extended authority ATSIHP/IHW/IPAP/MID
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
MID may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	600 mg 1.2 g 3 g	IV Reconstitute with 10 mL water for injections, then dilute in 100 mL sodium chloride 0.9%	Loading dose 3 g	stat (at onset of labour) Infuse over 30 minutes to 1 hour
			Maintenance dose 1.8 g	4 hours after loading dose then 4 hourly until birth infuse over 30 minutes to 1 hour
Provide Consumer Medicine Information: May cause diarrhoea and nausea				
Note: Rapid IV injection of large doses may cause seizures				
Contraindication: 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, page 102				

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Schedule	4	Lincomycin		Extended authority ATSIHP/IHW/IPAP/MID
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO				
MID may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	600 mg/2 mL	IV Dilute in 100 mL sodium chloride 0.9%	600 mg	stat Give by infusion only over at least 1 hour then 8 hourly on MO order
Provide Consumer Medicine Information: May cause nausea, vomiting, diarrhoea, abdominal pain or cramps				
Contraindication: IV injection; severe cardiopulmonary reactions can occur. Must only be given by slow IV infusion. Severe or immediate allergic reaction to clindamycin or lincomycin				
Note: If renal or hepatic impairment seek MO advice				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

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5. Follow up

- Babies born to a woman at risk of GBS should be evacuated and have neonatal/paediatric review as soon as possible after birth
- If birth occurs prior to evacuation request neonatal support/advice from retrieval team

6. Referral/consultation

- Consult MO on all occasions of women presenting in labour or with ROM

HMP Preterm labour

Recommend^{1,2}

- Accept risk of birth occurring en route when gestational age is 23-28 weeks unless such transfer puts the mother's life at risk
- If clinically appropriate, use tocolytics to delay birth to allow in utero transfer and enable administration of corticosteroids to accelerate fetal lung maturation
- Corticosteroids are routinely recommended for women with a viable fetus who are at increased risk of preterm birth before 35+0 gestation to accelerate fetal lung maturation
- Magnesium sulfate is recommended for women between 24+0 and 30+0 weeks gestation where birth is expected or planned within 24 hours for neuroprotection

Background¹

- Preterm labour occurs at < 37+0 weeks gestation
- Fetal fibronectin fFN is a glycoprotein thought to promote adhesion between the fetal chorion and maternal decidua. It is normally present in small amounts in cervico-vaginal secretions between 18 and 34-36 weeks, rising as term approaches
- Quantitative fFN testing measures the likelihood of preterm birth (PTB). Be aware of false negative and positive results:
 - fFN < 50 ng/mL (negative) suggests low risk of birth within 7-14 days
 - fFN ≥ 50 ng/mL (positive) suggests increased risk of preterm birth
- Transvaginal ultrasound of cervical length (TVCL) by a credentialed clinician can assist in assessing the risk of PTB
- Antenatal corticosteroids are associated with a significant reduction in rates of neonatal death, respiratory distress syndrome and intraventricular haemorrhage
- See Queensland Clinical Guideline *Preterm Labour and Birth*: <https://www.health.qld.gov.au/qcg/publications#maternity>
- If gestational age is < 26+0 weeks also refer to the Queensland Clinical Guideline *Perinatal Care at the Threshold of Viability*: <https://www.health.qld.gov.au/qcg/publications#maternity>

Related topics

[Group B Streptococcus prophylaxis, page 540](#)

[Imminent birth, page 552](#)

1. May present with¹

- Pregnant woman < 37+0 weeks gestation with:
 - pelvic pressure
 - lower abdominal cramping
 - lower back pain
 - vaginal loss - mucous, blood or fluid
 - regular uterine contractions

2. Immediate management

- If birth is imminent. See [Imminent birth, page 552](#) and [Neonatal resuscitation, page 565](#)
- Send for help
- Contact MO urgently

3. Clinical assessment¹

- Wherever possible a woman who is thought to be in labour should be assessed by a midwife or MO
- Use prompts in [Labour 1st stage, page 548](#) to ask about:
 - this presentation
 - this pregnancy
 - past history
- Perform physical examination including:
 - standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or Intrapartum or other local Early Warning and Response Tools)
- Palpate abdomen - if skilled - to assess:
 - uterine tone
 - contractions
 - fetal size
 - presentation
 - FHR + CTG if available and skilled
- Obtain MSU for MCS
- If MO advises, and skilled, perform sterile speculum examination to:
 - visualise cervix/presenting part e.g. hair, feet or cord
 - check if membranes have ruptured
 - assess liquor - clear, meconium stained, bloody, pink
- Perform fetal fibronectin test if indicated (see table):
 - see test kit instructions
 - obtain the sample from posterior fornix of vagina - prior to any examinations
 - only use sterile water as lubricant
 - take HVS for MCS
- Obtain combined LVS-anorectal swab for GBS:
 - see [Group B Streptococcus prophylaxis, page 540](#) for technique
- If MO advises, assess cervical dilatation by sterile digital vaginal examination unless contraindicated by ruptured membranes or suspected placenta praevia

Fetal fibronectin (fFN) testing¹

Indications	Contraindications
• Symptomatic preterm labour between 22+0 and 36+0 weeks AND • Intact membranes AND • Cervical dilatation ≤ 3 cm	• Cervical dilatation > 3 cm • Ruptured membranes • Cervical stitch in situ • Presence of soaps, gels, lubricants or disinfectants Relative contraindications • Visual evidence of moderate or gross bleeding • Within 24 hours of sexual intercourse

4. Management^{1,3,4}

- Consult MO early who will:
 - organise evacuation to an obstetrics facility with neonatal capability
 - provide advice for ongoing management
- Aim for in utero transfer wherever possible:
 - if 23-28 weeks, accept a high level of risk for birth occurring en route - unless mother's life at risk
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- MO may advise transvaginal USS of cervical length (TVCL) if resources/skilled clinician available
- If woman has signs of uterine infection (chorioamnionitis) - maternal fever $> 38^{\circ}\text{C}$, HR > 100 , FHR > 160 , uterine tenderness, offensive vaginal discharge:
 - labour should not be stopped - MO will consider IV antibiotics
- To delay birth if < 34 weeks gestation MO may order tocolysis:
 - nifedipine 20 mg oral stat
 - if contractions persist after 30 minutes, repeat nifedipine 20 mg
 - if contractions persist after a further 30 minutes, repeat nifedipine 20 mg
 - if BP stable, nifedipine may be ordered 6 hourly for 48 hours
- Monitor:
 - FHR after contractions, or CTG (if available and skilled) until contractions cease
 - BP, HR and RR every 30 minutes
 - T 4 hourly
- To accelerate fetal lung maturation if $< 35+0$ weeks gestation MO may order:
 - betamethasone 11.4 mg IM
 - 2nd dose 24 hours later - or if preterm birth likely, consider giving 12 hours later
 - if maternal diabetes, monitor BGL
- Intrapartum antibiotic prophylaxis (IAP) will be required if:
 - preterm labour continues OR
 - there is imminent risk of birth within 24 hours. See [Group B Streptococcus prophylaxis, page 540](#)
- Continue to monitor woman and fetus until evacuation:
 - maternal BP, HR and RR at a minimum every 30 minutes
 - uterine contractions - every 15-30 minutes count number of contractions over 10 minutes
 - check vaginal loss hourly
 - FHR - every 15 minutes (at a minimum)
 - continue to closely liaise with MO
 - prepare woman for evacuation
 - provide emotional support for woman

Schedule	4	Nifedipine	Extended authority ATSIHP/IHW/IPAP/MID	
ATSIHP, IHW, IPAP and RN and RIPRN must consult MO				
MID may proceed to a max. of 2 doses				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet (conventional release)	10 mg 20 mg	Oral crush or chew first 2 doses to increase rate of absorption	20 mg	stat Repeat dose after 30 minutes if contractions persist. MO may order another dose If contractions persist for a further 30 minutes
Provide Consumer Medicine Information: May cause nausea, headache, flushing, dizziness, hypotension, peripheral oedema				
Note: May increase effects of magnesium sulfate and risk of hypotension; use cautiously Tocolytics contraindicated in any condition where prolongation of pregnancy is contraindicated e.g. intrauterine fetal death, lethal fetal anomalies, suspected fetal compromise, maternal bleeding with haemodynamic instability, severe preeclampsia, placental abruption, chorioamnionitis				
Contraindication: Maternal hypotension or cardiac disease				
Management of associated emergency: Consult MO. See Anaphylaxis, page 102				

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Schedule	4	Betamethasone	Extended authority ATSIHP/IHW/IPAP/MID	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
MID may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	5.7 mg/mL	IM	11.4 mg	stat Further doses on MO/NP orders
Provide Consumer Medicine Information: To accelerate fetal lung maturation				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5

5. Follow up

- Evacuation/hospitalisation for ongoing management

6. Referral /consultation

- Consult MO on all occasions of suspected preterm labour

HMP Labour 1st stage

Recommend¹

- Birth during transport should be avoided if possible
- There is a high level of risk of birth occurring en route when gestational age is 23-28 weeks
- Birth en route is to be avoided unless there is significant risk to the mother's life
- Vaginal examinations should only be performed if clinician is skilled in doing so
- *Intrapartum Record Form* available at: <https://clinicalexcellence.qld.gov.au/resources/clinical-pathways/maternity-clinical-pathways> ordered through local health service

Background^{2,3}

- This section of the PCCM is intended for facilities that do not have planned births
- First stage of labour:
 - latent phase - onset of painful contractions, not necessarily continuous with cervical dilatation ≤ 4 cm
 - active phase i.e. established labour - regular painful contractions with cervical effacement and dilatation of at least 4-6 cm. In active labour, cervical dilatation of 2 cm in 4 hours is considered normal. Dilatation of 0.5 cm per hour is generally accepted
- Second stage - time from full cervical dilatation to the delivery of the baby
- Third stage - time from the birth of the baby to the expulsion of placenta and membranes

Related topics

[Preterm labour, page 544](#)

[Imminent birth, page 552](#)

1. May present with³

- Pregnant woman with:
 - contractions - abdominal pain and tightening that comes and goes
 - rupture of membranes
 - a show - passage of bloody mucous
 - lower back pain

2. Immediate management

- If birth is imminent - baby visible, vulval gaping/bulging perineum, anal dilation, urge to push/ need to open bowels. See [Imminent birth, page 552](#)

3. Clinical assessment^{2,3,4}

- Wherever possible a woman who is thought to be in labour should be assessed by a Midwife or MO
- It is important to establish the stage of labour, and if there are any complicating factors
- Ask about this presentation:
 - uterine contractions - when started, frequency, duration, strength
 - have membranes ruptured, if so when
 - any vaginal loss:
 - discharge - colour, odour, consistency
 - blood - amount, colour
 - liquor - amount, odour, consistency, colour - clear, pink, green (meconium), blood
 - fetal movements - normal or decreased

- Ask about this pregnancy - check records if possible:
 - gestation - how many weeks pregnant - most accurate via dating scan:
 - preterm < 37 + 0 weeks
 - full term ≥ 37 weeks
 - has woman had antenatal care, where
 - one baby or more
 - hypertension and/or gestational diabetes
 - any other pregnancy complications/concerns
- Check investigation results:
 - placental position
 - Hb, syphilis
 - blood group (check if negative)
 - risk assessments. See [Antenatal care, page 500](#)
- Assess Group B *Streptococcus* risk. See [Group B Streptococcus prophylaxis, page 540](#)
 - if at risk, may need antibiotics during labour
- Obtain past history:
 - gravida/para - how many pregnancies and births
 - normal vaginal births or caesareans
 - medicines, allergies
 - medical, gynaecological, surgical, social
- Perform physical examination:
 - general appearance, nutrition and hydration status
 - standard clinical observations (full Q-MEWT Rural and Remote - Intrapartum or other local Early Warning and Response Tools)
 - urinalysis
- Palpate abdomen (if skilled) to assess:
 - fundal height - measure suprapubic bone to umbilicus in cm - this may give an indication of gestation if unknown
 - fetal lie - longitudinal, transverse, oblique
 - presentation - vertex (head), breech (buttocks/bottom)
 - position e.g. right occiput anterior
 - descent into pelvic brim - 5th of fetal head palpable above the symphysis pubis
- Palpate contractions:
 - rest hand on abdomen and feel tightening
 - note strength, frequency and length of each contraction over 10 minutes
- Check fetal (baby's) heart rate (FHR) - if skilled:
 - listen immediately after a contraction for 30-60 seconds
 - normal range 110-160/min
 - differentiate between maternal pulse - by taking radial pulse of mother concurrently
 - if FHR shows bradycardia or tachycardia:
 - change position of woman and recheck
 - immediately contact MO
- Assess vaginal loss:
 - nil, discharge, blood, liquor
 - colour, amount, odour, consistency
- A vaginal examination (VE) may be performed (if skilled) to aid decision making:
 - VE contraindicated if: maternal consent not obtained, antepartum haemorrhage, rupture of membranes and not in labour, placenta praevia, placental position unknown, suspected

- preterm labour
- prior to VE, auscultate FHR, ensure bladder empty, perform abdominal examination. If needed, cleanse vulva with water
- auscultate FHR post VE
- **Note:** cord presentation or prolapse should be excluded at every VE in labour. See [Umbilical cord prolapse or presentation, page 569](#)
- If spontaneous rupture of membranes (SROM) consider speculum instead of digital examination

4. Management

- In all cases, contact MO early for advice:
 - a decision will need to be made as to whether there is time to evacuate or if the woman will birth at the community
 - considerations will include: gestation, parity of woman, stage of labour on presentation, labour progression, staff availability/mix at the facility
- If evacuation planned, ensure pregnancy health records/antenatal records go with woman
- If birth is planned to occur in the community:
 - prepare/check equipment, and ensure assistance available. See [Imminent birth, page 552](#)
- If preterm and ruptured membranes but NOT IN labour:
 - see [Preterm prelabour rupture of membranes, page 537](#)
- If preterm and IN labour:
 - see [Preterm labour, page 544](#)

Care of the woman in active 1st stage labour³

- i.e. regular painful contractions with cervical effacement and dilatation of at least 4-6 cm
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- Ongoing monitoring of maternal and fetal wellbeing and progress of labour to be in close consultation with MO
- Provide continued reassurance and support to the woman - ensure privacy, calmness
- Involve support person/partner
- Assist woman to select position(s) in which she is most comfortable
- Encourage woman to drink to thirst, offer light food as desired
- Monitor the FHR during labour:³
 - every 15-30 minutes
 - after a contraction there should be no deceleration (slowing of FHR)
 - if FHR slows after contractions, ask the woman to change her position and recheck
 - advise woman not to lie flat on back due to potential supine hypotension
 - check FHR immediately after membranes rupture
 - if bradycardia or abnormal FHR urgently consult MO:
 - consider cord compression as a possible cause.⁵ See [Umbilical cord prolapse or presentation, page 569](#)
- Monitor contractions and maternal HR every 30 minutes
- Check:
 - vaginal loss hourly
 - 4 hourly:
 - BP, T - if elevated urgently consult MO
 - abdominal palpation and as needed to monitor progress
 - VE - assessment of cervical dilatation may need to be more frequent than would normally be undertaken in a maternity unit

- Encourage to empty bladder every 2 hours
- Signs of transition into 2nd stage of labour (7-10 cm dilated):
 - shakiness, irritability, nausea and vomiting
- Increase support for woman, continue to monitor progress, and prepare for birth

Offer pain management as required^{3,6}

- Try non-pharmacological approaches as long as possible e.g. mobilisation, shower, massage, heat therapy, breathing techniques
- Analgesia options if required:^{7,8}
 - nitrous oxide and O₂ (Entonox®)
 - consider a single dose of morphine if pain relief not satisfactory after all other strategies, and birth not imminent. See [Acute pain management, page 35](#)
 - a non-midwife must obtain an MO order for analgesia/antiemetic for women in labour
 - opioid may be more effective in early active labour; less effective after 7 cm dilatation
 - aim to give the lowest possible dose for adequate pain relief to minimise side effects
 - if birth is anticipated in 1-4 hours, consider the duration of action and effect on newborn during labour and following birth, assess for respiratory depression in mother and baby
 - consider antiemetic if needed. See [Nausea and vomiting, page 48](#)

Schedule	4	Nitrous oxide + oxygen (Entonox [®])	Extended authority ATSIHP/IHW/IPAP/MID/RIPRN	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
MID may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Premix gas (clear)	nitrous oxide 50% + oxygen 50%	Inhalation	self administered as needed	as required
Provide Consumer Medicine Information: Woman must self administer i.e. hold the mouthpiece or mask. Commence breathing Entonox [®] at early onset of contraction or 30 seconds prior if possible, continue until contraction eases. May cause nausea, vomiting, dizziness, drowsiness or shivering				
Note: Monitor sedation score and respiratory rate. Use with caution if vitamin B12 deficiency or if opioid has been administered				
Management of associated emergency: Consult MO/NP. Give oxygen if overdose. See Oxygen delivery, page 64				

7.9

7.9

5. Follow up

- Consider evacuation prior to or after birth

6. Referral/consultation

- Always consult MO

HMP Imminent birth

Recommend^{1,2}

- Birth during transport should be avoided if at all possible
- Wherever possible, the birth should be attended by a Midwife or MO
- Encourage woman to birth in an upright position, if she feels comfortable with this
- Modified active management of third stage labour is recommended to significantly reduce the risk of post-partum haemorrhage (using delayed cord clamping)

Background^{1,4}

- This section of the PCCM is intended for facilities that do not have planned births
- Full term birth is ≥ 37 weeks gestation
- Preterm birth is $< 37 + 0$ weeks and should generally be managed the same as a full-term birth
- Episiotomy is only indicated if potential fetal compromise is evident. Prophylactic episiotomy for preterm birth is not associated with improved neonatal outcome
- There is insufficient evidence in regards to:
 - hands poised or hands on techniques to avoid perineal trauma
 - guidance or flexion of the head to reduce perineal trauma
- Intrapartum Record Form at <https://clinicalexcellence.qld.gov.au/resources/clinical-pathways/maternity-clinical-pathways> (ordered through local health service)
- Imminent Birth education program for rural and remote non-midwives is available at: <https://ilearnexternal.health.qld.gov.au/>

Related topics

[Immediate care of the newborn, page 558](#)

[Neonatal resuscitation, page 565](#)

1. May present with^{1,5}

- Pregnant woman with:
 - strong contractions that come close together - feeling more intense and painful
 - urge to bear down/push
 - need to open bowels
 - bulging perineum and/or baby's head on view
 - anal dilation

2. Immediate management⁶

- Stay with woman
- Send for help
- Get Midwife or MO to assess the woman whenever possible
- Stay calm
- Ensure woman is in a safe, comfortable place, reassure and respect her privacy
- Prepare equipment e.g. emergency birth kit
- Put on protective glasses and gloves
- **Ask assistant to:**
 - contact MO for advice
 - insert 2 x IV cannula - use the largest possible gauge given age and vascular status

- prepare oxytocin 10 units:
 - draw up ready to give to mother IM immediately after baby born - kept in fridge
 - get MO order if needed
 - obtain consent from mother
- turn on/prepare incubator if available plus warm towels
- prepare neonatal resuscitation equipment and be ready to resuscitate the baby as needed. See [Immediate care of the newborn, page 558](#) and [Neonatal resuscitation, page 565](#)

3. Clinical assessment¹

- Obtain rapid history as able - in particular:
 - gestation - how many weeks pregnant: most accurate via dating scan
 - gravida/para - how many pregnancies and births
 - have membranes ruptured - when/colour of fluid
 - fetal movements - normal or decreased
 - has woman had antenatal care - where/any problems/concerns
 - diabetes, hypertension
 - allergies, medicines
 - any significant medical history

4. Management¹

Preparing for birth

- Encourage the woman to adopt a comfortable position for birth
- Avoid lying flat - potential supine hypotension
- If analgesia required:
 - offer nitrous oxide and O₂ (Entonox®). See [Labour 1st stage, page 548](#)
- Support the woman to use her own pushing instincts - do not tell her when/how hard to push
- Encourage voiding
- Continue to encourage/support mother

Monitor

- FHR towards the end of each contraction, continuing for at least 30-60 seconds after the contraction has finished (or at least every 5 minutes)
- maternal HR every 15 minutes, and as indicated to differentiate from FHR
- contractions - continually note frequency, strength, length
- vaginal loss - continually
- use Q-MEWT Rural and Remote - Intrapartum (or other local Early Warning and Response Tool)

The birth^{5,7}

- The head/presenting part will stretch the perineum as it comes down with contractions
- Prevent faecal contamination from the anal area using a pad as needed⁸
- Encourage woman to breathe gently and/or pant her baby's head out in a slow and controlled way if possible
- Discourage active pushing at the time of crowning to reduce the risk of perineal trauma⁹
- Either have 'hands poised' or place 'hands on' during birth of the head:⁵
 - no need to place firm pressure/resistance to maintain flexion of head

If feet or bottom presenting instead of head see [Breech birth, page 582](#)

- Once head born:
 - no need to check for cord around neck¹
 - do not rush to deliver the body
- Wait for next contraction and internal rotation of the shoulders and trunk:
 - the head will turn sideways
 - with the next contraction (or earlier) the shoulders should gently emerge
 - usually the anterior (top) shoulder slips out under the symphysis pubis first

If shoulders do not spontaneously come out:^{7,10}

- Place a hand on either side of the baby's head and apply slow gentle axial traction i.e. traction in line with the baby's spine - not in a downward direction or with force
- If shoulders STILL not coming out. See [Shoulder dystocia, page 579](#)

- Support the baby and lift towards the mother's abdomen:
 - encourage skin to skin contact with mother⁷
 - dry baby and remove wet towel(s)
 - cover baby with dry warm towel/blanket
- Note time of birth

If fetal compromise/distress during birth and delivery is being blocked by perineal tissue, consider episiotomy to expedite delivery (if skilled).⁹

See [Episiotomy and repair of perineum, page 562](#)

- Ask assistant to quickly assess newborn:¹⁰
 - within 15 seconds of birth check:
 - tone, breathing, HR
 - assistant to continue to care for newborn. See [Immediate care of the newborn, page 558](#)
 - if preterm, especially < 35 weeks, will likely require resuscitation. See [Neonatal resuscitation, page 565](#)
- **Immediately after baby born** :^{1,11}
 - check the uterus for another baby - the top of the uterus (fundus) should be no higher than the umbilicus and firm THEN
 - use modified active management of 3rd stage of labour to deliver placenta and membranes

Modified active management of 3rd stage of labour¹

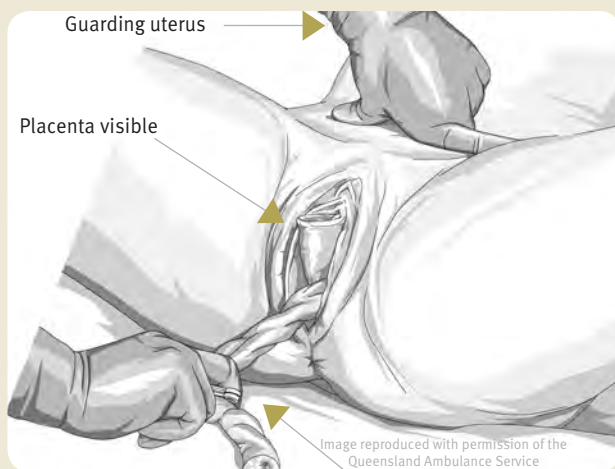
- Give IM oxytocin to mother - within 1 minute of birth and before cord clamped

Schedule	4	Oxytocin	Extended authority ATSIHP/IHW/MID/RIPRN	
ATSIHP, IHW and RN must consult MO				
MID and RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	5 units/mL 10 units/mL	IM	10 units	stat
Provide Consumer Medicine Information: May cause nausea and vomiting				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
				1,12

- Clamp and cut cord - use delayed cord clamping:¹
 - wait for 1-3 minutes after birth or for cord pulsation to cease
 - do not clamp cord < 1 minute after birth unless baby needs immediate resuscitation away from mother
 - 1st clamp about 10 cm from baby's abdomen
 - 2nd clamp about 5 cm from the 1st on the placenta side
 - cut cord using sterile scissors between the two clamps - by the clinician, mother or other person
- Use controlled cord traction (CCT) to deliver placenta if skilled^{1,11}
 - see **Controlled cord traction** instructions on following page
- If not skilled in CCT obtain MO advice

Controlled cord traction^{1,3}

- Ensure oxytocin has been administered to the mother
- Reclamp the cord closer to vaginal opening with metal forceps
- Do not commence CCT until signs of separation are observed
- **Signs of placental separation** - usually occurs within 2-3 minutes after oxytocin administration:
 - uterus rises in the abdomen, becomes firmer and globular (ballotable)
 - trickle or gush of blood from vagina
 - lengthening of the cord
 - woman may feel urge to bear down
 - placenta may become visible at vagina
- Avoid repeated palpation of uterus
- Apply suprapubic counter pressure **prior** to CCT
- Gently apply traction downwards on the cord while maintaining countertraction above the pubic bone
- As placenta delivers, hold in both hands and gently turn to twist the membranes
- Slowly tease out the membranes to complete birth



Application of cord traction until the placenta is visible

- **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 - risk of cord snapping or uterine inversion
 - hold the cord loosely - 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

Post-delivery of the placenta and membranes^{1,11}

- Immediately assess tone of uterus - check fundus is firm and central
- Massage the uterus if needed to ensure it remains contracted
- Be aware massaging fundus may be uncomfortable/painful for woman

- Note the time
- Measure/estimate blood loss
- If heavy or persistent ≥ 500 mL. See [Primary postpartum haemorrhage, page 572](#)
- If ≥ 350 mL MO may order misoprostol 800 micrograms as a secondary preventer of PPH³ (recommended in low resource areas). See [Primary postpartum haemorrhage, page 572](#)
- Observe maternal physical condition - colour, respirations, vaginal blood loss
- Maintain a private, calming and relaxing environment
- Examine the placenta and membranes for completeness promptly (if skilled):^{1,3}
 - placenta - does it look complete, general shape and appearance, calcification or infarctions, evidence of abruptions, succenturiate lobe
 - membranes - 1 amnion and 1 chorion, complete or ragged, presence of vessels
 - cord - note cord insertion site, look for 3 vessels (2 arteries, 1 vein), any velamentous insertion (vessels noted in membranes)
- If you are unsure of your placenta check - send placenta with woman when evacuated
- If mother is RhD negative blood group (or unknown) - collect cord blood for group and direct antiglobulin test (Coombs) + maternal blood for Kleihauer¹
- Dispose of placenta in accordance with mother's wishes. Respect cultural and personal perspectives. Woman has right to take placenta home

Post-birth observations and care:^{1,3,13}

Baby see [Immediate care of the newborn, page 558](#)

Mother for the first 2 hours post birth:

- Do not leave the mother and baby alone
- Continue skin to skin contact and encourage/support breastfeeding
- Avoid unnecessary mother-baby separation or interruptions
- Check using Q-MEWT rural and remote postnatal (or other local Early Warning and Response Tool):
 - uterus is firm and central 15-30 minutely
 - blood loss 15-30 minutely
 - HR, BP, RR - once after birth of the placenta
 - pain - initial assessment, review if indicated
 - urine output - encourage women to void soon after birth (within 2 hours)
 - T - within the 1st hour. If elevated contact MO promptly
- If heavy or continuing vaginal blood loss. See [Primary postpartum haemorrhage, page 572](#)
- If RhD negative blood group, review indications for RhD immunoglobulin. See [Rh\(D\) immunoglobulin \(anti-D\) prophylaxis, page 508](#)
- Take bloods for syphilis serology if:
 - syphilis infection in this pregnancy, OR
 - no antenatal screening at 34-36 weeks, OR
 - other high risk factors e.g. outbreak area: See Queensland Clinical Guideline *Syphilis in Pregnancy*: <https://www.health.qld.gov.au/qcg/publications#maternity>
- Inspect for perineal/vaginal trauma after first maternal observations:
 - maintain privacy, keep woman comfortable and warm
 - offer pain relief prior to assessment as needed. See [Acute pain management, page 35](#)
 - keep nil by mouth until assessment completed

- 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. If large blood loss from trauma. See [Primary postpartum haemorrhage, page 572](#)
- discuss need for sutures with evacuating MO. See [Episiotomy and repair of perineum, page 562](#)
- reassess perineum as indicated
- Ensure comfort and personal hygiene needs, offer food and drink, pain relief
- After 2 hours:
 - continue observations as above once in 8 hours while waiting for evacuation

5. Follow up

- MO will consider evacuation after birth

6. Referral/consultation

- Always consult MO

HMP Immediate care of the newborn

Recommend

- Routine suctioning of mouth, nose and pharynx not recommended even if exposed to meconium. Suctioning can delay normal rise in oxygenisation^{1,2,3}
- Promote skin to skin contact where possible to assist thermoregulation and breastfeeding^{4,5}
- Newborns are at risk of vitamin K deficiency bleeding (VKDB). Vitamin K prophylaxis is recommended for all babies (including preterm) as soon as possible after delivery. IM is the preferred route^{6,7}

Background^{1,2,3}

- It is normal for babies to be cyanotic at birth - pink colouring begins soon after onset of breathing. Persistent blue discolouration in extremities is normal after birth (acrocyanosis)
- Normal values in a term baby: RR 30-60 rpm, HR 95-160 bpm, T 36.5-37.5°C

Related topics

[Neonatal resuscitation, page 565](#)

1. May present with

- Immediately following birth

2. Immediate management²

- If preterm, particularly < 28 weeks. See [Neonatal resuscitation, page 565](#)
- Bring baby up to mother's chest
- Dry, keep warm, promote skin to skin contact
- Within 15 seconds of birth check:
 - tone - is baby moving limbs and have a flexed posture
 - breathing
 - HR - listen with stethoscope
- Establishment of breathing should maintain HR above 100 bpm within 1-2 minutes after birth

- If breathing and responsive:
 - maintain skin to skin contact, keep warm
 - encourage breastfeeding
- If weak or absent responses in term/near-term baby:¹
 - perform brisk gentle drying with soft warm towel to stimulate breathing
 - replace towel with warm one to prevent heat loss
- If HR < 100 and baby remains apnoeic or ineffective respirations e.g. gasps:³
 - commence respiratory support within 1 minute of birth at a rate of 40-60 breaths per minute. See [Neonatal resuscitation, page 565](#)
- Consider further resuscitative efforts if:
 - poor tone/floppy
 - persistent retraction of lower ribs and sternum/expiratory grunting
 - preterm < 35 weeks. See [Neonatal resuscitation, page 565](#)
- If skilled complete Apgar score at 1 and 5 minutes, then every 5 minutes until stable
- 5-minute Apgar of 7-10 is considered normal²

Apgar Score ¹			
Component	Score		
	0	1	2
Colour	cyanotic or pale	blue extremities	completely pink
Heart rate	none	1-99 bpm	≥ 100 bpm
Reflex irritability – response to mild stimulus	no response	grimace	cry, cough, or sneeze
Muscle tone	flaccid	some movement	active motion with good flexion
Respiratory effort	none	weak cry or hypoventilation	good cry

3. Clinical assessment⁹

- If term baby and well record:
 - every 15 minutes RR, colour, positioning for patent airway for first 2 hours
 - T and HR within 1 hour of birth
- Complete a brief head to toe examination within the first few minutes of life if skilled
- Review antenatal history to identify problems that may impact the baby:¹
 - chronic conditions e.g. diabetes
 - Rh-negative blood group
 - syphilis, HIV, hepatitis B
 - maternal medications and/or substance use during pregnancy
 - other concerns about fetal or maternal wellbeing
- Assess for risk factors for Group B *Streptococcus*. See [Group B Streptococcus prophylaxis, page 540](#)
- Review labour history in particular:¹
 - prolonged rupture of membranes > 18-24 hours - may increase risk of neonatal sepsis
 - any meconium

- Assess for risk for hypoglycaemia. See **Risk factors for hypoglycaemia**
- Note first urine and passing of meconium (stool)
- After first feed and at least 1-2 hours of skin to skin contact:⁹
 - bare weigh baby
 - measure length and head circumference

Risk factors for hypoglycaemia⁴

- < 37 weeks gestation
- Maternal diabetes
- Birth weight < 2500 g
- Small or large for gestational age
- Hypothermia
- Labile temperature
- For additional risk factors See Queensland Clinical Guideline *Newborn Hypoglycaemia*: <https://www.health.qld.gov.au/qcg/publications#maternity>

4. Management¹

- Contact MO/NP early for advice
- Work on the principle of keeping the baby pink, warm and BGL normal
- Continue skin to skin contact for 1-2 hours post birth
- Offer breastfeeding help as needed⁹
- Confirm the baby's identification arm and leg bands with the mother and secure them on the infant
- Place a plastic cord clamp not less than 2 cm from the baby's skin
- Administer Vitamin K as soon as possible after birth⁶
- Offer birth hepatitis B vaccination.¹⁰ See [Immunisation program, page 768](#)
 - best given in first 24 hours of birth as soon as baby is medically stable
 - if mother is HBsAg-positive baby requires concurrent HBIG and a monovalent Hepatitis B vaccine on day of birth
- If mother had syphilis in pregnancy OR if baby has a clinical suspicion of syphilis (rash, hepatomegaly, rhinitis, lymphadenopathy, other):
 - further assessments and treatment required
 - See Queensland Clinical Guideline *Syphilis in Pregnancy*: <https://www.health.qld.gov.au/qcg/publications#maternity>

Schedule**Unscheduled****Vitamin K (Konakion®)**

ATSIHP, IHW, IPAP must consult MO/NP

MID, RIPRN and RN may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Injection	2 mg/0.2 mL	IM	Newborn 1 mg ≥ 1.5 kg 0.5 mg < 1.5 kg	stat As soon as possible after birth

Provide Consumer Medicine Information: May cause pain at the injection site

Note: Ampoule may be given orally if skill set not available to give IM. IM more reliable

Management of associated emergency: Consult MO/NP. See [Anaphylaxis, page 102](#)

7

If assessed at risk of hypoglycaemia in an asymptomatic well baby⁴

- Keep warm and dry
- Initiate early feeds within 30-60 minutes of birth
- Discuss with MO/NP need for gavage feeds if < 35 weeks
- If fed effectively:
 - take BGL via heel prick prior to second feed - within 2-3 hours of birth
 - aim for BGL > 2.5 mmol/L
 - repeat BGL every 4-6 hours pre-feed
 - aim for feeds at least 3 hourly or sooner if baby demanding
 - check level of consciousness, tone, T, RR, colour/perfusion pre-feeds for minimum of 24 hours
- If did not feed effectively, but baby well/asymptomatic:
 - express/give colostrum
 - check BGL at 2 hours of age
- If BGL 1.5-2.5 mmol/L:
 - feed immediately and contact MO/paediatrician promptly for further advice
 - MO may consider 0.5mL/kg glucose gel 40% prior to feed if baby ≥ 35 weeks - if available and baby able to swallow/is well
 - confirm BGL < 2 with iStat if available
 - repeat BGL in 30-60 minutes
- If BGL < 1.5 mmol/L urgently discuss with MO/neonatologist

5. Follow up

- Newborn check of baby is required by Midwife/MO/paediatrician within 48 hours of birth

6. Referral/consultation

- Contact MO early for all unplanned births in the community
- If Aboriginal and Torres Strait Islander baby refer for BCG vaccine - only specially trained clinicians can give

HMP Episiotomy and repair of perineum

Recommend

- Episiotomy should only be performed if there is a clinical need i.e. suspected fetal compromise to expedite birth^{1,2}
- Episiotomy and perineal repair should only be performed by a skilled Midwife/MO²

Background

- The routine use of episiotomy is not recommended to prevent perineal trauma¹
- Continuous sutures are recommended over interrupted sutures for perineal repair for a reduction in short term pain and ease of technique⁴
- Leaving perineal trauma un-sutured is associated in poorer wound healing³

1. May present with^{1,2}

- Perineal trauma post episiotomy or tear post birth
- Episiotomy indicated - fetal distress during birth requiring expedited delivery, and where the perineum is obstructing the progress of the presenting part

2. Immediate management

- Midwife/MO should only perform episiotomy – contact urgently if required

3. Clinical assessment²

- Post birth examination of the perineum:
 - to be completed by Midwife/MO trained in perineal assessment
 - ensure privacy, cultural sensitivity and comfort for mother. Encourage support person to be present if desired by mother
 - provide adequate pain relief prior to and during procedure e.g. nitrous oxide and O₂ (Entonox®). See [Labour 1st stage, page 548](#) and/or [Acute pain management, page 35](#)
 - undertake a systematic assessment of perineal structures. See Queensland Clinical Guideline *Perineal Repair* for detailed assessment: <https://www.health.qld.gov.au/qcg/publications#maternity>
 - if in doubt as to extent of injury, refer to MO/more experienced practitioner

4. Management

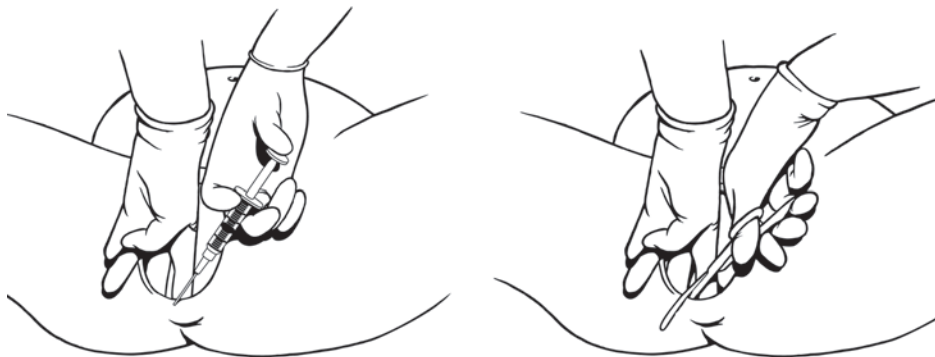
- Until repaired, treat as an open wound
- Obtain informed consent

Cutting an episiotomy³

- Ensure there is good vision/lighting at all times
- Between uterine contractions infiltrate lidocaine (lignocaine) 1%:
 - insert 2 fingers into vagina along the line of proposed incision
 - separate the presenting part from the perineum
 - infiltrate about 5 mL of lidocaine (lignocaine) 1% in perineum at a 45° angle (right side at 7 o'clock) repeating twice either side of initial infiltration (up to 15 mL)
 - apply pressure over injection site
- Place two fingers in the vagina, position blades of episiotomy scissors between fingers
- Make a cut 4-5 cm long through infiltrated area at the height of the contraction at which the birth is

anticipated

- Immediately prepare to control the birth of the head
- Apply pressure to the episiotomy between contractions if there is a delay in the birth



Repair of the perineum²

- 1st and 2nd degree tears should only be repaired by an experienced Midwife or MO/NP trained in perineal/genital assessment and repair
- 3rd and 4th degree tears should only be repaired by expert practitioner (Obstetrician)
- Repair skin (1st degree tear) with continuous subcuticular suture or consider surgical glue
- 2nd degree tears - use rapid absorbing synthetic suture e.g. 2.0 Vicryl Rapide® using continuous non-locking suture technique for all layers (vagina, perineal muscles) with a subcuticular stitch or glue for the skin
- Undertake rectal examination post repair to exclude rectal penetration
- Repairs can be left for the receiving hospital
- Discuss care of perineum with woman:²
 - use cooling treatment (ice pack or cold gel pad) for 10-20 minutes for 24-72 hours as needed
 - analgesia such as paracetamol may help with pain
 - support perineal wound when defecating or coughing
 - give advice on:
 - positioning e.g. side lying for breastfeeding
 - avoiding activities that increase intra-abdominal pressure e.g. straining/lifting
 - wash and pat dry perineal area after toileting
 - change perineal pads frequently and shower at least daily
 - encourage 1.5-2 litres of water per day and healthy diet to prevent constipation

Schedule	4	Lidocaine (lignocaine)	Extended authority MID	
MID may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	1% 50 mg/5 mL	subcut	up to 3 mg/kg to a total max. of 200 mg	stat
Provide Consumer Medicine Information: Report any drowsiness, dizziness, blurred vision, vomiting or tremors				
Note: Use the lowest dose that results in effective anaesthesia				
Management of associated emergency: Ensure resuscitation equipment readily available. Consult MO/NP. See Anaphylaxis, page 102				

5

5. Follow up

- Advise woman to check the wound daily using a hand mirror for signs of infection, or wound breakdown
- Advise to contact doctor or midwife if any concerns

6. Referral/consultation

- Woman will likely be evacuated to a higher-level service post-delivery - discuss with MO
- If a 3rd of 4th degree tear ensure woman has been referred to a physiotherapist⁶

Emergencies during labour and birth

Neonatal resuscitation

Recommend¹

- Ensure neonatal resuscitation equipment and medicines are available for all births
- Provide a warm and draft free environment - aim for air temperature of 23-25°C or at least 26°C if baby < 28 weeks gestation
- At least one person should be responsible for the care of the baby only
- Resuscitate baby on resuscitation trolley with overhead heater if available - head towards clinician
- Naloxone is rarely used for newborn babies. Positive pressure ventilation (PPV) is the priority for babies suspected of having respiratory depression as a result of maternal opioids

Background¹

- This section of the PCCM is intended for facilities that do not have planned births
- Assessment of colour is an unreliable means of judging oxygenation. Cyanosis is difficult to recognise in newborns
- Risk factors for neonatal resuscitation include but are not limited to:
 - prematurity, particularly < 35 completed weeks; meconium in amniotic fluid; no/minimal antenatal care; reduced fetal movements at onset of labour; prolapsed cord; prolonged labour or precipitate/fast labour; opioid administration to mother within 4 hours of birth; maternal fever, diabetes, or substance use; prolonged rupture of membranes > 18 hours; shoulder dystocia
- See Queensland Clinical Guidelines *Neonatal Resuscitation* and *Neonatal Stabilisation for Retrieval*: <https://www.health.qld.gov.au/qcgp/publications#maternity>
- Neonatal resuscitation education programs available at: <https://ilearnexternal.health.qld.gov.au/>

Related topics

[Immediate care of the newborn, page 558](#)

1. May present with¹

- Newborn who is/has:
 - unresponsive to drying/tactile stimulation
 - HR < 100 or absent HR
 - poor colour - blue/white
 - gasping, absent, laboured or poor respiratory effort
 - poor muscle tone/limp

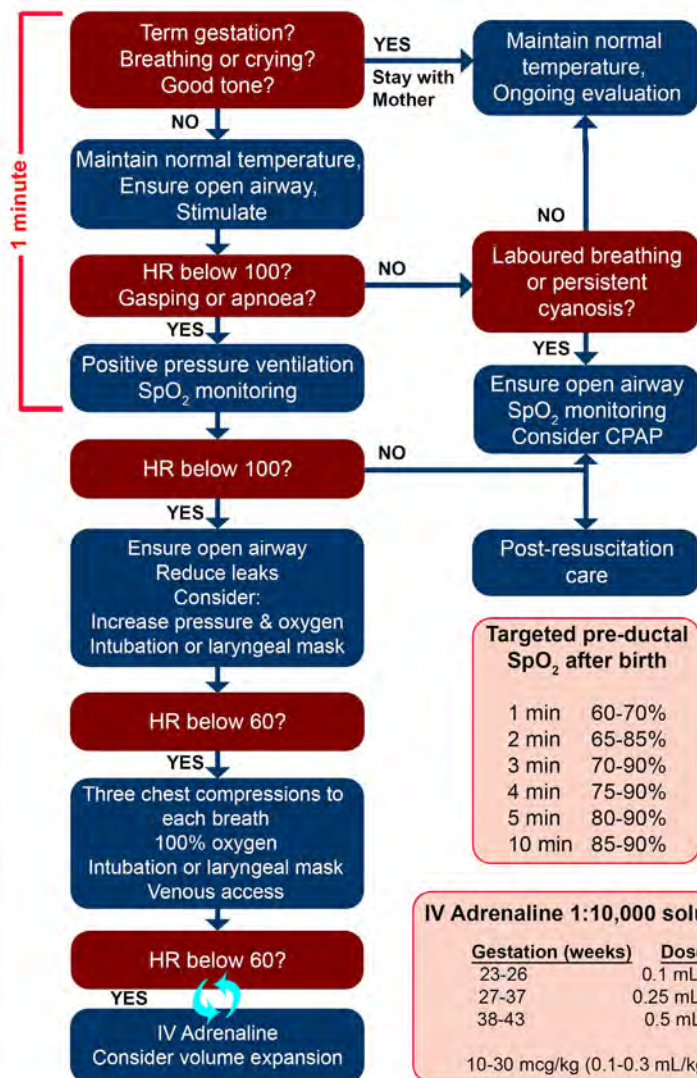
2. Immediate management^{1,3,4,5}

- Call for help
- Urgently contact MO/NP
- Commence resuscitation. See [Newborn Life Support flowchart, page 567](#)
- If < 28 weeks resuscitate in polyurethane (plastic) bag for warmth - no need to dry first
 - see **Special considerations for preterm babies** on following pages

- **Establish airway:**
 - place baby on back with head in neutral or slightly extended position - sniffing position
 - place a 2 cm thick roll of blanket or towel under the shoulders and/or support lower jaw and open baby's mouth to improve airway patency as needed
- Routine suctioning NOT recommended - even if exposed to meconium
- Suction if obvious signs of obstruction to spontaneous breathing or PPV e.g. respiratory efforts with no audible air entry to lungs; coarse crackles audible:
 - gently use a 10-12 F suction catheter passed no more than 5 cm from lips in term baby
 - only for a few seconds
- **If HR < 100 AND remains either apnoeic or ineffective respirations (gasps):**
 - commence respiratory support within 1 minute of birth at a rate of 40-60 breaths per minute
 - use room air unless advised by MO otherwise
- **Place pulse oximeter sensor** on baby's right hand or wrist (pre-ductal) to monitor HR and SpO₂:
 - for targeted levels of SpO₂ after birth see [Newborn Life Support flowchart, page 567](#)
- Effective ventilation will almost always be enough to resuscitate baby:
 - indicated by chest wall movement, improvement in HR and SpO₂
- **If little or no visible chest wall movement, improve the technique of ventilation:**
 - check face mask fits well, with minimal leak
 - check neck and jaw position
 - occasionally an oropharyngeal airway/LMA may be useful if ≥ 34 weeks or > 2000 g
- **After 30 seconds of ADEQUATE assisted ventilation check HR:**
 - if HR < 60 commence chest compressions
 - aim for 90 compressions per minute with ½ second pause every 3rd compression to deliver an inflation
- **Continue to resuscitate as per the [Newborn Life Support flowchart, page 567](#)**
- MO may order adrenaline (epinephrine) if HR remains less than 60 bpm:
 - umbilical vein is preferred route if skilled, otherwise consider intraosseous route. See [Intraosseous infusion, page 69](#) and [Newborn Life Support flowchart, page 567](#) for doses

Newborn Life Support

At all stages ask: do you need help?



January 2016



NEW ZEALAND
Resuscitation Council
WHAKAHAUORA AOTEAROA

Special considerations for preterm babies⁶

- Respiratory support will be required for most very preterm babies
- **Temperature:**
 - very premature babies are at particular risk of hypothermia
 - if < 28 weeks resuscitate baby wrapped in polyethylene bag or under polyethylene sheet up to the neck (until alternative methods of thermal control available) e.g. zip lock bag, oven bag, NeoWrap®
 - **do not cover head with plastic**
 - no need to dry baby before placing in bag - head only needs drying.
 - apply bonnet/folded bedding to head (pre-warmed if possible)
 - provide tactile stimulation through bag
 - using a radiant warmer if available
 - do not remove the bag/wrap during resuscitation. Keep in place until temperature has been checked and pre-warmed humidified incubator available
 - if possible, room temperature should be at least 26°C



- **Handling and skin protection:**
 - handle gently - premature infants are at increased risk of damage to skin and internal organs
 - ensure adherence to good infection control
 - if using antiseptic for umbilical catheterisation, use sparingly and avoid pooling in groin/flanks - particularly alcohol based which can cause serious damage to immature skin

3. Clinical assessment^{1,7}

- Record Apgar score at 1 and 5 minutes after birth, and then every 5 minutes until HR and breathing are normal. See [Immediate care of the newborn, page 558](#)
- Post resuscitation:
 - continue to closely monitor SpO₂, HR, RR and respiratory effort, tone
 - after 10 minutes of age target SpO₂ is:
 - term babies 92-98%
 - preterm babies 90-95%
 - check BGL - infants who require resuscitation are more likely to develop hypoglycaemia. See [Immediate care of the newborn, page 558](#)
 - MO may consider further investigations/antibiotics as resuscitation may be a consequence of the onset of sepsis

4. Management^{7,8}

- Post resuscitation:
 - keep warm and maintain T 36.5-37.5° C
 - continue routine newborn management including administration of Vitamin K
 - prepare baby for retrieval in consultation with retrieval team and MO/NP
 - maintain close monitoring of baby until evacuation occurs
 - provide support to the mother and family, and keep informed - resuscitation of a baby will be distressing for parents

5. Follow up

- Mother and baby should be subsequently managed in maternity service⁷

6. Referral/consultation

- Consult MO/NP on all occasions

Umbilical cord prolapse or presentation

Recommend

- Umbilical cord prolapse is an obstetric emergency - the cord can be compressed, cut off O₂ to the baby and can result in asphyxia or death¹
- Cord presentation or prolapse should be excluded at every vaginal examination in labour²
- Always listen to FHR after membranes rupture - suspect cord prolapse if bradycardia or abnormal FHR pattern^{2,3}
- Speculum and/or digital vaginal examination should be performed if cord prolapse is suspected

Background

- **Cord prolapse** is where the umbilical cord is felt in front of the presenting part after rupture of membranes (ROM):^{2,3}
 - ROM must occur for umbilical cord to prolapse. Most cases occur shortly after
 - can occur in any situation where the presenting part (of the baby) does not fit well into the mothers pelvis e.g. prematurity
 - can sometimes be difficult to confirm if the cord is not visible or palpable
 - wrapping swabs soaked in warm saline around the cord exposed to air is of unproven benefit²
- **Cord presentation** occurs when the umbilical cord is felt in front of or near the fetal presenting part. If membranes rupture, cord will prolapse⁴

1. May present with

- Cord prolapse:³
 - fetal bradycardia or abnormal FHR after rupture of membranes
 - cord visible or palpable (smooth pulsating band) in vagina or on vulva after membranes rupture
 - palpation of the cord below the presenting part during vaginal examination
- Cord presentation:⁴
 - on digital vaginal examination cord is felt in front of presenting part of baby
 - membranes intact
 - fetal bradycardia or abnormal FHR

2. Immediate management^{1,2}

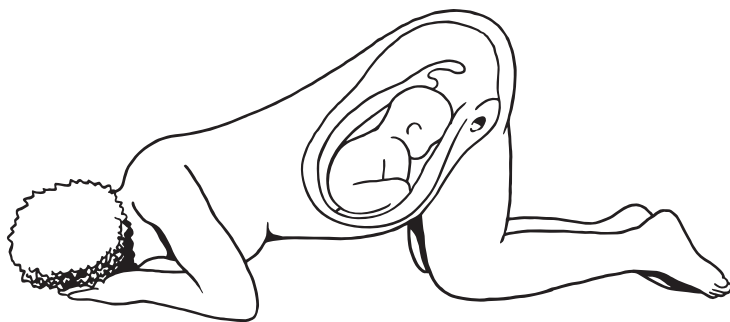
- Call for help
- Consult MO urgently
- If abnormal FHR after membranes rupture:
 - perform urgent speculum/digital vaginal examination to check for cord (if skilled)
- Aim is to stop cord compression

If cord has prolapsed^{2,3,5}

- Promptly:
 - assist mother into the knee-chest face-down position (see diagram)
 - put two gloved fingers into the vagina and gently push the presenting part of the baby upwards off the cord
 - avoid putting pressure on cord
 - if the cord is outside of the vagina, attempt to replace it back into the vagina with a DRY pad:
 - minimise handling as can cause vasospasm
- Insert urinary catheter:
 - run 500 mL of sodium chloride 0.9% into the bladder using an IV giving set:
 - check that the IV giving set is a good fit with the catheter and that fluid can be effectively squeezed into the bladder without undue leakage
 - clamp the catheter - filling the bladder may hold the presenting part off the cord
 - the fingers holding the presenting part of the baby can now be withdrawn
 - discuss with MO the timing to release clamp and amount of urine to drain
- Woman needs to stay positioned:
 - knee-chest face-down (while waiting for transport) OR
 - left lateral with head down and pillow(s) under left hip (during transport) until baby can be delivered safely via caesarean section
- Monitor FHR closely to assess adequacy of measures above (normal is 110-160/min)
- If FHR not heard, continue with above measures until an USS can be performed

If cord presentation suspected⁴

- Act promptly
- Perform vaginal examination to confirm/exclude if not already done (and skilled)
- Elevate the pelvis of the woman so that the presenting loop can slip back up, or if possible, knee-chest position as above,
- Follow with lateral supine position - ask woman to lie on the opposite side to which the cord is presenting (if known), keep pelvis elevated with pillow(s) under hip
- Monitor FHR to check if returns to normal after positioning - if remains abnormal try repositioning to other side
- Be guided by MO for further management



3. Clinical assessment

- Obtain rapid history of:
 - this presentation, pregnancy history and past history
 - see [Preterm prelabour rupture of membranes, page 537](#) for prompts
- Perform physical examination as able:
 - standard clinical observations (full Q-MEWT Rural and Remote - Antenatal or other local Early Warning and Response Tools)
 - FHR
 - palpate contractions
 - assess liquor - clear, meconium stained, bloody

4. Management²

- Urgently contact MO who may:
 - order tocolytics to suppress labour. See [Preterm labour, page 544](#)
 - organise urgent evacuation for caesarean section
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- Keep nil by mouth
- Provide emotional support for woman and partner/support person. Keep informed
- In isolated areas, if a woman presents with a cord prolapse, the baby may have already died. However, unless this is certain, it is best to act as above

5. Follow up²

- Offer ongoing support to woman/refer to perinatal mental health supports
- After obstetric emergencies women can be psychologically affected by post-natal depression, post-traumatic stress disorder or fear of further childbirth
- Women with cord prolapse and those requiring urgent transfer to hospital may be particularly vulnerable to emotional problems

6. Referral/consultation

- Consult MO urgently on all occasions of umbilical cord presentation or prolapse

HMP Primary postpartum haemorrhage (PPH)

Recommend¹

- Major blood loss can develop rapidly without warning in the absence of haemodynamic compromise. Close monitoring and rapid response is critical
- Visual estimation of blood loss often leads to underestimation. Also consider nature and speed of blood loss, and clinical findings due to hypovolaemic shock to guide loss estimation
- Use warm IV fluids if warming device available; do not use microwave
- Give tranexamic acid in addition to uterotonics - reduces blood loss and death especially if given within 3 hours of birth

Background^{1,2,3,4}

- Primary postpartum haemorrhage occurs within 24 hours of birth, generally > 500 mL and is a leading cause of maternal morbidity and mortality
- Common causes of PPH are referred to as the 'Four T's': **T**one - uterus not contracting (70%); **T**rauma e.g. of perineum/vagina (20%); **T**issue - retained products/placenta/membranes (10%); and **T**hrombin - coagulation abnormalities (< 1%)
- Risk factors for PPH include (but not limited to):
 - ≥ 35 years, BMI ≥ 30; parity > 3; gestational diabetes; anaemia; multiple pregnancy; previous PPH; fibroids; anaemia; antepartum haemorrhage; placenta praevia; prolonged labour; perineal trauma; non-cephalic presentation; polyhydramnios; premature rupture of membranes; T > 38 °C in labour

Related topics

[Secondary postpartum haemorrhage, page 586](#)

1. May present with^{1,5}

- Bleeding ≥ 500 mL immediately post birth or up to 24 hours later:
 - ≥ 1000 mL is severe
 - ≥ 2500 mL is very severe
- Slow steady trickle of blood after third stage of labour
- Signs of shock:
 - ↑ HR, ↓ BP, ↑ RR
 - restlessness, sweating, cool, clammy skin
 - decreased urine output
- Tachycardia and narrow pulse pressure (systolic BP minus diastolic BP) may occur early in severe PPH⁴
- Amount of vaginal bleeding may look normal if intra-abdominal sources of bleeding e.g. ruptured uterus, haematoma, subcapsular liver rupture⁶

Clinical findings in PPH¹

Blood loss (mL)	Systolic BP	Signs and symptoms	Degree of shock
500-1000	normal	palpitations, dizziness, tachycardia	compensated
1000-1500	slight decrease	weakness, sweating, tachycardia	mild
1500-2000	70-80 mmHg	restlessness, pallor, oliguria	moderate
2000-3000	50-70 mmHg	collapse, air hunger, anuria	severe

2. Immediate management¹

- Act quickly to resuscitate, treat shock and identify cause simultaneously
- Send for help
- DRS ABC as relevant. See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Contact MO urgently
- Assign person to care for baby
- Ensure routine third stage oxytocin given. See [Imminent birth, page 552](#)

If placenta out

- Rub fundus (top of uterus) until it is a hard ball
- Expel clots from uterus if needed - cup fundus with palm of hand, compress uterus between thumb and fingers
- Insert IDC to empty bladder
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status:
 - 1 line for fluids, 1 for medicines
 - use intraosseous if IV not obtained
- If still bleeding:
 - continue to rub fundus if boggy/not contracting
 - give oxytocin 5 units IV over 1-2 minutes
 - give rapid IV fluids (warmed if possible) - Hartmann's or sodium chloride 0.9% 1000 mL
 - repeat dose of oxytocin in 5 minutes if needed
 - start oxytocin infusion 30 units in 500 mL sodium chloride 0.9%
 - MO may order:
 - ergometrine + antiemetic. See [Nausea and vomiting, page 48](#)
 - misoprostol - takes 1-2.5 hours to work (early administration may help sustain uterine tone)

If STILL BLEEDING excessively and uterus not firming - start bimanual compression

- If trailing membranes use sponge holder to remove:
 - without traction, grasp membranes and roll forceps to create a rope
 - use up and down motion and gentle traction to remove
- Check placenta and membranes are complete

Look for other causes if placenta and membranes delivered and look intact, uterus well contracted and STILL BLEEDING¹

- Trauma:
 - examine perineum, cervix and vagina
 - apply firm pressure to bleeding areas, or clamps to bleeding vessels until repair possible
- Thrombin - look for:
 - haematuria, petechial conjunctival and mucosa haemorrhage
 - blood that no longer clots - look on bed or floor
 - $T < 35^{\circ}\text{C}$
 - uterine atonia (not contracting)

If placenta NOT out

- Reattempt controlled cord traction. See [Imminent birth, page 552](#)
- Insert IDC to empty bladder
- Encourage maternal pushing and repositioning
- Insert 2 x IV cannula - use the largest possible gauge given age and vascular status:
 - 1 line for fluids, 1 for medicines
 - use intraosseous if IV not obtained
- If still bleeding:
 - give oxytocin 10 units IV or IM
 - give rapid IV fluids (warmed if possible) - Hartmann's or sodium chloride 0.9% 1000 mL
 - do vaginal examination to check if placenta remains in uterus. If felt protruding through cervix or lying high in vagina gently attempt to remove
 - if placenta not coming out or incomplete, will require transfer to appropriate equipped facility for manual removal
 - as a life saving measure MO may advise manual removal of the placenta in the community. See Manual removal of the placenta box

If STILL BLEEDING excessively - start bimanual compression

In all cases

- Assess rate and volume of bleeding - use caution with underestimation:
 - weigh bloody linen, drapes, bluey's/pinkies if practical
- Lie flat
- If hypotensive position feet higher than head by 15-30°
- Give O_2 via face mask at 10-15 L/min regardless of SpO_2 . See [Oxygen delivery, page 64](#)
- Keep warm, aim for $T > 36^{\circ}\text{C}$
- Continuously monitor (or at least 15 minutely) standard clinical observations (full Q-MEWT Rural and Remote - Postnatal or other local Early Warning and Response Tools)
- Continue fluid resuscitation:
 - MO will order more IV fluids (up to 2 L crystalloids, up to 1.5 L colloids)
 - early blood transfusion preferred for continued bleeding if available
 - monitor fluid balance, aim for urine output ≥ 30 mL/hour
- Give tranexamic acid on MO order as soon as possible (within 3 hours)

- Take urgent bloods time permitting:
 - full chemistry profile (Chem20), FBC
 - coagulation profile, blood gas including calcium and lactate
 - consider blood cross match if no group or cross match sample available or woman has significant antibodies
 - if intraosseous route used for bloods, make note on pathology form
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Massive Haemorrhage Protocol may be activated by MO as per local policy if actively bleeding and ANY of the following:
 - blood loss > 2500 mL
 - anticipated 4 units of blood required in < 4 hours AND haemodynamically unstable
 - evidence of coagulopathy

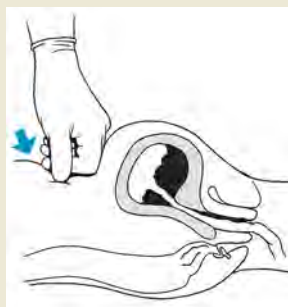
Bimanual compression¹

- With one hand:
 - keeping fingers straight and thumb tucked in palmar side of index finger, insert hand into the vagina with palm facing woman's thigh
 - once fingers meet resistance roll the hand so palm is upward, and curl fingers into a fist
 - place fist in anterior fornix of the vagina and apply upwards pressure
- With the other hand:
 - locate the top of the uterus (fundus)
 - deeply palpate to put the fingers behind the fundus
 - cupping the fundus, compress it firmly around the fist that is in the vagina
 - keep compressed and evaluate effect



Aortic compression² (if MO advises)

- Aim is to conserve blood by cutting off supply to pelvis via compression:
 - place left fist just above and to the left side of the woman's umbilicus
 - before exerting pressure, feel femoral artery for a pulse using right hand
 - slowly lean over woman to increase pressure over aorta
 - check pulse is now non-palpable in femoral artery - adjust position of fist as needed
 - keep monitoring femoral pulse while aorta is being compressed



Schedule

4

Oxytocin

Extended authority

ATSIHP/IHW/IPAP/MID/RIPRN

ATSIHP, IHW, IPAP and RN must consult MO

MID and RIPRN may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Injection	5 units/mL 10 units/mL	IM	10 units	stat
		IV	5 units	stat Inject over 1-2 minutes Repeat after 5 minutes if needed to a max. of 10 units
			Infusion 30 units Dilute in 500 mL sodium chloride 0.9% (Infuse 5-10 units/hour)	Infuse at 83-167 mL/hour

Provide Consumer Medicine Information: May cause nausea and vomiting**Note:** Rapid injection can hypotension, tachycardia, arrhythmia and myocardial ischaemia**Management of associated emergency:** Consult MO/NP. See [Anaphylaxis, page 102](#)

1,7

Schedule	4	Ergometrine	Extended authority ATSIHP/IHW/IPAP/MID	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
ATSIHP, IHW and IPAP may not give IV				
MID may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	500 microgram/mL	IM	250 microgram	stat May be repeated once after 5 minutes on MO order
		IV	(For IV dilute 250 micrograms to 5 mL with sodium chloride 0.9%)	stat Give slowly over 1-2 minutes May repeat once after 2-3 minutes. Further doses on MO order
Provide Consumer Medicine Information: May cause nausea and vomiting				
Note: Consider giving concomitant antiemetic				
Contraindications: Retained placenta, pre-eclampsia, eclampsia, hypertension/history of hypertension, severe/persistent sepsis, renal, hepatic or cardiac disease				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,8

1,8

Schedule	4	Misoprostol	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, MID, RIPRN and RN must consult MO				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 microgram	PR/Subling/Buccal	800-1000 microgram	stat
Provide Consumer Medicine Information: Buccal - put tablets in the mouth between the cheeks and gums. Let them dissolve over 30 minutes before swallowing what is left of the tablets				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,11

1,11

Schedule	4	Tranexamic acid		Prescribing guide
MID, RIPRN and RN only. Must be ordered by an MO				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	1 g/10 mL 500 mg/5 mL	IV Dilute in 100 mL sodium chloride 0.9%	1 g	stat Infuse over 10 minutes If bleeding persists after 30 minutes, or stops and restarts within 24 hours of the first dose, a second dose is recommended
Provide Consumer Medicine Information: May cause hypotension and dizziness (particularly after rapid administration), thrombosis and visual disturbances				
Note: Initiate as soon as possible after onset of PPH, preferably within 3 hours				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,9,10

1,9,10

Manual removal of the placenta^{1,3}

- As a life saving measure only on MO advice
- Give analgesia. See [Acute pain management, page 35](#) plus nitrous oxide and O₂ (Entonox[®]) during the procedure. See [Imminent birth, page 552](#)
- Ensure aseptic technique
- MO may order a single dose of antibiotics - ampicillin or first-generation cephalosporin
- Insert IDC to empty bladder
- Use one hand to follow the path of the umbilical cord through the vagina, cervix and lower uterine segment to find the maternal-placental interface
- The other hand maintains the uterine fundus in position through the mother's abdomen
- If the opening of the cervix is too small to fit the clinicians hand, a uterine relaxant, such as glyceryl trinitrate may be ordered
- Gently separate the placenta from the uterus with your hand using a side-to-side motion until the placenta has completely separated
- If there is a small area where the placenta is very adherent to the uterus, use your fingers to slowly and persistently attempt to remove
- When placenta removed massage fundus to promote uterine contraction

Uterine inversion¹

- Contact MO urgently for advice
- If inverted uterus to be corrected, to relax uterus MO may order:
 - to stop oxytocin infusion
 - glyceryl trinitrate 400 microgram spray, terbutaline 250 microgram subcut or IV, or magnesium sulphate 4 g IV infusion over 5 minutes
- See Queensland Clinical Guideline *Primary Postpartum Haemorrhage*: <https://www.health.qld.gov.au/qcg/publications#maternity>

3. Clinical assessment

- See Immediate management

4. Management¹

- As per Immediate management, until bleeding controlled
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Continue to monitor closely while collaborating with MO:
 - standard clinical observations
 - uterine tone
 - vaginal blood loss
 - fluid balance
- Keep warm
- Offer woman and family debriefing and provide emotional support
- Support maternal and infant bonding, facilitate skin to skin contact under direct supervision
- Facilitate infant feeding

5. Follow up

- Evacuation is required to facility with equipment and expertise

6. Referral/consultation

- Consult MO early on all occasions of PPH

Shoulder dystocia

Recommend^{1,2}

- Shoulder dystocia is an obstetric emergency
- An episiotomy should only be considered if the clinician's hand is unable to enter the vagina for internal manoeuvres. It will not relieve the bony obstruction³
- Do not use downward and/or excessive traction of the baby's head or apply pressure to the top of the uterus (fundal pressure) - associated with brachial plexus injury, and fundal pressure with uterine rupture⁴
- Only use slow and gentle axial traction, as you would with a normal birth i.e. in line with baby's spine⁴

Background

- Clinicians may find Eponyms such as Rubin I, Woods' screw, and the mnemonic HELPERR confusing.^{4,5} If used HELPERR stands for: call for **Help**; **E**valuate for episiotomy **OR** **E**nd pushing; **L**egs (McRoberts); suprapubic **P**ressure; **E**nter vagina (for internal maneuvers); **R**emove posterior arm; **R**oll onto hands and knees⁶
- Shoulder dystocia has a high perinatal morbidity and mortality rate. Maternal morbidity is also increased⁴

1. May present with^{1,4,7}

- Difficulty with delivery of face and chin
- Head remains tightly applied to vulva or retracts (turtle-neck sign/head bobbing)

- Baby's head fails to restitute (turn)
- Shoulders fail to descend
- Routine gentle traction in an axial direction (in line with the axis of the fetal spine) fails to deliver shoulders

2. Immediate management^{1,2,3,4}

- Call for help
- Urgently contact MO
- Stay calm
- Note time the head birthed
- Ask mother to END (stop) pushing. Pushing may make the shoulder more impacted
- **Go to step 1**

Step 1 Position legs *McRoberts*

- Lie woman flat, remove pillows, move buttocks to edge of bed so they hang off
- Bring woman's thighs to abdomen and hyper-flex as far as they can go
- Position is effective if buttocks are lifted off the bed
- Get assistant(s) to hold legs in place
- Apply routine axial traction:
 - same degree of traction as applied during a normal birth in line with the axis of the fetal spine
- **If top shoulder NOT coming go to Step 2**
- Do not continue to apply traction



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Step 2 Apply suprapubic pressure

- Maintain thighs to abdomen
- Get assistant to stand on side of fetus' back
- Select most likely side if not sure where back is
- If unsuccessful, can try other side
- Put hand just above the mother's symphysis pubis, over baby's anterior shoulder
- Assistant to apply strong suprapubic pressure in a downward and lateral direction (NOT pressure to top of uterus):
 - use a continuous or a rocking 'CPR-like' motion
- At the same time:
 - apply gentle axial routine traction to baby's head
 - ask mother to push
- **If top shoulder NOT coming, go to Step 3**



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Step 3 Roll onto all fours

- Assist woman into 'all fours' position with hips and knees flexed
- Like a reverse of the McRoberts position
- Apply gentle axial traction to baby's head to deliver the top (posterior) shoulder

If top shoulder NOT coming, go to Step 4



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Step 4 Enter hand into vagina

- Position woman back in knees to chest position with buttocks at end of bed
- Scrunch up your hand like trying to fit it into a tin of Pringles® or putting a tight bracelet over your hand (fingers compressed and thumb tucked into palm)
- Insert whole hand into the vagina posteriorly via sacral hollow (buttocks side of the baby's head)
- Will be a tight fit

Try to remove posterior arm OR internal rotation. Try both manoeuvres if needed

Option 1 Remove posterior arm

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Option 2 Internal rotation

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- With hand in vagina, feel across the baby's chest
- Feel for the hand and forearm of the posterior arm (on woman's buttocks side)
- If baby's arm is felt flexed over its chest, take hold of wrist with fingers and thumb, and gently release the posterior arm in a straight line
- Use action like putting your hand up in class

- Keep hand in vagina
- Apply pressure with hand in vagina behind either the front or back aspect of the posterior (lowermost) shoulder
- If pressure in one direction has no effect try rotating in opposite direction by pressing on other side of the baby:
 - change from pressing the back of the baby's shoulder to the front or vice versa
- If you are struggling, try changing the hand you are using
- Only try to rotate up to 20-30°
- Ask assistant to apply suprapubic pressure to help rotation
- Make sure you are both pushing in the same direction

If birth NOT achieved go back to Step 1

- Continue progressing through each step
- Be guided by MO

3. Clinical assessment

- See Immediate management

4. Management

- A baby born with shoulder dystocia will require resuscitation. See [Neonatal resuscitation, page 565](#)
- Once baby delivered, continue to manage woman as per [Imminent birth, page 552](#)
- MO will arrange for evacuation to neonatal unit
- Keep mother informed of what is happening
- If outcome of shoulder dystocia results in neonatal injury or death, provide emotional support to mother and partner/family

5. Follow up

- As guided by MO

6. Referral/consultation

- Always consult MO

Breech birth

Recommend^{1,3}

- A preterm breech should be managed the same as a term breech
- Keep hands off wherever possible. Touching the baby may result in reflex extension of the arms or head
- Avoid traction on the baby's trunk. This can cause arms to get positioned around back of neck and make delivery difficult
- Avoid handling the umbilical cord, as this increases vasospasm
- If handling the baby is required, ensure that support is only provided over the bony prominences of the pelvic girdle to reduce soft tissue and internal injury

Background^{1,3}

- Breech presentation is where the presenting part of the baby is the buttocks or feet; the breech can be extended, flexed or footling
- Routine episiotomy not recommended
- Once the buttocks have passed the perineum, significant cord compression is common
- The Burns-Marshall technique (grasping the feet of the baby who has delivered to the nape of the neck and sweeping up in a wide arc to deliver the head) is associated with overextension of the head and is not advised

1. May present with

- 2nd stage of labour (birth)
- Baby's buttocks and feet, buttocks, or foot presenting first from the vagina

2. Immediate management

- Call for help
- Urgently contact MO

- Stay calm
- Conduct vaginal examination immediately after membranes rupture to rule out prolapsed cord⁴
- If you can see or feel the cord, see [Umbilical cord prolapse or presentation, page 569](#)
- Aim for an unassisted HANDS OFF birth wherever possible
- During birth:¹
 - ensure baby's back remains opposite to the mothers back
 - if the baby's trunk looks like it is rotating to the sacro-posterior position (baby's back to mothers back) controlled rotation may be needed
 - only handle baby over bony prominences
 - keep mother's bladder empty where possible

Unassisted breech birth^{1,4,5}

Keep HANDS OFF

- Assist woman into semi-recumbent or all-fours position depending on her preference and your experience
- Place semi-recumbent if assistance needed
- Await mothers spontaneous urge to push
- When fetal buttocks present at vaginal opening note time and encourage mother to push during contractions
- Allow baby to birth by maternal expulsions alone
- Hands off
- When umbilicus visible note time
- In most cases the baby will birth spontaneously, and only gentle support of the body is needed as the head is born (particularly if preterm)
- If the limbs and trunk do not birth spontaneously:
 - release the legs by applying gentle pressure to the popliteal fossa (back of knee joint)
- Birth the head very gently



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Assisted breech birth¹

- Signs that the birth should be assisted:
 - no progress once the umbilicus is visible e.g. arms and legs not releasing spontaneously
 - delay of > 3 minutes from birth of umbilicus to head
 - delay of 5 minutes between the birth of the buttocks to head
 - poor fetal condition
- If arms do not release spontaneously use Løvsett's manoeuvre. See following page
- After release of the arms:¹
 - support the baby until the nape of the neck becomes visible
 - using the weight of the baby to encourage flexion
 - ensure the head is born very gently with the woman 'breathing' it out very slowly
- If spontaneous birth of the head does not follow:¹

- an assistant may apply suprapubic pressure to the mother to assist flexion of the head
- if head still not birthing, use Mauriceau-Smellie-Veit manoeuvre
- do not allow the head to get de-flexed

Løvsett's manoeuvre to release arms¹

- Gently hold the baby over bony prominences of the hips and sacrum
- Rotate baby so that one arm is upper most
- To release upper most arm, put your index finger over the baby's shoulder and follow the baby's arm to the antecubital fossa - **Image 1**
- Flex the arm for delivery
- Following release of the 1st arm, rotate baby 180°, keeping back uppermost – the 2nd arm becomes upper most - **Image 2**
- Release this arm as per the first

Image 1



Image 2



Mauriceau-Smellie-Veit manoeuvre birth of the after coming head^{1,2}

- Support baby's body on the under surface of your dominant forearm:
 - place 1st and 2nd fingers of your hand on the cheekbones of the baby (no fingers in mouth)
- With your other hand:
 - apply pressure to the occiput (back of baby's head) with the middle finger
 - place the other fingers simultaneously on the baby's shoulders to promote flexion of the head (keep the chin on the chest)
 - this should reduce the baby's head diameter
- Delivered baby in an arc towards the mother's abdomen
- Ask assistant may apply suprapubic pressure to the mother to aid flexion

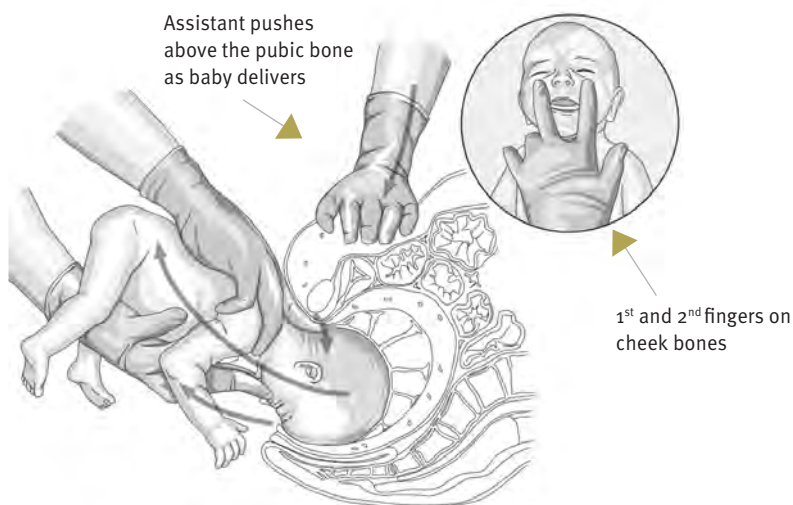


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3. Clinical assessment

- See [Imminent birth, page 552](#)

4. Management

- A baby born via breech may require resuscitation. See [Neonatal resuscitation, page 565](#)
- Once baby birthed, continue to manage woman as per [Imminent birth, page 552](#)

5. Follow up

- As guided by MO

6. Referral/consultation

- Always consult MO

Postnatal

HMP Secondary postpartum haemorrhage

Recommend

- Approximately 10% of cases of secondary postpartum haemorrhage (SPPH) will present as a massive haemorrhage.¹ Resuscitation should be commenced promptly - rapid response is critical
- Sepsis should be considered in all recently delivered women who feel unwell and have a fever or hypothermia²

Background

- Secondary postpartum haemorrhage (SPPH):³
 - is any abnormal or excessive bleeding from the birth canal occurring between 24 hours and 12 weeks after birth
 - usually occurs as a result of a tear, an infection, or by fragments of the placenta and/or membranes, remaining in the uterus and causing an infection or preventing the uterus from contracting
- There is a lack of clear evidence on the management of SPPH^{1,3}
- Most SPPH will settle without the woman requiring investigation or any specific treatment⁴

Related topics

[Primary postpartum haemorrhage, page 572](#)

1. May present with^{5,6,7}

- Vaginal bleeding in excess of what is expected 24 hours -12 weeks after birth
- May also have signs of infection:
 - pelvic pain, uterine tenderness
 - fever
 - malodorous vaginal discharge
- Signs of shock due to either blood loss or sepsis. See [Sepsis/septic shock, page 80](#)
 - ↑ HR, ↓ BP, ↑ RR
 - restlessness
 - sweating
 - cool, clammy skin
 - decreased urine output
 - T ≥ 38°C or < 36°C
 - mottled or ashen appearance
 - altered mental status

2. Immediate management⁸

- Estimate total blood loss, previous and ongoing:
 - keep all pads/linen for weighing to help estimate
- If severe haemorrhage/shock or blood loss > 1000 mL:
 - call for help
 - commence resuscitative measures PLUS look for and treat cause, as described in immediate management of [Primary postpartum haemorrhage, page 572](#)

- urgently contact MO
- arrange evacuation
- IV antibiotics will also likely be ordered
- If signs of sepsis, see [Sepsis/septic shock, page 80](#)
 - urgently contact MO

3. Clinical assessment⁸

- Obtain history of this presentation:
 - bleeding - when did it start, how much, is it heavy and ongoing, colour
 - feeling unwell/well
 - fever
 - pain/abdominal cramping - where, when did it start, severity
 - offensive vaginal discharge (lochia)
 - any other symptoms - rigors, nausea, vomiting
 - consider other sources of infection - mastitis, UTI⁹
- Obtain obstetric history:
 - parity, labour and birth details
 - any complications:
 - manual removal of placenta, prolonged rupture of membranes or prolonged labour, fever during labour
 - completeness of placenta and membranes
- Any relevant medical or family history - bleeding disorder, diabetes, hypertension, allergies, medicines
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Postnatal or other local Early Warning and Response Tools)
- Perform physical examination:
 - observe blood loss, clots, amount, colour
 - palpate abdomen - assess uterine size/tenderness
 - if uterus boggy, rub fundus
- If skilled, perform sterile speculum examination:
 - look for sores, bleeding source, infected tears on vulva/perineum
 - visualise the cervix, any discharge
 - note if cervical os is open or closed
 - if products of conception protruding, use sponge forceps to remove gently
 - take endocervical swab and vaginal swabs (including episiotomy or tear sites) for MCS, and gonorrhoea, chlamydia and trichomonas PCR. See [Sexually transmitted infections, page 615](#)
- Take pathology:
 - if late postpartum haemorrhage > 6 weeks postpartum, perform point of care testing for pregnancy
 - urine - dipstick and MSU for MCS
 - Hb on iStat
 - if T > 38°C take blood cultures
 - consider additional pathology for suspected sepsis. See [Sepsis/septic shock, page 80](#)

4. Management^{2,4,8}

- If severe haemorrhage. See immediate management of [Primary postpartum haemorrhage, page 572](#)
If woman feeling unwell with fever $> 38^{\circ}\text{C}$ OR hypothermia $< 36^{\circ}\text{C}$ always consider sepsis. See [Sepsis/septic shock, page 80](#)
- Consult MO who may order:
 - antibiotics
 - misoprostol. See [Primary postpartum haemorrhage, page 572](#)
 - evacuation/hospitalisation. May require USS/further investigations
- Keep nil by mouth
- Monitor amount and rate of blood loss
- If evacuated/hospitalised, where possible keep mother and baby together

5. Follow up

- If not evacuated/hospitalised, advise woman to be reviewed the next day
- Advise woman to see MO at next clinic
- Follow up test results

6. Referral/consultation

- Consult MO on all occasions of secondary postpartum haemorrhage

HMP Mastitis/breast abscess

Recommend¹

- Continue breastfeeding or expressing to reduce the risk of complications such as breast abscess
- If the mother decides to cease breastfeeding weaning should wait until mastitis is resolved to reduce the risk of breast abscess

Background^{1,2}

- Mastitis is inflammation of the breast tissue
- Risk factors include nipple damage, poor drainage of the breast, or a prior history of mastitis
- More common in the first month after birth, but can occur later
- It is difficult to confirm candidiasis as the cause of breast infection. Consider after considering all differential diagnosis
- See Queensland Clinical Guideline *Establishing Breastfeeding*: <https://www.health.qld.gov.au/qcg/publications#maternity>

1. May present with²

- Sudden onset of symptoms
- Tender, hot swollen, wedge-shaped area of breast
- Chills, fever and flu like myalgia
- Difficulty breastfeeding
- Nipple pain
- Severely swollen, painful lump, and oedema in overlying skin suggesting breast abscess

2. Immediate management Not applicable

3. Clinical assessment²

- Ask about:
 - any fever, chills, flu like muscle aching
 - breast pain, tenderness, redness, swelling - when did it start
 - any other symptoms/concerns e.g. nausea, vomiting, fatigue
 - current age of baby
 - birth details - gestation, complications after delivery
 - social and emotional wellbeing and availability of support
 - use of restricted clothing/bras
- Ask about infant feeding:³
 - is she breastfeeding
 - any problems/concerns
 - is baby attaching to the breast well
 - cracked nipples
 - is she still feeding from affected breast
 - if expressing - by hand or a breast pump, how often
 - how often is baby feeding - usual 8-12 times per day
 - how many wet nappies in 24 hours - usual for ≥ 6
 - other methods of feeding if being used
- Perform standard clinical observations (full Q-MEWT Rural and Remote - Postnatal or other local Early Warning and Response Tools)
- Perform physical examination:^{2,4}
 - examine breasts - look for localised wedge-shaped area of redness, that is tender, warm and firm
 - a blocked milk duct may present as a hard lump, patch of redness and afebrile
 - damage to nipples - sore, cracked, bleeding
 - check for signs of breast abscess - severely swollen lump, red, hot oedema in overlying skin, may become fluctuant and with skin discolouration
- Observe baby feeding. Check:³
 - for correct positioning and attachment of baby
 - baby's mouth is opened wide against breast, with nipple and surrounding breast in open mouth
 - for deep jaw movements, cheeks are not sucked in
 - milk transfer is evident and breast softens during feed
- Signs baby getting adequate milk:⁵
 - alert and mostly happy
 - at least 6 pale yellow, wet cloth nappies, or 5 heavily wet disposable nappies per day
 - regular soft bowel motions (3-4 in 24 hour period if < 6 weeks, may be less if older)
 - gaining weight:
 - weigh baby bare
 - plot weight on percentile chart - look for upward trend
 - check against previous weights

4. Management^{1,4}

- Be alert to signs of sepsis. See [Sepsis/septic shock, page 80](#)

Breast abscess

- Consult MO/NP if breast abscess suspected
- Woman may require USS, needle aspiration or surgical incision

Atypical mastitis in person not lactating

- consult MO/NP

Mastitis

- Initiate treatment promptly, as delay will more likely lead to infection and breast abscess
- Offer analgesia. Ibuprofen is preferred or paracetamol. See [Acute pain management, page 35](#)
- Effective milk removal is most important management step
- Encourage mother to breastfeed more frequently, starting on the affected breast
- If pain interferes with letdown reflex, feeding may begin on unaffected breast, switching to the affected breast as soon as letdown is achieved
- Position baby at breast with chin or nose pointing towards blockage to help drain the affected area
- Prior to feeding:
 - application of heat (shower/warm cloth) to the breast may help with letdown reflex
- During feed/expression:
 - gentle massage may help - direct massage from blocked area towards nipple
- After feeds:
 - apply cold pack for comfort
 - express milk by hand or pump - may help milk drainage and hasten resolution
- If breastfeeding is very painful, milk must be removed by expression (at least 8 times in 24 hours)
- Seek breastfeeding and expression of milk advice from lactation consultant, midwife or child health nurse as needed
- Provide support to the mother. Encourage her to:
 - wear unrestrictive clothing/bra
 - rest, have adequate fluids and nutrition
- If symptoms of mastitis are mild and have been present for less than 24 hours:
 - effective milk removal and supportive measures as described above may be sufficient treatment
- Give antibiotics if:^{4,6}
 - symptoms are not improving in 12-24 hours OR
 - the woman is acutely ill with systemic symptoms:
 - flucloxacillin if no allergies OR
 - cefalexin if hypersensitive to penicillins (excluding immediate hypersensitivity) OR
 - clindamycin if immediate hypersensitivity to penicillins
- Continue to monitor baby for feeding and adequate weight gain
- If any concerns seek advice from midwife, lactation consultant, child health nurse or MO

Schedule	4	Flucloxacillin	Extended authority ATSIHP/IHW/IPAP/MID/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
MID and RIPRN 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: May cause diarrhoea, nausea and candidiasis. Take on an empty stomach ½ hour before or 2 hours after food. Safe in breastfeeding. May cause loose bowel actions in breastfeeding infants				
Note: Can cause cholestatic hepatitis. If renal impairment seek MO/NP advice				
Contraindication: History of cholestatic hepatitis with dicloxacillin or flucloxacillin. 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, page 102				

6,7

Schedule	4	Cefalexin	Extended authority ATSIHP/IHW/IPAP/MID/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
MID and RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	500 mg qid	5 days
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, vomiting, dizziness, headache and candidiasis. Safe in breastfeeding. May cause loose bowel actions in breastfeeding infants				
Note: If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to a cephalosporins or a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

6,8

Schedule	4	Clindamycin	Extended authority ATSI P/IHW/IPAP/MID/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
MID and RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	150 mg	Oral	Adults 450 mg tds	5 days
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, vomiting and abdominal pain. Take with a full glass of water				
Note: Can cause severe colitis due to <i>Cl. difficile</i> . Safe in breast feeding, may cause loose bowel actions in breastfeeding infants				
Contraindication: Allergy to clindamycin or lincomycin				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

6,9

6,9

5. Follow up

- Advise woman to be reviewed next day, or sooner if breastfeeding support required:
 - if no improvement start antibiotics if not already commenced
 - check baby is feeding adequately
- If antibiotics commenced and no improvement the next day consult MO/NP

6. Referral/consultation

- Consult MO/NP on all occasions of breast abscess
- Refer to lactation consultant, midwife or child health nurse for breastfeeding advice

Postnatal check

Recommend

- Postnatal visits are recommended on day 3, between day 7-14 and 6 weeks after birth.¹ Visits should be individualised to reflect the needs of mother and baby
- The mother and infant should be seen as a unit particularly in the first few months of life²
- Concurrently complete the routine 6-week baby check and offer immunisations at the 6-week postnatal check
- Child health check forms available at: <https://publications.qld.gov.au/dataset/queensland-health-health-check-forms>. Guidance for 6-week infant check in *Chronic Conditions Manual* available at: <https://www.health.qld.gov.au/rrcsu>
- Post-natal checks to be performed by appropriately skilled practitioner³

Background

- There is limited evidence available regarding the timing of visits, and maternal and infant examinations, which is often based on historical models of care²
- Abdominal palpation to assess the fundus is not needed, unless there are concerns³

1. May present with

- Mother presenting up to 6-8 weeks after birth

2. Immediate management Not applicable

3. Clinical assessment¹

- Ask about/check:
 - birth and pregnancy history (obtain discharge summary from hospital)
 - gravida/para
 - birth details/any problems - vaginal or caesarean delivery, gestation, PPH, perineal trauma
 - any problems antenatally e.g. gestational diabetes, anaemia, hypertension/pre-eclampsia
 - rubella antibodies - if not immune during pregnancy check MMR vaccine was given after birth
 - any treatment(s) or tests for STIs that require follow up
- Obtain relevant past medical history and family history:
 - diabetes, hypertension, RHD, depression/postnatal depression, mental health illness
 - last Cervical Screening Test (CST) or pap smear
- Ask about:
 - general wellbeing, birth experience, how is she coping³
 - any problems passing urine or urinary symptoms
 - bowel function - any constipation
 - headache, fatigue, back pain
 - breast/nipple pain or concerns
 - uterine tenderness
 - lochia (vaginal discharge) - colour, amount, any odour
 - healing of any perineal wound, perineal pain/hygiene. See [Episiotomy and repair of perineum, page 562](#)
 - caesarean wound - any pain/concerns
 - infant feeding - breastfeeding progress, concerns/alternative feeding
 - resumption of sexual intercourse/any dyspareunia
 - alcohol/tobacco use and second-hand smoke
 - availability of emotional/other support
 - any other concerns
- Complete Edinburgh Postnatal Depression Scale between 6-12 weeks post birth. Available at: www.blackdoginstitute.org.au/docs/CliniciansdownloadableEdinburgh.pdf
- Evaluate risk of domestic violence:
 - check antenatal screening tools. Re-administer appropriate. See [Antenatal care, page 500](#)
- Perform physical examination:^{3,4}
 - standard clinical observations (full Q-MEWT Rural and Remote - Postnatal or other local Early Warning and Response Tools)
 - observe general appearance
 - look for signs of anaemia - pallor, fatigue, breathlessness - check Hb if concerned
 - if dysuria/other urinary symptoms do urinalysis - if abnormal See [Urinary tract infection \(UTI\) - adult, page 389](#)
 - offer to assess the perineum if the woman has pain, discomfort or dyspareunia
 - if caesarean, check wound
 - if concerns about breast feeding, breast, or nipple pain, offer to examine breasts/observe breastfeeding

- if woman was diagnosed with gestational diabetes complete OGTT at 6-12 weeks post-partum for screening of persistent diabetes⁵
- if due for CST offer at around 6 week check

4. Management^{1,3,4}

- Advise woman of recommended checks at 1-2 weeks and 6 weeks post birth
- Concurrently check baby if possible. See Health Check 1-6 weeks <https://publications.qld.gov.au/dataset/queensland-health-health-check-forms>
- Consult with MO/NP if:
 - abnormal blood loss, offensive lochia, abdominal tenderness or fever. Consider [Secondary postpartum haemorrhage, page 586](#) and/or [Sepsis/septic shock, page 80](#)
 - perineal or caesarean wound breakdown/not healing
 - Hb $\leq$ 11 g/dl
- If hypertension and/or preeclampsia diagnosed in pregnancy:⁶
 - follow up by MO 6 weeks post-partum to ensure resolution, and need for ongoing care
- If gestational diabetes advise:⁵
 - lifelong screening for development of diabetes or pre-diabetes at least 3 yearly
 - if planning another pregnancy, recommend having OGTT or HbA1c annually
- If constipated:
 - provide advice about diet and fluid intake. Gentle laxative may sometimes be required³
- Offer MMR if woman not immune to rubella and MMR has not been given post-delivery. See [Immunisation program, page 768](#)
- Discuss with woman as appropriate:^{3,7}
 - infant feeding - assist/advise as appropriate; support continuance of breastfeeding
 - support available e.g. parent groups
 - contraception. See [Contraception, page 597](#)
 - after pains, fatigue, sleeping
 - offer advice for perineal pain as applicable. See [Episiotomy and repair of perineum, page 562](#)
 - pelvic floor exercises, particularly if experiencing incontinence
 - resuming sexual activity - encourage to delay until perineum healed and bleeding has decreased (as guided by woman's desire and comfort)
 - smoking, nutrition, physical activity, alcohol and other substance use
 - immunisations for baby, and offer during 6 week visit. See [Immunisation program, page 768](#)
- Plan continued postnatal care for the woman and baby based on their individual needs

5. Follow up

- Follow up depending on woman's individual needs

6. Referral/consultation

- As required, refer to:
 - Mental Health worker, Social Worker, Child Health Nurse, or Midwife

Sexual and reproductive health

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Contraception general

Contraception

Recommend¹

- This section is based on Family Planning New South Wales (FPNSW), True Relationships and Reproductive Health, Family Planning Victoria (FPV) *Contraception: An Australian Clinical Practice Handbook 4th edition 2016*.^{1,2,3} Please refer to this for comprehensive information for the safe supply of contraception
- Recommend simultaneous use of condoms and other contraception methods for protection against HIV and other STIs when a risk of STI/HIV transmission exists

Background¹

- Properly used, contraception reduces the rate of fertility to between < 1% (sterilisation, implants and injectable progestogen) and 25% (*coitus interruptus*)
- MO/NP may consider using the “Quick Starting” method to commence contraception. This involves commencing contraception immediately, rather than waiting for a woman’s next menses if beyond day 5 of the menstrual cycle when an early undiagnosed pregnancy is possible^{1,5}
- Even methods with higher failure rates can help with birth spacing

Related topics

[Sexually transmitted infections, page 615](#)

1. May present with¹

- Present to the clinic requesting contraception
- Subject raised during a consultation for another reason

2. Immediate management Not applicable

3. Clinical assessment¹

IMPORTANT: All clinicians should refer to The United Kingdom Medical Eligibility Criteria (UKMEC) system to **identify absolute and relative contraindications to contraceptives** and thereby the safety of an individual’s contraceptive choice in the context of their personal medical history.^{1,2}

See up to date version at <http://ukmec.pagelizard.com/2016#>

- 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 cervical screening 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 cervical screening test and STI screen if indicated
- Discuss contraception needs - method of contraception choice influenced by:
 - absolute and relative contraindications to contraceptives as per The United Kingdom Medical Eligibility Criteria (UKMEC)
 - 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/health-information>

Contraception type	Contraceptives (in order of efficacy) ^{1,5}
Long acting reversible contraception (LARC) ⁶	• Progestogen releasing subdermal implant (Implanon NXT[®]) • Progestogen releasing intrauterine system (Mirena[®]) • Copper bearing intrauterine contraceptive device (IUCD) • Injectable progestogen (Depo-Povera[®], Depo-Ralovera[®])
Note: these options have the lowest failure rates	
Hormonal contraception	• Progestogen releasing subdermal implant (Implanon NXT[®]) • Progestogen releasing intrauterine system (Mirena[®]) • Injectable progestogen (Depo-Povera[®], Depo-Ralovera[®]) • Combined hormonal contraception ('The Pill', vaginal ring NuvaRing[®]) • Progestogen only Pill ('Mini Pill') • Emergency hormonal contraception
Sterilisation	• Tubal sterilization • Vasectomy
Barrier methods	• Condoms (male and female) • Diaphragm
Natural methods	• Abstinence • Lactational amenorrhoea • Fertility awareness based methods • <i>Coitus interruptus</i> (withdrawal)

4. Management¹

- Consult MO/NP if a medical condition is present in a patient who is currently using contraception that is contraindicated for its use (Check UKMEC categories against each contraception method)
- 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 protection⁷
- See [Sexually transmitted infections, page 615](#) and [Child protection, page 760](#)
- 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
- Provide advice on 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

HMP Medroxyprogesterone acetate

DEPO-PROVERA®, DEPO-RALOVERA®

Recommend^{1,8}

- For women not able to take combined hormonal contraception
- For women who choose a longer acting method
- For women seeking an undetectable method

Background^{1,8}

- Works by preventing ovulation and changing the endometrial lining and cervical mucus
- Liver enzyme inducing medicines including antiretrovirals do not affect the efficacy of medroxyprogesterone acetate. It is therefore a good choice of contraception for women taking these medicines¹²

Related topics

[Contraception, page 597](#)

1. May present with^{1,8}

- 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^{1,8}

- Initial assessment required by MO/NP
- Clinical assessment. See [Contraception, page 597](#) including:
 - contraception needs
 - methods of contraception available
 - choice of contraception
 - check absolute and relative contraindications as per UK Medical Eligibility Criteria (UKMEC) for contraceptive use: <http://ukmec.pagelizard.com/2016#>
 - pregnancy test where indicated. A negative test does not always exclude pregnancy and recent conception
 - BP, weight, BMI and menstrual pattern

4. Management^{1,8}

- Confirm that < 12 months since last MO/NP review for 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
 - 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 pregnancy
- Prior to administration of medroxyprogesterone acetate check annually:
 - BP, weight, menstrual/bleeding pattern and review medical eligibility
 - a urine pregnancy test is only necessary if > 14 weeks since the last injection
 - if presenting > 14 weeks since previous injection exclude pregnancy prior to giving:
 - 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 given.² Consult MO/NP
 - bleeding history should be checked before each dose is given (irregular vaginal bleeding is not common):
 - if any doubt about normality of bleeding pattern refer to MO/NP
 - ask about side effects: e.g. weight gain, breast tenderness and mood change (incidence is low):
 - if experiencing side effects recommend review by an MO/NP

Schedule	4	Medroxyprogesterone acetate (Depo-Provera®, Depo-Ralovera®)	Extended authority ATSI P/IHW/RIPRN/SRH	
ATSIHP, IHW and RN must consult MO/NP				
RIPRN and SRH may proceed if patient has initially been assessed and this medicine has prescribed by a MO/NP AND it has been < 12 months since MO/NP assessment AND continuous use has been confirmed. Administration not to exceed end of current prescription or 12 month period since last MO/NP assessment				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	150 mg/mL	IM shake injection	150 mg	once every 12 weeks
Provide Consumer Medicine Information: Menstrual irregularity, prolonged bleeding, spotting, amenorrhoea, breast tenderness, depression, acne, weight gain and reduction in bone mineral density				
Note: The patient must be initially assessed by an MO/NP. Confirm it is less than 12 months since last MO/NP assessment. Not recommended for women > 50 years or < 18 if peak bone mass not reached				
Management of associated emergency: Consult MO/NP				

9,10,11

9,10,11

5. Follow up^{1,8}

- Advise to be reviewed 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

6. Referral/consultation

- MO/NP as above

Sub-dermal progestogen implant

Recommend¹

- 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

Background¹

- Long-acting contraceptive effect lasting 3 years
- Failure rates < 0.1%
- Is easily reversible

1. May present with¹

- Present to the clinic requesting contraception
- Subject raised during a consultation for another reason

2. Immediate management Not applicable

3. Clinical assessment¹

- Initial assessment by required by MO/NP
- Clinical assessment. See [Contraception, page 597](#) including:
 - contraception needs
 - methods of contraception available
 - choice of contraception
 - pregnancy test where indicated
 - BP, weight, BMI and menstrual pattern
 - pregnancy history, exclude current pregnancy
 - breastfeeding history
 - history of malignancies
 - check absolute and relative contraindications as per UK Medical Eligibility Criteria (UKMEC) for contraceptive use: <http://ukmec.pagelizard.com/2016#>

4. Management¹

- Consult MO/NP for assessment
- 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
- Insertion site is into inner aspect of non-dominant arm, and implant remains palpable for lifetime of implant
- Bent implants remain effective
- Unsuitable for women during and for 28 days after taking liver enzyme inducing medicines e.g. carbamazepine
- Side effects include altered bleeding patterns, acne, headache, mood changes, weight gain, breast tenderness, loss of libido, abdominal pain, functional ovarian cysts and scarring or other local reaction to the implant

5. Follow up¹

- Removal to be carried out only by experienced clinician
- Implant remains effective for 3 years and must be replaced at that time

6. Referral/consultation

- MO/NP as above

Intrauterine contraceptive device (IUCD)

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®)
- Progestogen-releasing intrauterine device - Mirena®^{1,13}
 - contains levonorgestrel that is released continuously for at least 5 years
 - very effective contraceptive with failure rate of 0.1%
 - reduces menstrual bleeding and can be used to treat heavy menstrual bleeding, as well as for contraception
- Copper IUCD^{1,13}
 - is immediately effective
 - 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

1. May present with^{1,13}

- Request for contraception
- During a consultation for another reason

2. Immediate management Not applicable

3. Clinical assessment^{1,13}

- Initial assessment required by MO/NP
- Clinical assessment. See [Contraception, page 597](#) including:
 - contraception needs
 - methods of contraception available
 - choice of contraception
 - BP, weight, BMI and menstrual pattern
 - breastfeeding history
 - STI and PID history
 - gynaecological history, including PID, endometriosis, fibroids, cervical damage
 - cardiac valve disease and valve surgical history if present will require specialist referral
 - history of malignancies
 - check absolute and relative contraindications as per UK Medical Eligibility Criteria (UKMEC) for contraceptive use: <http://ukmec.pagelizard.com/2016#>

4. Management^{1,13}

- STIs and other infections should be treated. See [Sexually transmitted infections, page 615](#)
- Partner dyspareunia may require thread shortening by MO or use of a diaphragm to cover thread during intercourse
- Pregnancy is uncommon, pregnancy with an IUCD insitu requires specialist referral

Complications^{1,13}

- 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
- Perforation, expulsion, missing thread requires specialist referral, and pregnancy testing, emergency contraception or alternate contraceptive may need to be considered
- Lost threads - the threads should be visible extruding from the external cervical os on speculum examination. 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 is a serious complication

5. Follow up

- Advise to be reviewed in 3-6 weeks post insertion¹³ or if any concerns to assess bleeding patterns, visualisation of thread, discharge, pain, tenderness, side effects and for STI risk assessment, see [Sexually transmitted infections, page 615](#), symptoms of pregnancy, dyspareunia
- IUCD should be removed before expiry date

6. Referral/consultation

- MO/NP as above

Combined hormonal contraceptives

HMP Combined oral contraceptive pill/vaginal ring

Recommend^{1,14,15}

- See [Missed pill flowchart](#), page 608
- Combined hormonal contraception is contraindicated in women ≥ 35 years of age who smoke ≥ 15 cigarettes a day. There is a high risk of venous thromboembolism in women ≥ 35 years of age who smoke ≤ 15 cigarettes a day or who stopped smoking < 1 year ago^{3,4}

Background

- Combined hormonal contraception can take the form of oral contraceptive pill or vaginal ring

Related topics

[Contraception](#), page 597

1. May present with^{1,14,15}

- 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^{1,14,15}

- Initial assessment required by MO/NP
- Clinical assessment. See [Contraception](#), page 597 including:
 - contraception history/needs
 - methods of contraception available
 - choice of contraception
 - pregnancy test where indicated. A negative test does not always exclude pregnancy and recent conception
 - BP, weight, BMI
 - breastfeeding at present
 - menstrual pattern
 - smoking history
 - check absolute and relative contraindications as per UK Medical Eligibility Criteria (UKMEC) for contraceptive use: <http://ukmec.pagelizard.com/2016#>

4. Management^{1,14,15}

- Confirm that it is < 12 months since last MO/NP assessment for oral contraceptive pill prescription

Schedule	4	Combined oral contraceptive pills (OCP)	Extended authority ATSIHP/IHW/SRH	
RIPRN and RN must consult MO/NP OR supply as per current written MO/NP medication order				
ATSIHP and IHW may proceed if < 12 months since the last MO consultation and MO/NP written medication order current				
SRH may proceed if initially assessed and prescribed by MO/NP and it is < 12 months since last MO/ NP assessment				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	levonorgestrel + ethinylestradiol	Oral	1 tablet daily	Max. supply not to exceed 4 months OR current prescription; whichever is sooner
	150 microgram + 30 microgram			
	125 microgram + 30 microgram			
	100 microgram + 20 microgram			
	75 microgram + 40 microgram			
	50 microgram + 30 microgram			
	norethisterone + ethinylestradiol			
	1 mg + 35 microgram			
	500 microgram + 35 microgram			
	other OCPs			
	desogestrel 150 microgram + ethinylestradiol 30 microgram			
	ethinylestradiol 30 microgram + gestodene 75 microgram			
	cyproterone 2 mg + ethinylestradiol 35 microgram			
	drospirinone 3 mg + ethinylestradiol 30 microgram			
	drospirinone 3 mg + ethinylestradiol 20 microgram			
	dienogest 2 mg + ethinylestradiol 30 microgram			
Provide Consumer Medicine Information: May cause breakthrough bleeding, amenorrhoea, nausea, vomiting, breast enlargement and tenderness, headache, mood changes, changes in libido, increased BP, fluid retention, chloasma, acne and thrush. Effectiveness may decrease by some medicines, including over the counter products and St John's Wort, vomiting and diarrhoea				
Report immediately if: Severe and sudden pain in chest, severe headache, sudden blurred vision or loss of sight, unexplained tenderness or pain and swelling in one leg				
Contraindication: See UK Medical Eligibility Criteria (UKMEC) for contraceptive use: http://ukmec.pagelizard.com/2016#				
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				

1,12,15,16

1,12,15,16

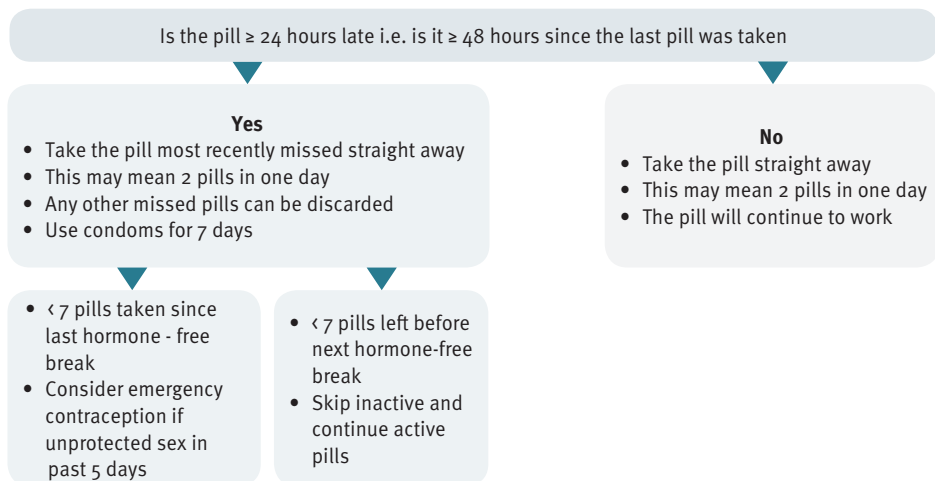
Essential information: combined hormonal contraception

- Starting combined pill or vaginal 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
 - 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 pills:¹
 - OCP 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 backup method of contraception or abstinence is required until seven consecutive active pills have been taken
 - **note:** 7 consecutive days of active pills is required before contraception is effective. If ulipristal acetate emergency contraception is used active pills cannot be restarted for 5 days
- 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 considerations include:
 - 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 considerations include:
 - combined hormonal contraceptives (pill or ring) containing estrogen 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
 - arranging 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

Missed pill flowchart^{1,15}



5. Follow up^{1,14,15}

- Patients should be reviewed after the first 3-4 cycles and then yearly when using combined hormonal contraceptives:
 - check BP, weight
 - check for new medical conditions, new medicines
 - change in bleeding patterns
 - 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 pills

HMP Progestogen only pill

Recommend¹

- For women not able to take combined hormonal contraception who wish to use an oral method

Background¹

- Works by changing cervical mucus and endometrium. Does not suppress ovulation therefore medicine must be taken at the same time each day

Related topics

[Combined hormonal contraceptives, page 605](#)

1. May present with¹

- 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 assessment¹

- Initial assessment by MO/NP
- Clinical assessment. See [Contraception, page 597](#) including:
 - contraception needs
 - method of contraception available
 - choice of contraception
 - check absolute and relative contraindications as per UK Medical Eligibility Criteria (UKMEC) for contraceptive use: <http://ukmec.pagelizard.com/2016#>

4. Management¹

- Check last MO/NP consultation:
 - patient requires previous assessment by an MO/NP and be prescribed hormonal contraception within the last 12 months

Essential information: progestogen only pill (POP)¹

- 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. Consider likelihood of existing pregnancy
- 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:
 - the progestogen only pill is not recommended in those taking liver enzyme inducing medicines
 - 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 Handbook¹, MO/NP/True Relationships and Reproductive Health/

Pharmacist or *Drug interactions with hormonal contraception*¹² available at: <https://www.fsrh.org/news/updated-clinical-guideline-published-drug-interaction-with/>

- Irregular vaginal bleeding:
 - is a known side effect of progestogen only pill
 - includes troublesome spotting 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:
 - pregnancy
 - cervical pathology (polyps, cancer)
 - infection related bleeding need to be considered

Schedule	4	Oral contraceptive pills (Progestogen only pills)	Extended authority ATSHP/IHW/MID/SRH	
RIPRN and RN must consult MO/NP OR supply as per current NP/MO written medication order				
ATSHP and IHW may proceed if < 12 months since the last MO/NP consultation and MO/NP medication order current				
SRH may proceed if initially assessed and prescribed by MO/NP and it is < 12 months since last MO/NP assessment				
MID 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 not to exceed 4 months OR current prescription; whichever is sooner
	Norethisterone 350 microgram e.g. Micronor®			
Provide Consumer Medicine Information: Must be taken ± 3 hours at the same time each day or contraceptive protection may be reduced. May cause amenorrhoea, breast tenderness or acne				
Contraindication: See UK Medical Eligibility Criteria (UKMEC) for contraceptive use: http://ukmec.pagelizard.com/2016#				
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				

1,2,11,15,17

1,2,11,15,17

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 as above

Emergency contraception

HMP Emergency contraception

Recommend^{1,18,19}

- All methods of emergency contraception should be initiated as soon as possible after unprotected sexual intercourse (UPSI) to optimise effectiveness, but may be used up to 120 hours (5 days) after UPSI
- Contact a sexual health team where very young people are requesting contraception. If it can be demonstrated that the patient will have an ongoing understanding of the treatment and the treatment is in the patient's best interest, then consent can be given
- Be aware of mandated reporting of suspected abuse under child protection legislation
- Oral emergency contraception:
 - administered after ovulation is ineffective
 - is not associated with foetal abnormality in pregnancy
 - does not provide ongoing contraception
- Consider the need for the patient's suitability for QuickStart initiation of contraception
- Abstinence or barrier methods should be advised until their choice of contraception is effective

Background

- Oral Emergency Contraception previously referred to as the 'morning after pill'

Related topics

[Sexually transmitted infections, page 615](#)

[Rape and sexual assault, page 659](#)

1. May present with^{1,18,19}

- Request for emergency contraception following unprotected sexual intercourse or contraception failure e.g. expelled ring, missed pills
- 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^{1,18,19}

- If history of sexual assault/rape, see [Rape and sexual assault, page 659](#)
- Obtain patient history including:
 - menstrual, coital, contraceptive history to assess risk of established pregnancy and need to give emergency contraception
 - STI risk
 - medications, allergies, breastfeeding status, BMI
 - need for ongoing contraception and suitability for Quick Starting initiation of contraception⁵
- Perform standard clinical observations if required

Emergency Contraception type	Considerations
Copper Intrauterine Contraceptive Device (Cu-IUD)	• The most effective form of emergency contraception • Limited access to this option as specialist needs to insert the device within 5 days of UPSI
Levonorgestrel	• May be purchased over the counter in pharmacies • Proof of age may be requested by some Pharmacists • Licensed for use within 72 hours of UPSI • Reduced efficacy after 72 hours
Ulipristal acetate (UPA)	• May be purchased over the counter in pharmacies • Not listed with PBS • Proof of age may be requested by some Pharmacists • May be used within 120 hours of UPSI • Ulipristal acetate is more effective than levonorgestrel emergency contraception, however concurrent progestogen-containing contraceptives reduce the efficacy of Ulipristal Acetate

4. Management^{1,18,19}

- 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
- Advise woman:
 - levonorgestrel does not induce a withdrawal bleed, although sometimes irregular bleeding or spotting can occur
 - next period occurs within 3 days of expected time in > 50% of women; advise return for review if period delayed by > 1 week or if unusually light or heavy
- **Note:** it is unclear if the efficiency of levonorgestrel is reduced in obese women. An increased dose may be suggested. Discuss with MO/NP

Schedule	3	Levonorgestrel	Extended authority ATSIHP/IHW/IPAP/MID/SRH	
ATSIHP, IHW and IPAP must consult MO/NP				
MID, RIPRN, RN and SRH may proceed				
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 within 2 hours, repeat dose. May cause nausea, vomiting, breast tenderness, vaginal bleeding and headache				
Note: Efficiency reduced if in the previous 4 weeks the woman has taken medicines that induce CYP _{3A4} e.g. rifamycins, St Johns Wort (See AMH for detailed list). A copper IUD is preferred in these cases. Approved for use by the Queensland LAM for up to 72 hours after unprotected sex. It can be considered up 96-120 hours (4 days) however its efficacy is uncertain				
Contraindication: No absolute contraindications when used as emergency contraception				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
1,18,20,23,24				

5. Follow up

- Advise to return in 3 weeks to exclude pregnancy, discuss contraception, and do STI check (if at risk)

6. Referral/consultation

- See MO/NP as above

Barrier methods of contraception

Method	Management	Typical pregnancy rates after 1 year of use (%) ¹
Condoms (male and female)	- Protects against bacterial and viral STI - Male and female condoms should not be used simultaneously - Online condoms may not be TGA approved	18 (male condom) 21 (female condom)
Diaphragm	- Should be left in place for at least 6 hours after intercourse - Observe for signs of deterioration in device - Discard after 2 years	12
Sterilisation - female	- Tubal ligation performed laparoscopically under general anaesthesia - Regarded as a permanent procedure	0.5
Sterilisation - male	- Vasectomy performed under local anaesthetic 8-16 weeks until effective, use alternate contraception during this time	0.15
Fertility awareness methods	- Calculating ovulation: - calendar methods - sympto-thermal methods, using temperature and observation of cervix and cervical mucus	Uncertain
Coitus interruptus	Least effective method	22
Lactational amenorrhoea	- Effective when all three of the following criteria are met: < 6 months post partum - amenorrhoeic - fully breastfeeding, i.e. no formula use between feeds and < 4 hours between feeding by day and < 6 hours between feeding by night	2.9-5.9

- Check absolute and relative contraindications as per UK Medical Eligibility Criteria (UKMEC) for contraceptive use: <http://ukmec.pagelizard.com/2016#>

Sexually transmitted infections

Sexually transmitted infections general

Recommend¹

- Informed consent to be obtained prior to sexually transmitted infections (STI) testing
- For those aged < 16 years review the guide at https://www.health.qld.gov.au/__data/assets/pdf_file/0025/648061/sti-testing-to-under-16.pdf
- For those in jurisdictions outside of Queensland refer to local policy
- 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^{2,3,4}

- Often STIs do not have any symptoms
- Every opportunity should be taken to test 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 an 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
- Genital warts are no longer a common presentation due to high rates of HPV vaccination
- Excessively high rates of chlamydia and gonorrhoea persist in remote regions, leading to psychosocial distress, gynaecological problems, loss of pregnancy, infertility and populations vulnerable to HIV epidemic
- There are increasing rates of HIV diagnosis in Aboriginal and Torres Strait Islander populations across Australia particularly in rural and remote areas
- There is currently a resurgence of syphilis in Aboriginal and Torres Strait Islander people in regional and remote populations of north Queensland, and 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

1. Important principles of treating STIs^{1,5,6,7}

- 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**
- Immediate contact tracing and treatment of sex partners is essential to reduce the risk of 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 an STI, offer testing for other common STIs, and for HIV, hepatitis B and hepatitis C
- Pelvic inflammatory disease (PID) should be considered in all sexually active women, particularly those < 25 years of age, who have new onset of pelvic pain. See [Low abdominal pain in female, page 635](#)
- 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

2. When to test for STIs^{2,3,8}

Who	When	What
Sexually active people < 34 years in remote Aboriginal and Torres Strait Islander settings or where prevalence rates are high	Annually (at a minimum)	Chlamydia Gonorrhoea Trichomonas Syphilis HIV
Sexually active young people 15-30 years in other rural and remote areas and regional populations		Chlamydia
Other Aboriginal and Torres Strait Islander people and general population to prioritise for testing: • People who inject drugs • People who have history of/ current incarceration • Men who have sex with men (MSM) • Sistersgirls and transgender people • People living with HIV • People with hepatitis B or hepatitis C • Sex industry workers	At presentation	A full STI check: • Chlamydia • Gonorrhoea • Trichomonas • Syphilis • HIV • Hepatitis B (if not immune or not chronically infected) • Hepatitis C (if at risk)
A patient presents with/as: • Symptoms of an STI • A sexual contact of someone with symptoms of an STI • A sexual contact of someone who has tested positive for an STI • Past STI pathology • A recent change of sexual partner or inconsistent/no condom use • Requesting an STI check		
A patient who presents with symptoms or a contact of known mycoplasma genitalium or donovanosis infection		Mycoplasma genitalium Donovanosis
Is pregnant		See Antenatal care, page 500
Regular screening is recommended for other groups including culturally and linguistically diverse populations, migrants, refugees, international students, backpackers, first and second generation families of these groups, or based on epidemiological disease patterns. See the current edition of the <i>Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia</i> available from: https://publications.qld.gov.au/dataset/chronic-conditions-manual or contact local Sexual Health Service for advice		

3. How to perform an STI check

History:

- **Take a reproductive history** including:
 - menstrual
 - obstetric
 - contraceptive
 - cervical screening test 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 Borne 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)
 - fever, headache, 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

Examination:

- If asymptomatic an examination is not required. Proceed to test according to **STI Specimen Collection**, no symptoms, on following page
- The extent and nature of the examination depends on the history and may include:
 - lymph nodes for swelling or tenderness
 - examine mouth and skin including palms of hands, soles of feet for sores, ulcers, rashes and hair loss
 - the abdomen for tenderness. See [Acute abdominal pain, page 238](#) and [Low abdominal pain in female, page 635](#)

- 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)

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, page 656](#)
- The local Sexual Health Service will provide advice if needed
- Consider urine pregnancy test in women of reproductive age
- A full STI check includes tests/investigations for:
 - chlamydia
 - gonorrhoea
 - trichomonas
 - syphilis
 - HIV
 - hepatitis B (if not immune):
 - immune status should be established and vaccination offered if not immune and not chronically infected
 - 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>
 - 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 640](#)
- 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 MCS)



Gel tube Urine PCR pot or tube

Dry swab

MCS swab plus slide

All specimens can be stored in fridge and transported cold

STI specimen collection**If no symptoms****First Catch Urine* for PCR (20 mL+)**

- Chlamydia, gonorrhoea
- Trichomonas (female only)

OR

2 x self collected vaginal dry swabs for PCR
(or if MSM, 2 x anal and 2 x pharyngeal swabs)

- 1 x Gonorrhoea, chlamydia
- 1 x Trichomonas

**Blood: 2 x serum gel tubes**

- Syphilis
- HIV
- Hepatitis B (HBsAb, HBsAg, HBcAb) if not immune
- Hepatitis C Ab if risk

If symptoms discharge, dysuria, low abdominal pain, lesions

3 x self collected vaginal/penile† dry swabs
(and if MSM, 2 x anal and 2 x pharyngeal swabs) **for PCR**

- 1 x Gonorrhoea, chlamydia
- 1 x Trichomonas (female only)
- 1 x Mycoplasma genitalium (female only)

+

1 x MCS charcoal swab plus slide
(roll swab onto slide before inserting into charcoal medium)

OR

First catch urine for PCR (20 mL+) - if unable to obtain swabs or no penile discharge

- Chlamydia, gonorrhoea
- Trichomonas
- Mycoplasma genitalium (female only)

**Blood: 2 x serum gel tubes**

- Syphilis
- HIV
- Hepatitis B (HBsAb, HBsAg, HBcAb) if not immune
- Hepatitis C Ab if risk

AND**If lesion/genital sore:**

1 x dry swab for PCR

- Herpes, donovanosis, syphilis
- Call Syphilis Surveillance Centre
☎ 1800 032 238

*First part of stream of urine † If penile discharge

4. STI management**Medication management**

- Symptomatic cases and contacts of individuals with a positive STI result must be treated at first presentation. **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
- 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 notification¹

- 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
- For syphilis and HIV there needs to be more than 3 attempts at contact tracing

How to perform contact tracing¹

- 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 STIs
 - 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, 3 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 STI register to track notification and treatment of contacts as applicable in your region. Record Index (person with STI), UR numbers of contacts and other register details
 - consult the MO/NP, Men's, Women's and Sexual Health Program or Contact Tracing Support Officer if you need advice or help with contact tracing: Far North Queensland ☎ 07 4226 4769 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 further contact tracing information see <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/sex-health/contact-tracing>

Education and prevention

- 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>
- Discuss safe sex practices, contact tracing/partner notification - explain why and how and provide condoms
- Condoms and lubricant should be available with 24 hour access in discreet locations

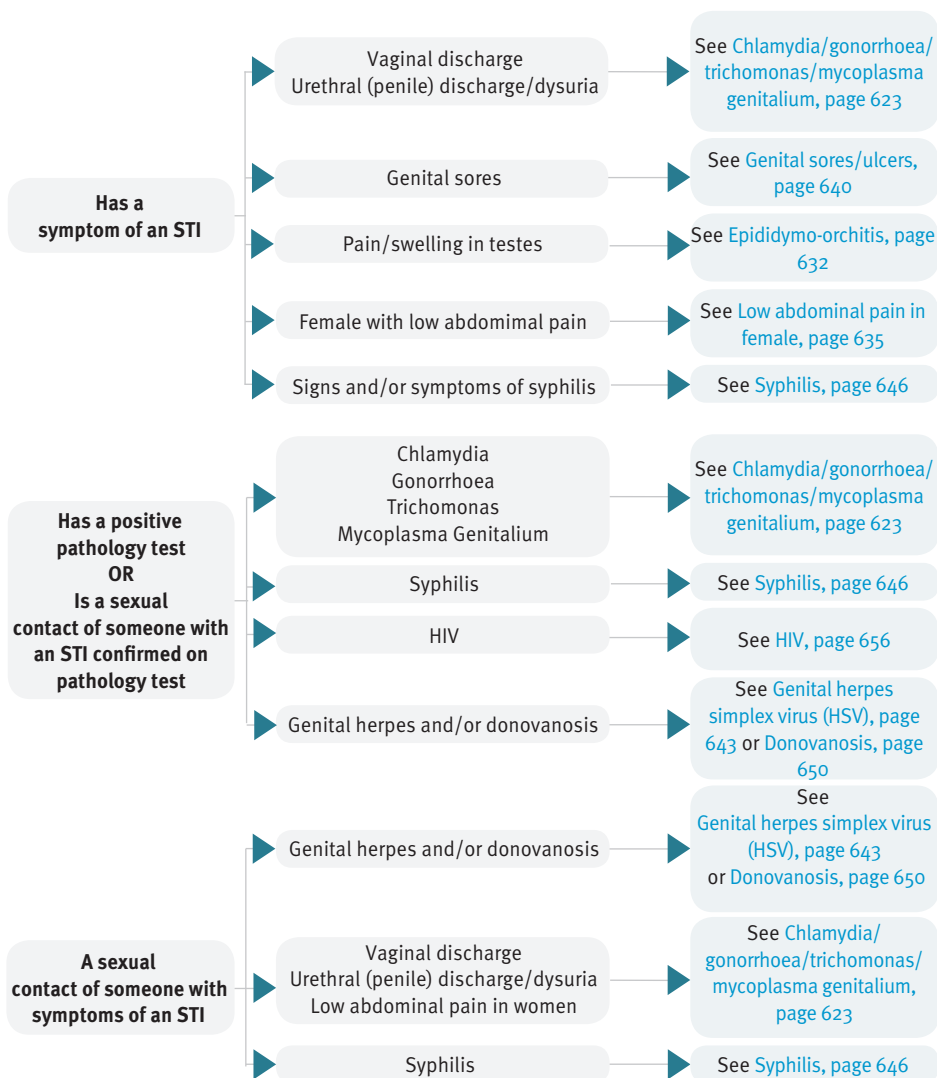
Condom education

- 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

5. STI follow up

- Recommend 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
- For STI specific follow up see relevant topics
- Use the following **STI flowchart** to assist in the selection of HMP based on the patient presentation

STI flowchart



HMP Chlamydia/gonorrhoea/trichomonas/mycoplasma genitalium

Recommend^{1,2,3}

- Treat for chlamydia, gonorrhoea, trichomonas and *Mycoplasma genitalium* in the presence of urethral or vaginal discharge or dysuria
- If symptomatic or a contact of a patient with a known STI, treat at first presentation (presumptive treatment). Do not wait for pathology results
- Immediate contact tracing and/or treatment of sex partners is essential to avoid re-infection

Background^{1,2,3,4}

- Chlamydia, gonorrhoea, trichomonas, *Mycoplasma genitalium* are often asymptomatic or the symptoms go unrecognised
- The most likely cause of a urethral discharge in men 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 an STI that may persist in women for years, and in men for up to 4 months

Related topics

[Sexually transmitted infections general, page 615](#)
[Epididymo-orchitis, page 632](#)

[Low abdominal pain in female, page 635](#)

1. May present with^{1,2,3,4,5}

- 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 assessment⁶

- Obtain patient history and offer an examination.
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- If symptomatic test for:
 - chlamydia, gonorrhoea, trichomonas, *Mycoplasma genitalium*
 - also offer testing for syphilis, HIV, hepatitis B, hepatitis C
 - additionally for women:
 - for chlamydia all pregnant women at first prenatal visit and those < 25 years with risk factors should be retested in third trimester
 - urine pregnancy test on all women of childbearing age (12-52 years)
 - urinalysis - if nitrites positive send MSU for MCS
 - if the women complains of low abdominal pain or pain during sexual intercourse or experiences pain during the examination assess for PID. See [Low abdominal pain in female, page 635](#)
 - CST if due
 - additionally for MSM:
 - ano-rectal and pharyngeal swabs if symptoms present or not
 - encourage self-collection if client refuses examination
- 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 [Sexually transmitted infections general, page 615](#)

4. Management^{1,2,5}

- Contact MO/NP if patient is:
 - acutely ill and has single or multiple painful/inflamed joints - possible disseminated gonococcal infection
- Medication management:
 - treat the following at this presentation. Do not wait for pathology results:
 - symptomatic cases with vaginal or penile discharge or dysuria
 - contact(s) of patient with chlamydia, gonorrhoea, trichomonas, *Mycoplasma genitalium*
 - treat all people with a positive pathology result accordingly
 - treat as per the following **Treatment guide** table
 - observe the patient taking the medication
- Perform immediate contact tracing and/or treatment of sex partners to avoid reinfection:
 - for chlamydia and *Mycoplasma genitalium* trace back **6 months**
 - for gonorrhoea only trace back **2 months**
 - for trichomonas treat **all current partners**
- For all these infections advise no sexual contact for **7 days** after treatment is administered
- Advise no sex with past contacts until they have been tested and treated as above
- Provide education, prevention and condoms
- See [Sexually transmitted infections general, page 615](#)

Treatment guide^{1,2,3,5,6}

Presents with	Treat for	If not allergic treat with
Vaginal discharge or penile discharge and/or dysuria in men	Chlamydia and gonorrhoea and trichomonas	Azithromycin AND Ceftriaxone AND Metronidazole (or Tinidazole)
Pathology results show uncomplicated ano-genital, ano-rectal or pharyngeal gonorrhoea or epididymo-orchitis OR a sexual contact of someone with gonorrhoea, cervicitis or PID	Gonorrhoea	Azithromycin AND Ceftriaxone
Pathology results show uncomplicated genital or pharyngeal chlamydia	Chlamydia	Azithromycin
Pathology results show ano-rectal chlamydia	Chlamydia	Doxycycline
Pathology results show <i>M. genitalium</i>	<i>M. genitalium</i>	Doxycycline THEN Azithromycin
Pathology results show pelvic inflammatory disease due to <i>M. genitalium</i>	<i>M. genitalium</i>	Moxifloxacin (requires MO/NP order from pharmacy)
Pathology results show trichomonas or a sexual contact of someone with trichomonas	Trichomonas (If pregnant discuss with MO/NP)	Metronidazole (or Tinidazole)

Schedule**4****Azithromycin****Extended authority**

ATSIHP/IHW/IPAP/RIPRN/SRH

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN and SRH may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	1 g (2 g for pharyngeal gonorrhoea)	stat
			For <i>M. genitalium</i> only: after stat dose give 500 mg daily	3 days

Provide Consumer Medicine Information: Take with or without food. May cause rash, diarrhoea, nausea, abdominal cramps and candidiasis**Management of associated emergency:** Consult MO/NP. See [Anaphylaxis, page 102](#)

1,2,6,7

Schedule	4	Ceftriaxone	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	1 g	IM Reconstitute with 3.5 mL lidocaine (lignocaine) 1% to give a concentration of 1 g/4 mL	500 mg (2 mL)	stat
Provide Consumer Medicine Information: May cause nausea, diarrhoea, rash, headache, dizziness, candidiasis and pain at injection site				
Note: Can cause severe colitis due to <i>Cl. difficile</i> . If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to a cephalosporins or a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: Contact the MO/NP. See Anaphylaxis, page 102				

2,6,8,12

Schedule	4	Metronidazole	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH 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 thereafter. Take with food to reduce stomach upset. May cause nausea, anorexia, abdominal pain, vomiting, diarrhoea, metallic taste, dizziness or headache				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

4,6,9

Schedule	4	Tinidazole	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	2 g	stat
Provide Consumer Medicine Information: Avoid alcohol while taking and for 24 hours thereafter. Take with food to reduce stomach upset. May cause nausea, anorexia, abdominal pain, vomiting, diarrhoea, metallic taste, dizziness or headache				
Use in pregnancy: Use metronidazole instead of tinidazole				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

4,6,10

4,6,10

Schedule	4	Doxycycline		Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP					
RIPRN and SRH may proceed					
Form	Strength	Route of administration	Recommended dosage	Duration	
Tablet	50 mg 100 mg	Oral	100 mg bd	7 days for asymptomatic ano-rectal chlamydia	
				up to 21 days for symptomatic ano-rectal chlamydia	
Provide Consumer Medicine Information: May cause diarrhoea, nausea, vomiting, epigastric burning and photosensitivity. Take with food or milk. Do not lie down for an hour after taking. Do not take iron, calcium, zinc, or antacids within 2 hours of taking. Avoid sun exposure					
Contraindication: Severe or immediate allergic reaction to tetracyclines or treatment with oral retinoids. Children < 8 years of age. After 18 weeks of pregnancy					
Use in pregnancy: Safe in the first 18 weeks of pregnancy					
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102					

1,3,5,11

1,3,5,11

5. Follow up

- Follow up at 1 week and 3 months
- It is essential that treatment is followed by a rescreen at least 4 weeks after treatment
- Re-testing at 3 months to detect re-infection
- A longer course of metronidazole for *Trichomonas* is necessary for patients that relapse
- See [Sexually transmitted infections general, page 615](#)

6. Referral/consultation

- Consult MO/NP as above if allergic or if symptoms have not resolved following treatment

HMP Bacterial vaginosis

Background^{1,2,3}

- Bacterial vaginosis is not considered an STI
- Caused by an overgrowth of vaginal bacteria e.g. *Gardnerella*
- 30-75% of cases are asymptomatic

Related topics

[Sexually transmitted infections general, page 615](#)

[Chlamydia/gonorrhoea/trichomonas/mycoplasma genitalium, page 623](#)

1. May present with^{1,2}

- Offensive 'fishy' smelling, thin grey white vaginal discharge
- Can cause mild vulval irritation

2. Immediate management Not applicable

3. Clinical assessment^{1,2,3}

- Obtain relevant patient history and offer an examination
- Perform standard clinical observations (full Q-ADD/CEWT score or other local Early Warning and Response Tools)
- A diagnosis of BV is usually made in clinical settings if 3 or 4 of the following criteria are present:
 - thin white/grey homogenous discharge
 - vaginal fluid raised pH (pH > 4.5) using pH indicator paper
 - vaginal fluid odour during examination indicates a positive Whiff test i.e. genital malodour
 - positive clue cells on a gram stain high vaginal smear slide
- See [Sexually transmitted infections general, page 615](#)

4. Management^{1,2,3,4}

- Consult MO/NP if symptoms are recurrent or severe or patient is pregnant
- Contact tracing is not required
- Provide education on bacterial vaginosis:
 - leave IUD in place and treat as recommended
 - avoid vaginal douching
 - recurrence is common
- Medication management:¹
 - stat dose medications and short duration regimens are associated with higher rates of recurrence
 - treat with oral metronidazole OR PV clindamycin
 - clindamycin is the preferred treatment in pregnant women. If clindamycin is not suitable, use 7-day oral metronidazole

Schedule	4	Metronidazole	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH 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 thereafter. Take with food to reduce stomach upset. May cause nausea, anorexia, abdominal pain, vomiting, diarrhoea, metallic taste, dizziness or headache				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
1,2,3,4				

Schedule	4	Clindamycin	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Cream	2%	PV	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. May cause local irritation and candidiasis				
Note: Can cause severe colitis due to <i>Cl. difficile</i>				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
1,2,3,5				

5. Follow up

- Not required

6. Referral/consultation

- Consult MO/NP if recurrent or severe

HMP Candidiasis/vaginal (thrush)

Background^{1,2,3}

- Candidiasis (thrush) is caused by an overgrowth of yeast (primarily *Candida albicans*)
- It is common in healthy women and treatment is not required if asymptomatic
- Can arise spontaneously or due to disturbance of the vaginal flora e.g high oestrogen in pregnancy, high blood sugar levels, antibiotic therapy and combined oral contraceptives
- Candidiasis is not sexually transmitted
- Rare in men. Consider diabetes in men with candidal balanitis

1. May present with^{1,2,3}

- Females:
 - white 'curd' or 'cottage cheese' like or normal vaginal discharge
 - genital/vulval itch, discomfort
 - superficial dyspareunia (painful sex)
 - external dysuria (painful urination)
 - excoriation, erythema, fissures, swelling
- Males:
 - red rash on genitals, especially under foreskin, may or may not be itchy
 - swelling of foreskin if severe
 - fissures or superficial erosions to glans penis (head)
- Genital herpes must be excluded. See [Genital herpes simplex virus \(HSV\), page 643](#)

2. Immediate management Not applicable

3. Clinical assessment^{1,3}

- Obtain patient history and offer a relevant examination
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Diagnosis is determined by:
 - a positive yeast microscopy and culture of a high vaginal or penile swab
- Some men develop a postcoital itch from an untreated female partner with candidiasis. The itch is not due to transfer of the candidal infection. When the female partner is treated, the male's itch resolves
- If the patient presents with repeated episodes of vaginal thrush (> 4 episodes/year), consider pregnancy, immunosuppression e.g. HIV, diabetes

4. Management^{1,2,3}

- Consult MO/NP if symptoms are recurrent or severe
- Medication management of a positive vaginal microscopy and/or culture swab for:
 - uncomplicated *Candida albicans*:
 - treat with PV clotrimazole
 - recurrent (> 4 episodes/year) *Candida albicans*:
 - treat with longer course of clotrimazole

- infection with *Candida glabrata* is uncommon:
 - discuss with MO/NP, who may consider PV boric acid 1 pessary nocte for 14 days. Boric acid pessaries can be compounded by specialist pharmacies on prescription
- the addition of hydrocortisone 1% cream may provide symptomatic relief
- Medication management of male sexual partners only requires symptomatic relief with hydrocortisone ointment plus clotrimazole
- Contact tracing is not required
- Provide education on candidiasis (thrush):
 - no evidence that specific diets, or use of probiotics influence recurrence of candidiasis
 - avoid local irritants e.g. soaps, spermicides, vaginal lubricants, vaginal hygiene products
 - latex condoms, diaphragms and cervical caps can be damaged by antifungal vaginal creams

Schedule	3	Clotrimazole	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW and IPAP must consult MO/NP				
RIPRN and SRH may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Pessary	100 mg	PV	1 pessary nocte	6 nights
OR				
Cream	1%	PV	1 full applicator nocte	6 nights
Provide Consumer Medicine Information: May damage condoms during treatment period. Complete course even if symptoms ceased				
Note: Using the applicator provided, fill with cream and insert deep into the vagina. Pessary should be inserted with the applicator. In late pregnancy digital insertion of pessary may be preferable				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,2,3,4

1,2,3,4

5. Follow up

- Not required

6. Referral/consultation

- Consult MO/NP if symptoms are recurrent or severe i.e. four or more acute episodes per year

HMP Epididymo-orchitis

Recommend

- If acute onset or severe pain consider torsion of the testes; a medical emergency that must be excluded. Prompt diagnosis and surgical intervention are essential as testis viability can diminish considerably, six hours after symptoms commence
- Testicular torsion is most common in young boys. See [Testicular/scrotal pain, page 257](#)

Background^{1,2,3}

- In sexually active men infection is primarily a result of an STI in men < 35 years of age
- Urinary tract pathogens are generally the cause in men > 35 years of age
- Men who engage in insertive anal sex are at risk of infection from acquired enteric pathogens i.e. *Escherichia coli* and *Proteus spp*

Related topics

[Sexually transmitted infections general, page 615](#)

[Testicular/scrotal pain, page 257](#)

[Urinary tract infection \(UTI\) - adult, page 389](#)

[Chlamydia/gonorrhoea/trichomonas/
mycoplasma genitalium, page 623](#)

May present with^{1,2,3}

- Acute, unilateral pain and swelling in the testes/scrotum with or without fever
- Accompanied by urinary frequency and dysuria symptoms

2. Immediate management¹

- If very acute onset or severe scrotal/testes pain consider torsion and urgent surgical referral
- Torsion can result in the loss of testis within hours. For management see [Testicular/scrotal pain, page 257](#)

3. Clinical assessment

- Obtain patient history and offer relevant examination:
 - determine exact site and nature of swelling and tenderness
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- The following tests will determine the cause of infection:
 - MSU for MCS, first catch urine for chlamydia and gonorrhoea PCR
 - also offer opportunistic testing for syphilis, HIV, hepatitis B, hepatitis C, trichomonas and mycoplasma genitalium
- Diagnosis is made clinically based on compatible physical exam findings including:
 - gradual onset of pain
 - localisation of pain posterior to testis, with occasional radiation to lower abdomen
 - tender, swollen or indurated epididymis (found at posterior aspect of the testicle)
 - erythematous scrotum or oedematous testicle, typically in normal position
 - intact cremasteric reflex, otherwise consider testicular torsion. See [Testicular/scrotal pain, page 257](#)
- Consider USS for patients when diagnosis is unclear clinically
- See [Sexually transmitted infections general, page 615](#)

4. Management^{1,2,3,4,5,6}

- Consult MO/NP on all occasions to exclude torsion of the testes
- Medication management. If STI is the likely cause treat with:
 - an initial dose of IM ceftriaxone **PLUS**
 - stat dose of azithromycin **PLUS EITHER**:
 - doxycycline starting the next day **OR**
 - repeat state dose of azithromycin 1 week later
- Observe the patient taking the medication
- If UTI is the likely cause treat as per UTI in men. See [Urinary tract infection \(UTI\) - adult, page 389](#)
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Bed rest
- Scrotal support
- Perform immediate contact tracing and treatment of sexually active partners to avoid reinfection
- Provide education, prevention and condoms
- See [Sexually transmitted infections general, page 615](#)

Schedule	4	Ceftriaxone	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	1 g	IM Reconstitute with 3.5 mL lidocaine (lignocaine) 1% to give a concentration of 1 g/4 mL	500 mg (2 mL)	stat
Provide Consumer Medicine Information: May cause nausea, diarrhoea, rash, headache, dizziness, candidiasis and pain at injection site				
Note: Can cause severe colitis due to <i>Cl. difficile</i> . If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to a cephalosporins or a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: Contact the MO/NP. See Anaphylaxis, page 102				

2,5,7

Schedule	4	Doxycycline	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	50 mg 100 mg	Oral	100 mg bd	14 days
Provide Consumer Medicine Information: May cause diarrhoea, nausea, vomiting, epigastric burning and photosensitivity. Take with food or milk. Do not lie down for an hour after taking. Do not take iron, calcium, zinc, or antacids within 2 hours of taking. Avoid sun exposure				
Contraindication: Severe or immediate allergic reaction to tetracyclines or treatment with oral retinoids.				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,2,3,6

Schedule	4	Azithromycin	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	1 g	stat Repeat 1 week later
Provide Consumer Medicine Information: Take with or without food. May cause rash, diarrhoea, nausea, abdominal cramps				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,2,3,4

1,2,3,4

5. Follow up

- Recommend patient return the next day for review
- If the patient is not significantly improved, consult MO/NP and consider evacuation
- Complete resolution of the swelling may take several weeks but a substantial response should occur within 4-5 days
- Recommend patient return for follow up at 1 week and 2-3 months
- See [Sexually transmitted infections general, page 615](#)

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

HMP Low abdominal pain in female

PROBABLE PELVIC INFLAMMATORY DISEASE (PID)

Recommend^{1,2,3}

- Consult MO/NP urgently if patient has severe pain or board-like rigidity of the 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^{1,2,3}

- PID is a syndrome comprising a variety of upper female genital tract inflammatory disorders, including endometritis, salpingitis, tubo-ovarian abscess and pelvic peritonitis
- PID is an important cause of infertility
- PID is usually polymicrobial, caused by STIs and/or vaginal flora. In a significant number of cases no pathogen is identified
- PID in early pregnancy may present as a threatened miscarriage with pain ± bleeding

Related topics

[Acute abdominal pain, page 238](#)
[Ectopic pregnancy, page 511](#)

[Urinary tract infection \(UTI\) - adult, page 389](#)

1. May present with¹⁻³

- Low pelvic pain:
 - typically bilateral, may worsen with movement, may localise to one side, may refer to upper right quadrant
 - like period pain in character
- Dyspareunia (painful sex)
- Vaginal discharge or bleeding:
 - intermenstrual (outside normal menstruation)
 - postcoital (after sex)
 - menorrhagia (heavy menstrual bleeding)
 - post instrumentation of the genital tract - termination of pregnancy, dilatation and curettage, IUCD insertion or birth
- Fever, nausea, vomiting

2. Immediate management

- In severe cases see [Acute abdominal pain, page 238](#)
- Assess HR, temperature, BP
- If ill, with board-like rigidity of abdomen, insert 2 x IV cannula - use the largest possible gauge given age and vascular status
- Consult MO/NP urgently. MO/NP will advise further management and arrange evacuation/hospitalisation
- Keep nil by mouth

3. Clinical assessment^{1,3}

- Obtain patient history. Ask about:
 - sexual history, including risks for sexually transmitted diseases i.e. recent partner change, partner with STI or symptoms of an STI or unprotected sex
 - date of last menstrual period to assess for possibility of ectopic pregnancy
 - quality of pain (absence of migration of pain may suggest PID over appendicitis)
 - procedures involving uterine instrumentation that may cause postsurgical PID, such as:
 - pregnancy termination
 - intrauterine device insertion within previous 6 weeks
 - hysterosalpingography
 - intrauterine insemination
 - in vitro fertilisation
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform examination. Assess for:
 - lower abdominal tenderness and rebound tenderness
 - new onset of pelvic pain among women < 25 years is highly predictive of PID
 - bilateral abdominal tenderness may suggest PID over appendicitis
 - tenderness on bimanual exam of cervix, uterus or adnexa (cervical motion tenderness or adnexal tenderness)
 - cervical discharge
 - cervical friability
 - pelvic mass
 - the presence of mucopurulent discharge from cervix supports the diagnosis of PID
 - see [Acute abdominal pain, page 238](#)
- Test for:
 - endocervical swab for chlamydia, gonorrhoea, trichomonas and *Mycoplasma genitalium*
 - urine pregnancy test on all women of child bearing age (12-52 years) to exclude ectopic pregnancy
 - urinalysis indicating nitrates, leucocyte, dysuria and frequency suggests UTI as differential diagnosis
 - also offer: syphilis, HIV, hepatitis B, hepatitis C
 - the presence of STI supports the diagnosis of PID
- Cervical screening test if due
- Use the following table as a guide to the differential diagnosis of low abdominal pain in female
- See [Sexually transmitted infections general, page 615](#)

Differential diagnosis of low abdominal pain in female^{1,2,3}

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 USS will confirm or exclude a viable intrauterine pregnancy PID may be the cause of threatened miscarriage in early pregnancy See Ectopic pregnancy, page 511 and See Vaginal bleeding in early pregnancy, page 513
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 <i>Mycoplasma genitalium</i> 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 (UTI) - adult, page 389 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 238

4. Management^{1,3,4,5}

- PID is diagnosed clinically and should be suspected in sexually active women with abdominal pain
- Consult MO/NP for severe infection (nausea and vomiting or high fever), is allergic to penicillin, is pregnant or has abnormal vaginal bleeding. Will require IV inpatient treatment
- **Do not wait for pathology results.** Rapid response to treatment is highly predictive of PID
- Medication management for mild to moderate infection:
 - stat dose of ceftriaxone PLUS 14 days of metronidazole
 - PLUS 14 days of doxycycline **OR**
 - for pregnant women or patients suspected to be non-adherent to doxycycline, give a stat dose of azithromycin followed by another stat dose 1 week later
- Give analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Perform immediate contact tracing and treatment of sexual partners to avoid reinfection
- Provide education, prevention and condoms:
 - 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 7 days after partner has been treated
 - stress the importance of follow up
- See [Sexually transmitted infections general, page 615](#)

Schedule	4	Ceftriaxone	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	1 g	IM Reconstitute with 3.5 mL lidocaine (lignocaine) 1% to give a concentration of 1 g/4 mL	500 mg (2 mL)	stat
Provide Consumer Medicine Information: May cause nausea, diarrhoea, rash, headache, dizziness, candidiasis and pain at injection site				
Note: Can cause severe colitis due to <i>Cl. difficile</i> . If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to a cephalosporins or a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: Contact the MO/NP. See Anaphylaxis, page 102				

1,2,4,8

1,2,4,8

Schedule	4	Metronidazole	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH 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 thereafter. Take with food to reduce stomach upset. May cause nausea, anorexia, abdominal pain, vomiting, diarrhoea, metallic taste, dizziness or headache				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,2,5

1,2,5

Schedule	4	Azithromycin	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	1 g	stat Repeat dose 1 week later for pregnant women and for those non-adherent to doxycycline
Provide Consumer Medicine Information: Take with or without food. May cause rash, diarrhoea, nausea, abdominal cramps and candidiasis				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,2,6

1,2,6

Schedule	4	Doxycycline	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	50 mg 100 mg	Oral	100 mg bd	14 days
Provide Consumer Medicine Information: May cause diarrhoea, nausea, vomiting, epigastric burning and photosensitivity. Take with food or milk. Do not lie down for an hour after taking. Do not take iron, calcium, zinc, or antacids within 2 hours of taking. Avoid sun exposure				
Contraindication: Severe or immediate allergic reaction to tetracyclines or treatment with oral retinoids. Children < 8 years of age. After 18 weeks of pregnancy				
Use in pregnancy: Safe in the first 18 weeks of pregnancy				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,2,7

1,2,7

5. Follow up^{1,3}

- Recommend to return for follow-up daily
- Patients should have significant clinical improvement within 72 hours
- If no improvement or if worse, consult MO/NP. Hospitalisation, IV antibiotics and additional diagnostic evaluation is required
- Recommend to return for follow-up within 2 weeks and check:
 - treatment adherence and symptom resolution. If pain not resolved consult MO/NP
 - contacts have been tested and treated
 - test results have been given
 - repeat pregnancy test if indicated
- If treatment completed and symptoms resolved a test of cure is not needed
- Follow up at 2-3 months for repeat STI screen

6. Referral/consultation

- Consult MO/NP for severe infection (nausea and vomiting or high fever), is allergic to penicillin, is pregnant or has abnormal vaginal bleeding
- 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

Recommend

- If syphilis or donovanosis are likely or cannot be excluded, give treatment to cover both infections
- Always consult the Public Health Nurse, Syphilis Register on ☎ 1800 032 238 or email North-QLD-Syphilis-Surveillance-Centre@health.qld.gov.au

Background^{1,2,3}

- 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
- There continues to be a significant syphilis epidemic in remote populations and among non-Aboriginal and Torres Strait Islander men who have sex with men

Related topics

[Genital warts, page 653](#)

[Syphilis, page 646](#)

[Genital herpes simplex virus \(HSV\), page 643](#)

1. May present with

- Lumps, growths, warts or molluscum in the genital skin/mucosa
- Ulceration (where the skin is broken or inflamed)

2. Immediate management Not applicable

3. Clinical assessment^{1,2,3}

- Obtain patient history:
 - obtain a full history including previous episodes of genital sores and whether the current partner has symptoms or signs of an STI
 - ask about fever, headache, muscle aches and pains, rashes
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform examination:
 - 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:
 - urine pregnancy test in all women of childbearing age (12-52 years)

- chlamydia, gonorrhoea, trichomoniasis and *Mycoplasma genitalium*. For women - if sores are multiple or painful do not do a speculum examination instead obtain a low vaginal swab or first catch urine
 - blood for syphilis serology
 - also offer HIV, hepatitis B, hepatitis C
 - swab of any discharge for MCS
 - dry swab syphilis, donovanosis and herpes for PCR
 - consider a biopsy histology for chronic non-responding lesions
 - **Note:** herpes serology is not useful in this context and should not be taken
- See [Sexually transmitted infections general, page 615](#)

Possible causes of sores and ulcers^{1,2,3}

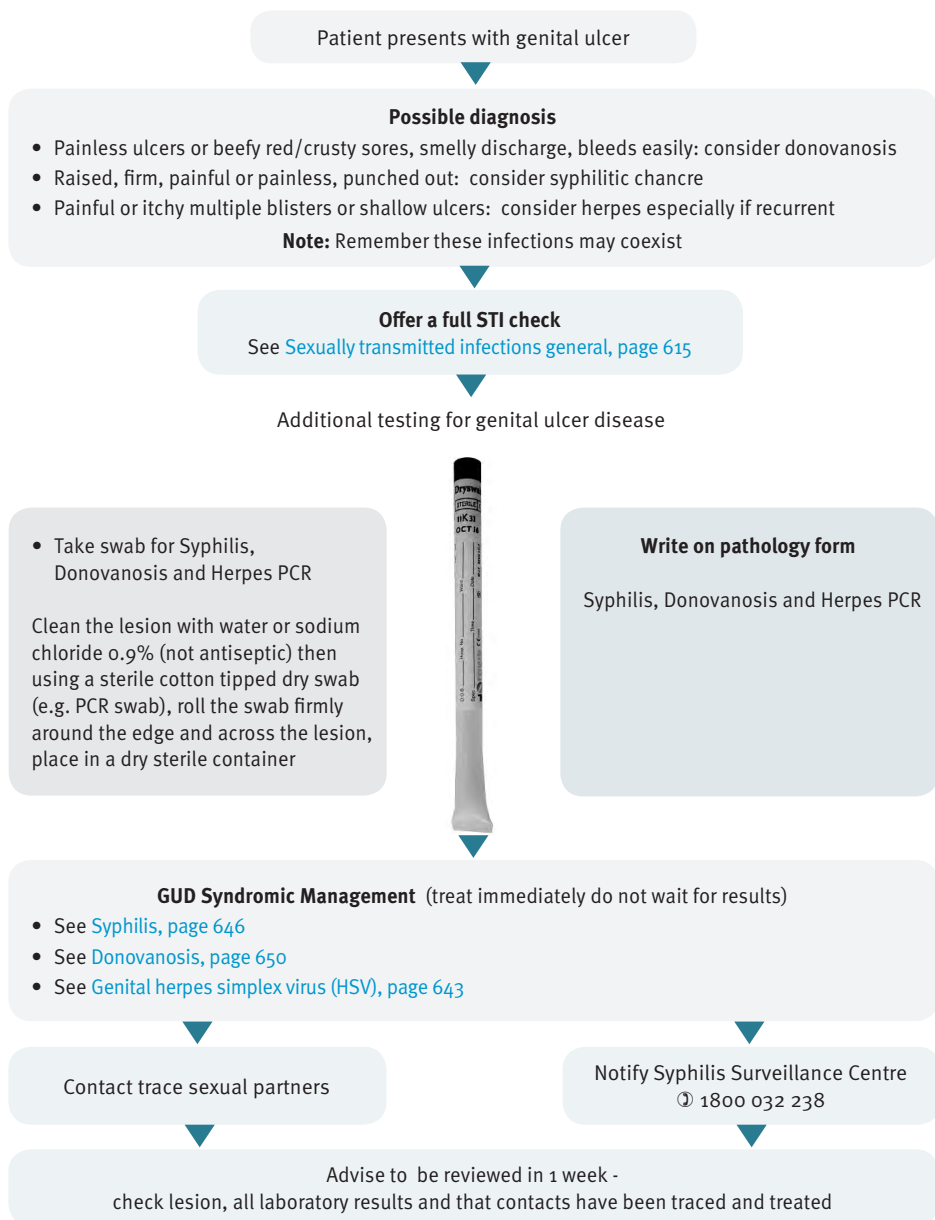
	Genital warts	Genital herpes	Syphilis	Donovanosis
Typical sores	Solid lumps, may be smooth or warty, asymmetrical, no ulceration and no inflammation of surrounding skin	Painful skin splits or cluster of blisters, which break down to form small shallow ulcers, with irregular borders Surrounding skin may 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	Painful or 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

4. Management^{1,2,3}

- See the following Management guidelines for genital ulcer disease (GUD) flowchart
- The diagnosis of genital ulcers is based on a combination of clinical findings, laboratory tests and response to treatment
- Individuals presenting with genital ulcers thought to be consistent with syphilis and/or donovanosis must be treated immediately for both syphilis and donovanosis
- 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 not typical of herpes and syphilis is likely or if unsure, treat for syphilis. See [Syphilis, page 646](#)
 - lesions typical of genital herpes, Consult MO/NP before starting treatment if pregnant. See [Genital herpes simplex virus \(HSV\), page 643](#)
 - lesions typical of Donovanosis. See [Donovanosis, page 650](#)

- Perform immediate contact tracing and treat sexual partners to avoid reinfection
- Provide education, prevention and condoms

Management flowchart for genital ulcer disease (GUD) including donovanosis



5. Follow up

- See relevant STI section for condition specific follow up
- Check:
 - patient adherence with treatment and symptoms and signs have resolved
 - contacts have been tested and treated as appropriate
 - test results have been given
 - if an STI, check to include a HIV test is offered, if not done at initial visit
- Consider non-infectious causes if treatments don't work e.g. autoimmune disorders, neoplasia, or trauma

6. Referral/consultation

- Consult MO/NP or specialist if:
 - a child with an STI
 - women who are pregnant or breastfeeding
 - patients with a history of allergy to the recommended antibiotic
 - sores, ulcers or lesions do not respond to treatment
- ① For a patient with genital sores contact the Syphilis Surveillance Centre ① 1800 032 238 or email North-Qld-Syphilis-Surveillance-Centre@health.qld.gov.au
- If outside Queensland contact the local Public Health Unit

HMP Genital herpes simplex virus (HSV)

Recommend^{1,2,3}

- Antiviral therapy for HSV is not curative, but it shortens the episode if started within 72 hours of the onset of symptoms
- Always consult the Public Health Nurse, Syphilis Register on ① 1800 032 238 or email North-Qld-Syphilis-Surveillance-Centre@health.qld.gov.au. If outside Queensland contact your local public health unit
- STIs in children, women who are pregnant or breastfeeding and in patients with a history of allergy to the antiviral, require specialist management
- Sexual abuse should be considered in children with anogenital HSV infection, particularly HSV2. [Child protection, page 760](#)

Background^{1,2,3}

- Herpes simplex virus (HSV) is the most common cause of genital ulcer disease in Australia
- Other herpes virus infections can lead to genital ulcers i.e. Herpes zoster or Epstein-Barr virus
- The majority of patients with HSV infection are undiagnosed

Related topics

[Genital warts, page 653](#)

[Genital sores/ulcers, page 640](#)

[Syphilis, page 646](#)

1. May present with^{1,2,3}

- Clusters of painful blisters in the ano-genital area which break down to form small shallow ulcers, with irregular borders
- Pain or itchiness
- Recurring ano-genital ulcers, blisters or skin splits

2. Immediate management Not applicable**3. Clinical assessment**^{1,2,3}

- Obtain patient history:
 - ulcers that heal after 1-2 weeks without treatment then recur
 - recurrences that occur less frequently, are less painful and have a shorter duration
 - lesions that have occurred at other sites along sacral dermatomes (such as the surrounding skin or buttocks, behind the knee or even on the dorsum of the foot)
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform examination
- Take swab for syphilis, donovanosis and herpes PCR as these conditions may coexist
- See [Sexually transmitted infections general, page 615](#)

4. Management^{1,2,3}

- If clinically suggestive of herpes discuss the likely diagnosis and ongoing management with Syphilis Surveillance Centre or Sexual Health Unit and treat:
 - treatment should not be delayed for those presenting with severe episodes, particularly initial episodes
 - antiviral therapy for HSV shortens the episode if started within 72 hours of the onset of symptoms. It is not curative
- Consult MO/NP for medication management of genital herpes in children
- Can be painful. Administer pain relief as clinically indicated. See [Acute pain management, page 35](#)
- Medication management at time of presentation for adults:
 - valaciclovir OR aciclovir (preferred in pregnancy)
 - for an initial infection start treatment immediately
 - for recurrent episodes, short courses of therapy is effective when started concurrently with the onset of prodromal symptoms or onset of lesions
 - suppressive therapy is indicated for frequent and severe episodes to reduce recurrences by 70%
- Contact tracing is not necessary, however counselling regarding herpes infection is required
- Partners should have an STI check and counselled, but do not need to be treated
- Provide education, prevention and condoms:
 - keep lesions dry with salt baths
 - treatment is not curative. Transmission can still occur
 - encourage condom use with ongoing partners
- See [Sexually transmitted infections general, page 615](#)

Schedule	4	Valaciclovir	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH may proceed. Suppressive treatment on MO/NP order				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	Initial episode	
			500 mg bd	5 days; up to 10 days for severe cases
			Recurrent episodes	
			500 mg bd	3 days
			Suppressive treatment	
			500 mg daily	reassess at 6 months
Provide Consumer Medicine Information: May cause nausea, vomiting, headache, diarrhoea, dizziness or confusion. Avoid driving or operating heavy machinery if affected. Drink plenty of fluids				
Note: If renal impairment seek MO/NP advice				
Use in pregnancy: Aciclovir is preferred. May be used from 36 weeks of pregnancy				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,2,4

1,2,4

Schedule	4	Aciclovir	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg 800 mg	Oral	Initial infective episode	
			400 mg tds	5 days up to 10 days for severe cases
			Recurrent episodes	
			800 mg tds	2 days
			OR	
			400 mg tds	5 days
			Suppressive treatment	
			400 mg bd	reassess at 6 months
Provide Consumer Medicine Information: Drink at least 1.5 to 2 litres of water per day. May cause dizziness or confusion: avoid driving or operating heavy machinery if affected. May cause nausea, vomiting, headache and/or diarrhoea				
Note: If renal impairment seek MO/NP advice				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

2,5

2,5

5. Follow up¹

- Ask to return for follow up within 1 week to check:
 - compliance with treatment
 - clinical evaluation of response to treatment
 - contacts have been counselled as appropriate
 - test results have been supplied
- Refer to MO/NP if symptoms have not resolved within 1 week or the patient has recurrent episodes, as further medication may be indicated
- Follow up at 2-3 months:
 - offer a full STI check including syphilis serology and HIV test
- Review suppressive treatment after 6 months. If no improvement refer to specialist

6. Referral/consultation

- Consult MO/NP if allergic to medications, if pregnant or if symptoms do not respond to treatment
- ① For a patient with genital sores contact the Syphilis Surveillance Centre ① 1800 032 238 or email North-Qld-Syphilis-Surveillance-Centre@health.qld.gov.au
- If outside Queensland contact the local Public Health Unit

HMP Syphilis

REACTIVE SYPHILIS

Recommend

- Contact the Queensland Syphilis Surveillance Centre ① 1800 032 238 or email Qld-syphilis-surveillance-centre@health.qld.gov.au or North-Qld-Syphilis-Surveillance-Centre@health.qld.gov.au or for those outside of Queensland contact your local Public Health Unit for any advice regarding syphilis

Background^{1,2}

- Untreated syphilis can be transmitted to sexual partners up to 2 years after infection and to babies during pregnancy (by blood), up to 8 years after infection in mother
- Infection of babies in pregnancy can lead to miscarriage, neonatal death or congenital syphilis

Related topics

[Genital sores/ulcers, page 640](#)

1. May present with^{1,2}

- No symptoms
- Symptomatic:
 - primary syphilis may present with:
 - one or a few primary lesions (chancres) of the ano-genital, oropharyngeal or surrounding areas
 - lesions may be painful, tender or painless and 1-2 cm in diameter with well defined edges
 - lymph nodes in the groin may be enlarged
 - if untreated, sores will heal by themselves within 3-8 weeks
 - secondary syphilis may present with:
 - genital sores (condylomata lata) that are typically multiple, painless, on genital and/or perianal skin and are often symmetrical

- rash may be generalised and include the palms of the hands or soles of the feet
- 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
 - neurological, cardiovascular or bone and skin signs
 - management should always be in consultation with a specialist MO/NP

2. Immediate management Not applicable

3. Clinical assessment^{1,2,3}

- Obtain patient history:
 - obtain a full history including whether the current partner has symptoms of an STI
 - check patient's clinical records and the Syphilis Surveillance Centre for previous syphilis serology results and treatment:
 - a reactive syphilis serology history
 - 2 specific tests (either EIA, TPPA, TPHA or FTA) being reactive may indicate latent syphilis
 - latent syphilis is further defined as early latent (< 2 years) or late latent (> 2 years)
 - non-specific tests for RPR may be reactive or non-reactive
 - ask about other symptoms: fever, headache, muscle aches and pains, rashes
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform examination:
 - 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:
 - urine pregnancy test on all women of childbearing age (12-52 years)
 - syphilis serology
 - if genital sores are present also collect a swab for syphilis, donovanosis and herpes PCR. See [Genital sores/ulcers, page 640](#)
 - offer further STI screen for chlamydia, gonorrhoea, trichomonas, HIV and hepatitis B
- Syphilis results:
 - specific tests for EIA, TPPA, TPHA and FTA are either reactive or non-reactive
 - if 2 specific tests are reactive, this indicates the patient has acquired syphilis, but not when or whether they have been treated. Specific tests will remain reactive for life irrespective of treatment
 - non-specific tests for RPR are either reactive or non-reactive at a serial dilution titre e.g. 1:1, 1:2, 1:4, 1:8, 1:16 etc.
 - the titre usually rises in early infection and falls, with or without treatment, over a period of 2 years
 - an adequate response to previous treatment is usually indicated by a 2 titre (four fold) fall within 3-6 months e.g. 1:128 to 1:32, depending on the stage of syphilis and the titre at the time of treatment
 - a new infection requiring treatment is usually indicated by a 2 titre (four fold) rise e.g. 1:4 to 1:16

4. Management^{1,2,3,4}

- Contact the Queensland Syphilis Surveillance Centre ☎ 1800 032 238 or email Qld-syphilis-surveillance-centre@health.qld.gov.au or North-Qld-Syphilis-Surveillance-Centre@health.qld.gov.au or for those outside of Queensland contact your local Public Health Unit for any advice regarding syphilis management
- Perform immediate contact tracing and treatment of sex partners to avoid reinfection:
 - contacts of primary, secondary and early latent syphilis (syphilis of < 2 years duration):
 - obtain a list of the names of sexual contacts up to 12 months, if practical
 - treat at presentation with benzathine benzylpenicillin (Bicillin LA[®]) 1.8 g
 - contacts of syphilis should be attempted to be traced on at least 3 occasions
- Provide education on prevention and condoms use:
 - advise no sexual contact for 7 days after treatment
 - advise no sex with partners from the last 3 months (primary syphilis) and 6 months (secondary syphilis) until the partners have been tested and treated (as appropriate)
- Medication management:
 - primary, secondary and early latent syphilis (less than 2 years duration) treat with benzathine benzylpenicillin (Bicillin LA[®]) 1.8 g stat
 - late latent syphilis (more than 2 years or unknown duration) treat with benzathine benzylpenicillin (Bicillin LA[®]) 1.8 g once weekly for 3 weeks
 - if treatment is commenced more than 2 weeks after performing syphilis testing, the serology may have risen. Repeat the syphilis serology on the first day of treatment (baseline RPR)
 - **note:** if allergy to penicillin, seek advice from the Queensland Syphilis Surveillance Centre, or local Public Health Unit for alternative treatment options
- Treatment of syphilis in pregnancy:
 - treatment of pregnant women and their contacts should be carried out urgently and in consultation with a specialist MO/NP
 - 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 as per local protocols. Additional testing required in outbreaks/high risk areas. See [Antenatal care, page 500](#)
 - 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, ideally with a documented 2 titre (fourfold) fall in RPR by the time of delivery
- Jarisch-Herxheimer reaction:
 - common and may occur with treatment of early syphilis
 - may cause preterm labour, but this should not prevent or delay treatment because syphilis can result in miscarriage, stillbirth and congenital syphilis
 - symptoms may occur 6-12 hours after treatment and may include fever, chills, headache, hypotension and flare up of lesions lasting 12-14 hours
 - can normally be managed with paracetamol for 24 hours
- See [Sexually transmitted infections general, page 615](#)

Schedule	4	Benzathine benzylpenicillin (Bicillin LA®)		Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP					
RIPRN and SRH may proceed					
Form	Strength	Route of administration	Recommended dosage	Duration	
Injection (pre-filled syringe)	1.2 million units/2.3 mL (900 mg)	IM	Adult 2.4 million units (1.8 g)	Primary, Secondary or Early latent syphilis stat dose	
			Give 2 separate injections	Late latent syphilis Once a week for 3 weeks	
Provide Consumer Medicine Information: May cause diarrhoea, nausea and pain at injection site					
Note: Stop injection immediately if patient shows signs of severe pain. See Administration tips for benzathine benzylpenicillin, page 787					
Contraindication: 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, page 102					
1,2,3,4,5					

1,2,3,4,5

5. Follow up

- Recommend client to return for follow-up at 1-2 weeks to check:
 - treatment completed and symptoms have resolved
 - contacts have been tested and treated
 - test results have been provided to patient
 - consult MO/NP if symptoms have not resolved
- Recommend client to return for follow-up at 3, 6 and 12 months for primary, secondary, early latent syphilis for:
 - repeat RPR and offer full STI check
 - a 2 titre or fourfold fall in RPR by 6 months indicates adequate response to treatment

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

HMP Donovanosis

Recommend^{1,2}

- There is no need to test for donovanosis on initial presentation of genital ulcers unless clinically indicated i.e. a known contact of a donovanosis case OR a rural and remote resident with named contact from central and northern Australia (rare), Papua New Guinea, India or southern Africa
- Follow-up is essential as resolution is slow and recurrence can occur
- Children born via vaginal delivery to women with active donovanosis should receive prophylactic azithromycin - seek expert advice

Background^{1,2}

- Very rare, even in rural and remote areas of Australia
- Donovanosis is a chronic, progressively destructive infection
- Microscopy of scrapings, snip or punch biopsy, or PCR can confirm the diagnosis

Related topics

[Genital sores/ulcers, page 640](#)

[Syphilis, page 646](#)

1. May present with^{1,2}

- Raised, beefy nodules or sores. Can be large and disfiguring
- Painless hard ano-genital ulcers with irregular raised edges that bleed on contact
- Patient may complain of lesions smelling offensive, due to secondary bacterial infection
- Past history of donovanosis

2. Immediate management Not applicable

3. Clinical assessment^{1,2,3}

- Obtain patient history:
 - if previous serology is negative for other genital ulcers or unresponsive to treatments, consider donovanosis. Discuss with a specialist
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform examination
- Suspect donovanosis in patients with combination of:
 - painless genital ulcer
 - high risk sexual behaviours (particularly in endemic regions)
 - exclusion of other causes (especially herpes simplex virus infection, syphilis, and gonorrhoea)
- Collect STI specimen:
 - 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

4. Management

- Treat immediately
- 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:
 - treat with azithromycin OR doxycycline
- If lesions have not completely healed 6 weeks after therapy, a biopsy needs to be organised to exclude alternative diagnoses
- Perform immediate contact tracing:
 - contacts should be examined and have a complete STI check
- Provide patient education and prevention:
 - condom use
 - 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 reviewed and treated as necessary

Schedule	4	Azithromycin		Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP					
RIPRN and SRH may proceed					
Form	Strength	Route of administration	Recommended dosage	Duration	
Tablet	500 mg	Oral	500 mg daily	7 days	
OR					
Tablet	500 mg	Oral	1 g once a week	For at least 4 weeks until healing occurs	
Provide Consumer Medicine Information: Take with or without food. May cause rash, diarrhoea, nausea, abdominal cramps and candidiasis					
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102					
1,2,3,4					

1,2,3,4

Schedule	4	Doxycycline			Extended authority
ATSIHP/IHW/IPAP/RIPRN/SRH					
ATSIHP, IHW, IPAP and RN must consult MO/NP					
RIPRN and SRH may proceed					
Form	Strength	Route of administration	Recommended dosage	Duration	
Tablet	50 mg 100 mg	Oral	100 mg bd	For at least 4 weeks until healing occurs	
Provide Consumer Medicine Information: May cause diarrhoea, nausea, vomiting, epigastric burning and photosensitivity. Take with food or milk. Do not lie down for an hour after taking. Do not take iron, calcium, zinc, or antacids within 2 hours of taking. Avoid sun exposure					
Contraindication: Severe or immediate allergic reaction to tetracyclines or treatment with oral retinoids. Children < 8 years of age. After 18 weeks of pregnancy					
Use in pregnancy: Safe in the first 18 weeks of pregnancy					
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102					
1,2,3,5					

1,2,3,5

5. Follow up^{1,2,3}

- Follow-up weekly (during direct observation of medication administration) until resolution of signs and symptoms which can be slow; recurrence can occur:
 - check to ensure patient was compliant with treatment
 - consult MO/NP if sores have not significantly responded to treatment within 4 weeks or healed by 6 weeks
 - longer duration of therapy may be required until complete ulcer granulation and re-epithelialisation
 - check contacts have been examined and treated
- Relapse/re-infection may occur. Advise patients to seek review at completion of treatment and at 3 months

6. Referral/consultation

- Consult MO/NP as above if allergic, if pregnant or if symptoms do not respond to treatment
- ① For a patient with genital sores contact the Syphilis Surveillance Centre ① 1800 032 238 or email North-QLD-Syphilis-Surveillance-Centre@health.qld.gov.au
- If outside Queensland contact the local Public Health Unit

HMP Genital warts

HUMAN PAPILLOMA VIRUS (HPV)

Recommend

- The diagnosis of genital warts is clinical. Syphilis must be excluded

Background^{1,2,3}

- HPV is associated with genital warts, abnormal cervical screening tests, squamous intraepithelial lesions and cervical cancer
- HPV vaccination in Australia has resulted in a decrease in the incidence of cervical cancer
- Usually form up to 18 months after initial exposure (not always sexual)

Related topics

[Genital sores/ulcers, page 640](#)

[Syphilis, page 646](#)

1. May present with¹

- Large clusters of lesions (warts) on genital skin that may or may not be painful
- Warts may be papillomatous, pedunculated or sessile growths (elongated stalk), 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
- PR bleeding after passage of stools
- Perianal itch
- Burning sensation
- Bleeding or irritation upon contact with clothing or during sexual intercourse, especially with larger lesions

2. Immediate management Not applicable

3. Clinical assessment^{1,2,3}

- Obtain patient history including:
 - whether partner has genital warts/other STI symptoms
 - any HPV changes detected on cervical screening test
 - immunosuppression
 - STI's - any symptoms; previous history of STIs
 - pregnancy
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform an examination:
 - examine the genital area for discharge, nodules, sores and ulcers and the groin for enlarged nodes
- Diagnosis is usually based on visual appearance:
 - exclude normal anatomical variants and other causes of lumps before treating
 - solitary keratotic papule or plaque (initially)
 - small, nondistinctive 1-2 mm flesh-colored papules
 - frequently found in large clusters on external genitalia

- may grow as large as several inches in diameter
- colour ranges from white to pink, purple, red, or brown
- appearance can be flat, dome or cauliflower shaped
- Tests to consider:
 - histology biopsy to exclude cancer if there is variable pigmentation, raised plaque-like lesions or cervical warts
 - urine pregnancy test for all women of childbearing age (12-52 years)
 - chlamydia, gonorrhoea, trichomonas and *Mycoplasma genitalium* (only if clinically indicated)
 - also offer test for syphilis, HIV, hepatitis C, hepatitis B
- See [Sexually transmitted infections general, page 615](#)

4. Management^{1,2,3}

- Consult with MO/NP or Sexual Health Nurse who may treat with:
 - self administered podophyllotoxin:
 - paint is suited for use on external skin
 - cream is best used for the perianal area, vaginal opening and under the foreskin
 - liquid nitrogen or nitrous oxide cryotherapy
 - specialist excision or other therapies for meatal, intra-anal or cervical warts
- Female partners of males with genital warts should have a cervical screening test if due
- Contact tracing is unnecessary as the majority of those with HPV are infected subclinically
- Provide patient education and prevention:
 - condom use
 - if warts in the pubic region avoid shaving or waxing which may facilitate local spreading
 - treatment is cosmetic rather than curative
 - in the presence of HIV, genital warts may require longer cycles of treatment and are more likely to recur
 - topical treatments on normal skin can cause erythema and ulceration
 - encourage HPV vaccine

Schedule	4	Podophyllotoxin	Extended authority ATSIHP/IHW/IPAP/RIPRN/SRH	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN and SRH may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Cream	0.15%	Topical	Adult bd Apply to wart (avoid normal skin)	3 days then no treatment for 4 days
Paint	0.5%			Repeat treatment as above for up to 4-6 cycles until resolved
Provide Consumer Medicine Information: May cause local irritations: burning, inflammation, pain, erosion or itch. Do not use on broken skin. Avoid contact with eyes. Before applying, wash affected area with mild soap and water and allow to dry. Wash hands before and after use; avoid bathing or showering after application. If you have sex, apply the treatment afterwards or wash it off if already applied. May weaken latex condoms and should be washed off before used				
Note: Clinician to apply the first treatment and instruct the patient in proper use				
Use in pregnancy: Contraindicated				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,2,4,5

1,2,4,5

5. Follow up^{1,3}

- All women with genital warts or partners of men with genital warts should have a regular cervical screening test in accordance with NHMRC guidelines
- Follow up is unnecessary but is beneficial to assess response to treatment and to reassure client

6. Referral/consultation

- Consult MO/NP or specialist if lesions are atypical or do not respond to treatment

Human immunodeficiency virus (HIV) infection

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/services/find-service#hiv> or phone 07 3328 9797
- Outside of Queensland contact your local Sexual Health Unit

Background^{1,2}

- The presence of other STIs significantly increases the risk of both acquiring and passing on HIV, if exposed
- People at risk include men who have sex with men (MSM), sexual partners of HIV infected people, people from a country with high HIV prevalence, sexually active overseas travellers and people who share injecting equipment
- HIV post exposure prophylaxis (PEP) is available in selected cases in the event of occupational and non-occupational exposure to HIV. See Management
- Antiviral medicine can improve the quality and length of life, as well as significantly reducing transmission to babies during pregnancy (from 30% - < 1%). Antiviral medicine also reduces the risk of sexual transmission

Related topics

[Sexually transmitted infections general, page 615](#)

1. May present with^{1,2}

- Asymptomatic follow-up after positive screening test of undiagnosed HIV infection
- Flu like symptoms can occur 2-6 weeks after infection such as fever, headache, rashes, sore throat, mouth ulcers, muscle aches and pains, enlarged lymph nodes
- Opportunistic infections that occur with significantly increased frequency due to being immune deficient i.e. oral thrush, herpes zoster, diarrhoea, weight loss, pneumonia, Kaposi's sarcoma or skin infections

2. Immediate management

- Consult MO/NP

3. Clinical assessment^{1,2,4}

- Obtain patient history:
 - injecting practices
 - sexual practices
 - sexual contact with those from a high HIV prevalent country e.g. Africa, Central America, Europe
 - has been identified on contact tracing
 - chronic medical and psychiatric conditions or current medications that may affect treatment options
 - any prior treatment with antiretroviral therapy (ART) including pre or post exposure prophylaxis (PEP or PrEP)

- any ongoing risk factors for transmission, such as sexual habits and illicit drug use
- history of sexually transmitted infections (STIs), such as syphilis, gonorrhea, or chlamydia
- any known co-infections, such as tuberculosis (TB), hepatitis B or hepatitis C
- social history including housing, financial and social supports, and emotional health
- any issues related to disclosing HIV status to others
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools):
 - body mass index
 - infections or abnormalities of skin, oral cavity, and teeth
- MO/NP examination should include:
 - abnormal subcutaneous fat redistribution
 - examination of lymph nodes
 - neuropsychiatric evaluation
 - rectal exam
 - gynaecological exam
- Ensure to have pre-test discussions and gain consent with patient before taking any pathology tests in accordance with:
 - national informed consent for HIV testing guidelines available at <http://www.testingportal.ashm.org.au/hiv/informed-consent-for-testing> OR
 - your local HIV public health team
- On advice of your local HIV public health team take appropriate HIV pathology. See HIV Pathology table

HIV Pathology ^{1,2,3}		
Test	Site/Specimen	Consideration
HIV Ag/Ab	Blood	Usually lab will perform a combination HIV Ag/Ab test, usually reactive within 6 weeks of infection but occasionally longer
Western blot	Blood	Confirmatory test
HIV p24 antigen	Blood	High during HIV primary illness
CD4 lymphocyte	Blood	Marker of immune function, usually > 500
HIV RNA (viral load)	Blood	Marker of HIV level in serum, should be undetectable if on treatment
Standard Pathology ^{1,2,3}		
Glucose, eGFR, LFTs, FBC, lipids, urinalysis, and hepatitis A, hepatitis B and hepatitis C serology. Consider screening for tuberculosis		

4. Management⁴

- Contact the Director of Sexual Health or Infectious Diseases Physician, the local HIV Public Health Team or an MO/NP, to discuss HIV PEP if a patient presents immediately following possible exposure:
 - needle stick injury from a known HIV positive source or a person from a high HIV prevalent country
 - sexual exposure, in particular sexual assault by multiple assailants of unknown HIV status or in the event of a sexual assault by a person from a high HIV prevalent country, or receptive anal intercourse by MSM without a condom
 - See *HIV post-exposure prophylaxis - HIV* at: <http://conditions.health.qld.gov.au/HealthCondition/condition/14/116/520/Post-exposure-Prophylaxis--HIV>

- Discuss with the HIV Public Health Team or MO/NP with any result interpretation **before** discussing the result with the patient as false positive test or indeterminate results can occur
- HIV pathology results:
 - a negative HIV result means the patient has not been infected with HIV
 - a positive HIV result means the patient has been infected with HIV
- Post HIV test result discussions should be in accordance to:
 - national conveying HIV test results guidelines available at <http://www.testingportal.ashm.org.au/hiv/conveying-hiv-test-results> OR
 - your local HIV public health team
- Medication management:
 - discussions with the local HIV Public Health Team and specialist will ensure medications are made available for the patient to start treatment as soon as practical after the day of diagnosis

5. Follow up

- If the patient has been exposed to HIV in the previous 3 months, HIV serology should be repeated to cover the window period

6. Referral/consultation

- ① HIV is a notifiable disease
- HIV positive people should be managed in consultation with a specialist MO
- For more information go to

Rape and sexual assault

Rape and sexual assault - adult/child

Recommend¹

- Evacuation may be required in some areas for **forensic examination**. Check local protocol
- Initial management of a client presenting in the acute phase of an alleged rape or sexual assault is to assess and manage any injury or medical problem
- Sexual health assistance is part assessment and management
- The priority is to ensure the safety and welfare of the client
- For clients < 14 years of age seek phone advice from a specialist Paediatrician
- If the client is < 18 years of age there may be a mandatory reporting obligation. See [Child protection, page 760](#)
- 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
- 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/dataset/victims-assistance-sexual-assault/resource/3b3958c9-504f-4698-a64d-e56ca7e5248e>

Related topics

[Emergency contraception, page 611](#)

[Sexually transmitted infections general, page 615](#)

[Traumatic injuries, page 163](#)

[Unintended pregnancy, page 498](#)

1. May present with

Adult

- Reported sexual assault, family violence, physical assault
- Loss of consciousness/episode of amnesia/alcohol blackout
- Other minor complaint which does not correspond to patient's psychological state
- Self-harm/attempted suicide/eating disorders
- Report from within community that an adult is being sexually assaulted. Report incident to the police
- Request for forensic evidence collection by Queensland Police Service

Child

- PV/PR bleeding, abdominal pain, behavioural change
- Sleep disturbance, bed wetting
- Other non-accidental injury
- Report from within community that a child is being sexually assaulted. Report incident to police
- Sexually transmitted infection in child which needs to be followed up with extreme care and confidentiality

2. Immediate management

- Assess and attend to life threatening conditions,² which may include:
 - strangulation
 - blunt trauma to head, face and torso
 - penetrating injuries^{2,3}
- Consult MO/NP/Forensic Nurse Examiner (FNE)/Forensic Medical Officer (FMO)
- See the client in a private area to ensure confidentiality, dignity and safety¹
- If a preference for female or male clinician is expressed, take all reasonable steps to accommodate this¹
- Ensure client has an opportunity to arrange a support person such as relative, friend or appropriate Police Officer
- Adult victim/survivor:
 - consult MO/NP/FNE/FMO if available
 - follow local protocols for forensic examination and evacuation of victim
- Child victim/survivor:^{1,4}
 - consult MO/NP who will arrange evacuation for examination by experienced MO/NP or Paediatrician

3. Clinical assessment¹

- Forensic examination:
 - clients may require evacuation for forensic examination - check local protocol
- Non-forensic examination:^{2,5}
 - gain client's consent to perform non-forensic examination
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - perform head to toe physical examination
 - observe for bleeding and injuries to genitals, anus, breasts
 - observe for trauma to thighs, upper arms and face/neck
 - document and/or record on body diagram any physical injuries that have occurred as a result of being held, pushed, punched etc
- Offer 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, page 656](#)
 - offer point of care pregnancy testing for women of reproductive age

4. Management¹

- Adult victim/survivor:
 - consult MO/NP/FNE/FMO
 - ensure client feels safe and supported - proceed at their pace. It is important that the client can retain control of the process
 - provide emotional and psychological support as necessary⁵

- provide information on options and encourage the client to make their own decision regarding legal action, giving them space and time:
 - they may change their mind
- 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
 📞 1800 737 732
- Child victim/survivor:¹
 - follow local protocols for child safety referral. See [Child protection, page 760](#)
 - if a medical examination is required it should be conducted by an experienced MO/NP/ Paediatrician/FNE/FMO, or in consultation with one

5. Follow up^{3,5}

- Ensure the client, 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 clients 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
- Advise to see MO/NP at next clinic as appropriate
- Offer the following reviews:
 - 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

6. Referral/consultation

- Consult MO/NP/Paediatrician/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
- Police if indicated or requested
- Sexual assault service/counselling service/Social Worker as per availability
- Other useful resources include:
 - 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

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Paediatrics



Paediatric presentation

History and physical examination - child

Recommend

- Always use age appropriate CEWT rural and remote - if not available use other local Early Warning and Response Tool - **document and act on CEWT score**
- Consult MO/NP immediately about any baby < 3 months of age who is febrile or any child who you are concerned about or with an abnormal CEWT score
- Pay particular attention to history from parent/carer where available
- Regardless of the time of day or night or the circumstances always reassure they have done the right thing in bringing the child in - regardless of the concern
- Opportunistic health promotion and screening should occur during visit whenever appropriate. For screening tools and checks, see the *Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>

Background

- Small children, especially young babies, get sick very quickly
- **Risk signs for serious illness in children are:**
 - CEWT score ≥ 4
 - fever or hypothermia - $T > 38^{\circ}\text{C}$ or $< 35.5^{\circ}\text{C}$
 - unexplained pain/restlessness
 - 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: > 8 watery stools in 24 hours
 - < 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
- Patient information sheets available at <https://clinicalexcellence.qld.gov.au/resources/emergency-department-patient-information-sheets>

Zero (o) values on the Queensland Children's Early Warning Tool (CEWT)

Parameter		CEWT range			
		< 1 year	1-4 years	5-11 years	≥ 12 years
Standard clinical observations	HR (beats/min)	≥ 100 - < 160	≥ 90 - < 140	≥ 80 - < 130	≥ 60 - < 120
	RR (breaths/min)	21-45	16-35	16-30	16-25
	Temperature	35.5°C - 37.9°C			
Other vital signs if indicated	BP (mmHg)	Systolic range 75-119	Systolic range 80-124	Systolic range 85-129	Systolic range 90-149
	Respiratory distress	Nil			
	SpO ₂	≥ 94%			
	Central capillary refill time	≤ 2 secs			
	Level of consciousness	Glasgow coma scale 15 AVPU tool - alert			
	BGL	3-8 mmol/L (random capillary)			

Always document clinical observations on an age appropriate CEWT rural and remote or other local Early Warning and Response Tool.

Have score ready when consulting the MO/NP

Think could this be sepsis in all children if:¹

- ☐ looks sick
- ☐ you suspect they may have sepsis
- ☐ patient, family or carer/parent has concerns
- ☐ signs of deterioration during current illness
- ☐ CEWT score ≥ 4
- ☐ fever or hypothermia
- ☐ unexplained pain or restlessness
- ☐ altered behaviour or ↓ level of consciousness
- ☐ re-presentation within 48 hours

If any of the above, screen for sepsis. See [Sepsis/septic shock, page 80](#)

Step 1: Obtain history of the presenting concern/problem²

- Obtain a full history in conjunction with examining the child:
 - in a sick child this entails a full assessment of all systems
- The history is the most powerful tool for identifying the diagnosis in most cases²

History of presenting concern/problem ²	
Presenting concern/ problem	• Ask the parent/carer what the problem is • Use open ended questions
For each symptom ask about (as relevant)	• Site - where is the pain/symptom • Onset: – gradual or sudden onset – continuous or intermittent – what were they doing when it started • Character e.g. sharp, dull or burning • Radiation of pain or discomfort • Alleviating factors - what makes it better e.g. sitting up, medicines • Timing - when did it first begin, how long did it last, have they had it before • Exacerbating factors - does anything make it worse e.g. movement • Severity - mild, moderate or severe pain: – see Acute pain management, page 35 for pain assessment tools
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
Behaviour and activity during this illness	• Active/alert, sleepy or irritable, easy/difficult to wake • Muscle tone 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 – alert during feeds – long between intake and vomit/diarrhoea – many wet nappies or times passed urine in preceding 24 hours • Amount/type bowel movements; presence of blood in stool
Treatment and/or medicine given by carer during this illness	• What, how much, when, how often, how effective
• Ask if there are any other concerns • Consider possible differential diagnosis • Use closed ended questioning to help confirm or eliminate various possibilities	

Step 2: Ask about past history²

- Review and update past history in clinical records each visit
- Consider relevant past history that may assist with differential diagnosis this visit
- Always ask about **allergies and medicines**

Past history ²	
Past medical and surgical history	• Was birth normal. Any immediate neonatal problems • Any problems with growth and development • Significant illnesses in the past. What/when: – ask about diabetes, asthma, epilepsy, RHD • Hospital admissions. Why/when • Operations or injuries. What/ when • Mother's alcohol, smoking, drug 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 • Record name of person presenting with child/relationship to child • Mental health problems in carers/child • Household smokers • Recent contacts or trips away • If medicines are given, will they be taken
Medications	• Regular and prn medicines: prescribed, complementary, alternative, bush medicines, over the counter: – generic name – dose, frequency – taken correctly • May need to ask about other medicine(s) in the home the child may have taken • See Medication history and reconciliation, page 778
Allergies	• Ask about adverse reactions/allergies to: – medicines – other allergies e.g. honey bee stings, sticking plaster, food • Specific reaction: – anaphylaxis, skin reaction, bronchospasm, other • Is an adrenaline (epinephrine) autoinjector e.g. EpiPen[®] used • Check for medical alert jewellery and accessories: – may look like normal jewellery or other accessory e.g. shoe tag, anklet, watch • Check clinical records • If adverse medication reactions/allergies ensure documented as per local policy
Immunisations	• Check if up to date • Documented evidence of immunisations received should be obtained • Offer opportunistic immunisation at visit if appropriate. See Immunisation program, page 768

Offer opportunistic health checks (as appropriate)

- Check if due for routine health check. See *Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>
- Offer, or refer for health checks as appropriate

Step 3: Perform physical examination

- **In a 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
 - 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
- **Tips for examining children:**
 - use distraction techniques
 - 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

Physical examination - child^{2,3,4,5}

General appearance ⁶	• Watch before you examine • Observe interaction between carer and child • Appearance: – does the child look well or sick – alert or drowsy – Tone - moving around and active OR floppy/limp and listless – Interactiveness - reaching for toys/interacting, or disinterested in interacting/playing – Consolability - can child be comforted by the care giver – Look/gaze - does the child fix their gaze on a face or is there a glassy eyed stare – Speech/cry - strong and vigorous, weak, hoarse, high pitched⁷ • Work of breathing: – look for retractions, nasal flaring, gasping, increased RR – listen for audible wheeze, snoring, grunting, stridor • Circulation: – look at lips tongue and fingers - are they blue – compare lips and tongue colour to parents if unsure – skin colour - pink/pallor, mottling, cyanosis • 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 • Do they look well nourished
Perform standard clinical observations (All children presenting for acute care)	• RR • T • HR • SpO₂ • BP - use correct sized cuff (wider than 2/3 the length of upper arm): – see APSGN, page 700 for tips in taking BP in children • Central capillary refill time: – press on skin of sternum or a digit at level of heart for 5 seconds - how long does it take for the colour to return • Conscious state - AVPU ± GCS. See Glasgow Coma Scale/AVPU, page 785 • BGL - if altered level of consciousness/seriously ill Always document on CEWT rural and remote or other local Early Warning and Response Tool Calculate score

(continued)

Physical examination - child (continued)

Weight	• Weigh all children - bare weight if < 2 years: – compare against most recent weights – plot on growth charts appropriate for age and gender • If appropriate, also measure: – length if < 2 years old, height if > 2 years and able to stand – head circumference if < 2 years, or if indicated in older child
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 depressed may indicate dehydration. A bulging fontanelle arises from raised intracranial pressure and usually indicates a serious illness • See Acute gastroenteritis/dehydration - child, page 730
Skin	• Always check the whole body, particularly in a sick child • Inspect for: – rash - non-blanching, petechiae, purpura – colour - unusually pale, mottled or cyanotic – bruising, unexplained or unusual marks – signs of infection - redness, swelling or tenderness • Skin lesions or sores: – colour, shape, size, location, distribution on body – exudate e.g. clear, pus, bloody – any family members/close contact with similar lesions • Any palpable/tender lymph nodes in the neck, axillae and groin
Cardiovascular system	• Inspect skin colour: – pink, white, grey mottling. Compare the trunk with the limbs – any oedema - check hands, feet, shins, lower legs, face • Palpate: – skin temperature - hot, warm, cool, cold, sweating. Compare the trunk with limbs – peripheral pulses - weak or strong – peripheral perfusion - 'blanch' the skin on a finger or toe for 5 seconds. Time how long it takes for the colour to return – Central perfusion - as per peripheral perfusion, but blanch the skin over the sternum with your thumb • If trained in auscultation listen to heart sounds

(continued)

Physical examination - child (continued)

Respiratory system	• Most information is gained through inspection • Inspect anterior/posterior chest for: – equal chest movement – use of accessory muscles of respiration - rib retraction/recession; mild, moderate or severe; nasal flaring; head bobbing • Can child talk continuously, only in words/sentences or unable to talk at all • Measure RR over 1 minute - 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 – wheezes or crackles - on inspiration or expiration – Note: transmitted sounds from the upper respiratory tract are very common in children and may mask other signs • Will the child lie flat • SpO₂
Gastro-intestinal and reproductive systems	• Inspect for: – any scars or abdominal distension/hernias, bruising or other discolouration; prominent veins; obvious masses • Auscultate bowel sounds - present or absent • Palpate abdomen - if pain, palpate with extra care: – 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 • Percuss and feel for bladder • Check the testes in boys - are they both in the scrotum: – any redness, swelling or tenderness
Nervous system	• A brief assessment is all that is needed. Assess: – conscious state. See Glasgow Coma Scale/AVPU, page 785 – 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 • Assess asymmetry of tone and power i.e. compare each side of the face and 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 - active and passive • Pain in limbs, joints or muscles • Any redness, pain, swelling, heat over joint(s); observe gait • See Acute rheumatic fever, page 705 and Bone and joint infections, page 758

(continued)

Physical examination - child (continued)

Ears, nose and throat	Ears - Inspect: - the pinna - any redness, swelling - ear canal - any obvious swelling or redness to outer canal, if there is looking with an otoscope will be painful - Look inside canal with an otoscope: - canal - any redness, swelling, discharge - eardrum - normal, redness, dullness, bulging or retraction, fluid or air bubbles, perforations or discharge - Check behind the ear (mastoid) for redness/swelling - See Ear and hearing assessment, page 708 for detailed assessment Nose - Feel for facial swelling/inflammation - Is there any discharge or obvious foreign body Throat - Inspect: - lips, buccal mucosa, gums, palate, tongue, throat - any redness/swelling/rash - condition of teeth
Eyes	- If indicated, test the visual acuity of each eye: - use age appropriate Snellen chart at 6 metres in good light - Inspect: - eyes and surrounding structures - any redness, discharge or swelling - pupils - are they equal in size and regular in shape - check pupillary reflex to light - eye movements - ask the child to follow the movement of your finger - See Assessment of the eye, page 358 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 - Inspect the colour - is it normal, dark, blood stained - Does it smell normal - Perform urinalysis + - point of care pregnancy test if child bearing age and appropriate to presentation (with parental consent if age appropriate)

Step 4: Consider differential diagnosis

- See decision making flowcharts to assist with clinical impression in [Differential diagnosis - child, page 673](#)
- If unsure, collaborate with MO/NP
- Always consider risk factors for children in considering your diagnosis/management**

Step 5: Select Health Management Protocol or Clinical Care Guideline

- To guide further assessment and management
- Document the page number of the HMP/CCG referred to in the clinical record

Step 6: Order/collect pathology if indicated

- If child is unwell enough to require a blood test beyond BGL and Hb **always consult an MO/NP** first to save unnecessary testing, or unnecessary 'additional' blood collection for other tests that may be required
- RIPRN:⁸
 - may order pathology as per a HMP
 - name and signature of the MO, NP or RIPRN must be on request form or follow local protocol for electronic ordering
 - if RIPRN orders pathology, they are responsible for following up the result
 - consult MO/NP if results are abnormal
- Other clinical staff may be able to request pathology if there is a local agreement in place between the director of the clinical unit and Pathology Queensland/local health service
- Write 'copy of report to...' RFDS/other collaborative health provider on the pathology form as appropriate
- Point of care testing is available in some facilities e.g. iSTAT
- See Pathology Queensland for:
 - pathology test list
 - rural and remote pathology request forms
 - see <https://www.health.qld.gov.au/healthsupport/businesses/pathology-queensland/healthcare>
- If outside Queensland refer to local pathology services

Step 7: Collaborate with MO/NP as required

- Have CEWT score completed
- Use ISOBAR to guide your communication. See [Clinical consultation, page 28](#)
- Always consult with the MO/NP if you are not sure
- Check your local facility guidelines to find out who to contact - during and after hours
 - see [History and physical examination - adult, page 20](#) for Queensland contacts

Differential diagnosis - child**Recommend**

- The following flowcharts can be used as a guide to assist with differential diagnosis in a child
- They are not intended to be a replacement for clinical judgment, expertise or experience
- Always work within your individual scope and refer to a MO/NP as needed

CHILD WITH FEVER

Fever is usually an indicator of infection. Two or more infections may co-exist, e.g. URTI plus meningitis

Consult MO/NP for babies < 3 months of age, a fever with no obvious source of infection, a fever that is persistent despite measures taken, or at any time you are unsure

Clinical assessment performed

Child unwell	Child unwell	Child unwell	Child unwell	Child unwell	Child unwell	Basically well child	Basically well child	Basically well child	Basically well child
History of URTI like illness	Rapid onset high fever	Dysuria, frequency, smelly urine	Cough	Obvious abscess or cellulitis	Vomiting and diarrhoea	URT type symptoms may be present	Sore throat, ears, nasal discharge, cough, cervical lymphadenopathy, red inflamed throat, tonsillar enlargement	Urt type symptoms may be present	Sore throat, ears, nasal discharge, cough, cervical lymphadenopathy, red inflamed throat, tonsillar enlargement
Neck stiffness or bulging fontanelle	Stridor, drooling, unable to eat, drink or talk	Positive urinalysis	Rapid breathing, chest recession	No other significant features	No other significant features	Bulging ear drum on examination	No other significant features	No other significant features	No other significant features
Headache, photophobia ± rash	Reluctant to move neck	No other significant features	Tachycardia	No other significant features	No other significant features	No other significant features	No other significant features	No other significant features	No other significant features
Consider Meningitis, page 91	Consider epiglottitis. See Croup/epiglottitis, page 691	Consider Upper respiratory tract infection (URTI) - child, page 682	Consider Pneumonia - child, page 697	Consider Cellulitis, page 401	Consider Acute gastroenteritis/dehydration - child, page 730	Consider Acute otitis media (AOM) with/without perforation, page 712	Consider Upper respiratory tract infection (URTI) - child, page 682	Consider Acute otitis media (AOM) with/without perforation, page 712	Consider Upper respiratory tract infection (URTI) - child, page 682

Always consider Sepsis, see [Sepsis/septic shock](#), page 80

Note: If child has received chemotherapy within 14 days, and has $T \geq 38.5^{\circ}\text{C} \times 1$ **OR** $\geq 38^{\circ}\text{C} \times 2$ one hour apart suspect febrile neutropenia. Urgently contact MO/NP

Babies < 3 months of age contact MO/NP immediately
Contact MO/NP if significant features of assessment unclear or you are unsure of cause

Clinical assessment performed

Basically well child

Barking cough
Mild URTI symptoms
Mild fever
Mild/moderate stridor
No other significant features

Consider
Croup. See Croup/epiglottitis, page 691

Sore throat and/or ears

Nasal discharge (mucoid or watery)
Nasal itching
Post-nasal drainage
Sneezing
Facial pain or pressure

Consider
Upper respiratory tract infection (URTI) - child, page 682

Sudden onset in previously well child

Cough ± Stridor
± Wheeze
Airway compromised
Usually there is a history of ingesting or choking on something

Consider
Foreign body airway obstruction (choking), page 99

Basically well child

Sore throat
Cervical lymphadenopathy
Fever, red inflamed throat
Tonsillar enlargement ± pus
No other significant features

Consider
Sore throat, page 685 and Upper respiratory tract infection (URTI) - child, page 682

Child unwell

Fever
Rapid breathing with chest recession
Tachycardia
Chest or abdominal pain
No other significant features

Consider
Pneumonia - child, page 697

Nocturnal or exercise induced cough

Wheeze, rapid breathing
No other significant features

Consider
Acute asthma, page 119 and Bronchiolitis, page 695

Paroxysmal cough

Whoop
Apnoea
No other significant features

Consider
Pertussis, page 689

Always consider Sepsis, see Sepsis/septic shock, page 80

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, angioedema, mass (tumour or abscess).

- Contact MO/NP immediately for babies < 3 months of age with acute stridor

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 **urgently**
In the meantime, consider epiglottitis

No

Rapid onset

- Weak or no cough
- Temp > 38.5°C
- Septicaemia
- Drizzling saliva
- Unable to eat or drink
- Doesn't talk
- Any age
- Reluctant to move neck
- As the condition deteriorates the stridor may decrease

Consider

Croup/epiglottitis, page 691
and Sepsis/septic shock, page 80

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

Consider

Croup/epiglottitis, page 691

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

Consider

Foreign body airway obstruction (choking), page 99

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
 - bites/stings

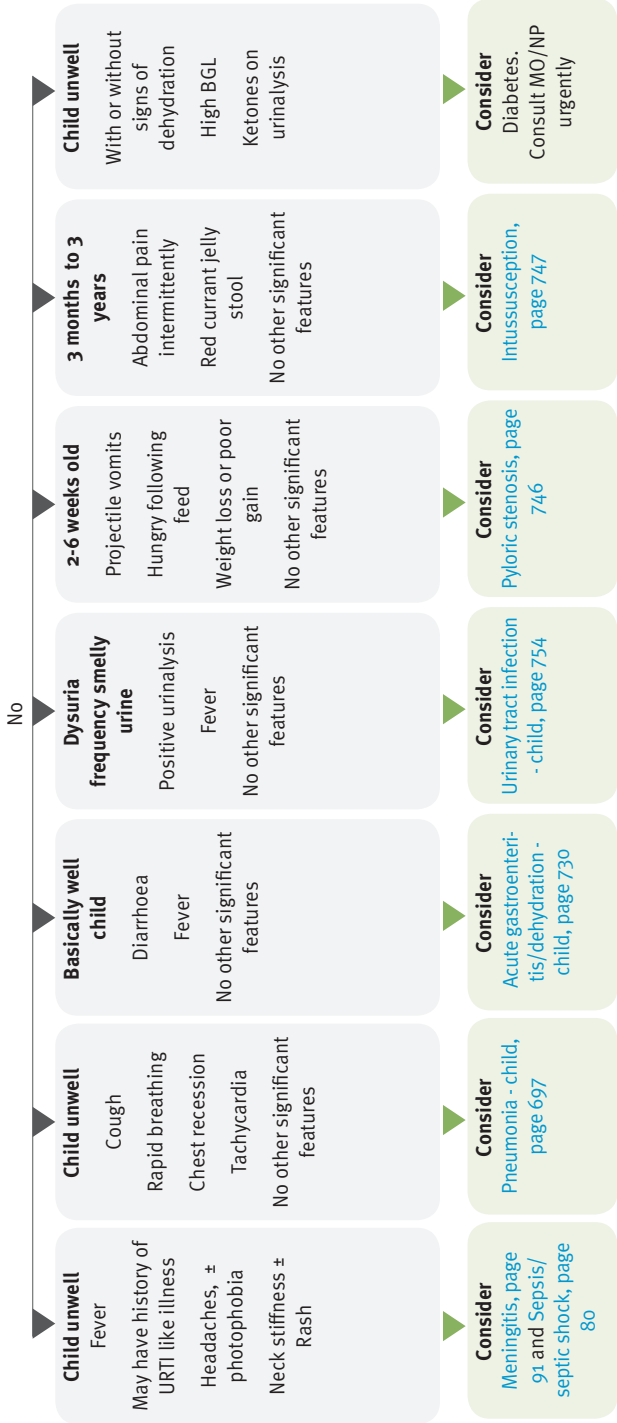
Consider

Anaphylaxis, page 102

Babies < 3 months of age contact MO/NP 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, or if bile stained vomit



Always consider Sepsis, see Sepsis/septic shock, page 80

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)

Any history of significant trauma

Yes

See [Traumatic injuries, page 163](#) and [Criteria for early notification of trauma for interfacility transfer \(inside front cover\)](#)

No

Bile-stained vomiting
Bloody stool
Localised tenderness
Distension
Guarding
Rebound tenderness
Palpable mass
Inguinal-scrotal pain or swelling

Yes

Consult MO/NP

No

Positive urine dipstick for leukocytes, nitrites or blood or bacteria on microscopy

Yes

Consider [Urinary tract infection - child, page 754](#)

No

Fever $\pm$
Tachypnoea
Recession
Cough
Chest pains

Yes

Consider [Pneumonia - child, page 697](#)

No

Diarrhoea $\pm$ vomiting/fever

Yes

Consider [Acute gastroenteritis/dehydration - child, page 730](#)

No

History of constipation or infrequent stools and/or
Firm stool palpable in lower abdomen?

Yes

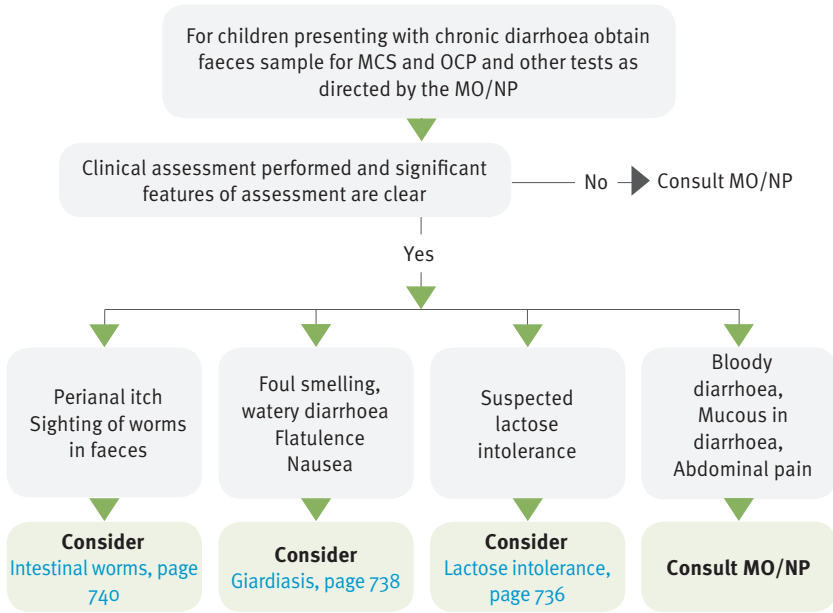
Consider [Constipation, page 743](#)

No

Consult MO/NP

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



Button battery

Button battery ingestion/insertion - child

Recommend¹

- Consult MO/NP first for all children with ingestion/insertion of button batteries. Contact the **Poisons Information Centre (PIC)** ☎ **13 11 26** (24 hours)
- If x-ray facilities are not available urgent evacuation to appropriately equipped facility may be required

Background^{1,2,3}

- Button (disc) 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 20 mm can more easily lodge in the oesophagus
- The mechanism of injury is related to pressure from the battery combined with contact with moisture. This produces an external electrical current causing a change in tissue fluids which produces a localised alkaline injury
- Batteries in the oesophagus may be asymptomatic early but severe burns can occur within 2 hours
- Children < 5 years of age are more likely to have a button battery ingestion
- Witnessed ingestion/insertion is associated with good outcomes
- 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

Related topics

[Corrosive substance ingestion, page 273](#)

[Foreign body airway obstruction \(choking\), page 99](#)

1. May present with^{1,2}

- Non-specific symptoms with no definite history of a battery ingestion
- Airway obstruction or wheezing
- Coughing, choking or gagging with eating or drinking
- Inspiratory stridor
- Chest pain
- Drooling
- Discharge from ear, nose or eye
- Difficulty swallowing
- Decreased appetite
- Refusal to eat
- Abdominal pain
- Unexplained bleeding from the mouth, anus, vagina, nose or ear
- Constipation
- Vomiting
- Fever

2. Immediate management^{1,2}

- See [Foreign body airway obstruction \(choking\), page 99](#)
- 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 (e.g. laxative) as both are ineffective
- If x-ray facilities are not available and the patient has a suspected or definite button battery ingestion, urgent evacuation is required to an appropriately equipped facility
- If available, urgent x-ray of the entire oesophagus, neck and abdomen to identify position of battery, especially in patients < 12 years and if a battery is known to be larger than 20 mm in diameter. If battery in oesophagus obtain an anteroposterior and lateral x-ray if possible

3. Clinical assessment

- Complete a risk assessment using Toxicology risk assessment in [Toxicology \(poisoning and overdose\) - general approach, page 259](#)
- Perform standard clinical observations (full CEWT score or other local Early Warning and Response Tools)

4. Management^{1,2}

- Consult MO/NP who will discuss with clinical toxicologist via the Poisons Information Centre (PIC)
☎ 13 11 26 (24hrs)
- **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
- Close attention to airway and breathing is essential
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

5. Follow up²

- If the battery is to be passed spontaneously, follow up to ensure battery passage within 4 days
- Community education on the prevention of button battery injuries especially safe storage

Respiratory problems

HMP Upper respiratory tract infection (URTI) - child

ACUTE RHINOSINUSITIS/COMMON COLD

Recommend¹

- 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 unilateral
- Comfort is usually the goal of treatment

Background^{1,2,3}

- Infections of the upper airway where neither sore throat nor cough are the predominant feature are typically diagnosed as URTI
- A viral URTI can be complicated by secondary bacterial infection such as otitis media or pneumonia, requiring antibiotics
- Most URTIs are caused by viruses e.g. common cold and do not require antibiotics. Bacterial causes are rare
- Children with exposure to tobacco smoke, with abnormalities of the nasal passages or sinuses, have immune disorders or have cystic fibrosis, may develop acute bacterial sinusitis. There can be severe complications such as meningitis
- Other complications include exacerbation of asthma

Related topics

[Acute asthma, page 119](#)

[Bronchiolitis, page 695](#)

[Croup/epiglottitis, page 691](#)

[Sore throat, page 685](#)

[Urticaria/allergic rhinitis, page 320](#)

1. May present with³

- Nasal discharge:
 - generally clear and watery initially, then thicker and mucoid later
 - 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 aches
- Ear pain, fullness or pressure
- Halitosis
- Sore throat
- Irritability

- Reduced oral intake of food and/or fluids

2. Immediate management Not applicable

3. Clinical assessment⁴

- Perform standard clinical observations (full 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 causes⁵
- 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
- If child has an increased RR, increased respiratory effort or any chest findings consider other diagnoses. See [Pneumonia - child, page 697](#)
- Check vaccination status. See [Immunisation program, page 768](#)
- If child has cough as the main feature, consider other diagnoses. See [Child with cough flowchart in Differential diagnosis - child, page 673](#)
- If child has an increased RR or any chest findings consider other diagnoses. See [Pneumonia - child, page 697](#)
- If child has evidence of secondary ear infection, see [Acute otitis media \(AOM\) with/without perforation, page 712](#)

4. Management^{3,6,7,8}

- Consult MO/NP if:
 - < 3 months of age
 - < 1 year with RR > 45/min
 - 1-4 years with RR > 35/min
 - 5-11 years with RR > 30/min
 - ≥ 12 years with RR > 25/min
 - respiratory distress or apnoea
 - looks sick, not alert or interactive
 - any rash
 - has a cough productive of mucopurulent sputum, may need further investigations for possibility of chronic respiratory disease
 - acute bacterial sinusitis. In particular, any associated symptoms of:³
 - diplopia or impaired vision
 - mental status deterioration
 - periorbital oedema. Consider [Orbital cellulitis/periorbital cellulitis, page 375](#)
 - severe headache. Consider [Meningitis, page 91](#)
- 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 [Acute pain management, page 35](#)
- Oral and topical decongestants are not indicated and may cause adverse reactions e.g. palpitations, agitation, irritability, insomnia. Not to be used in children < 6 years age
- Sodium chloride 0.9% nose drops may be helpful
- Provide hygiene education to prevent spread of respiratory disease by:
 - 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
- 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')
- Give amoxicillin if not allergic to penicillin
- Contact MO/NP if allergic to penicillin

Schedule	4	Amoxicillin	Extended authority ATSIHP/IHW/IPAP/RIPRN

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Child < 12 years 15 mg/kg/dose tds to a max. of 500 mg/dose tds	5 days
Powder for reconstitution to oral liquid	250 mg/5 mL 500 mg/5 mL			

Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea and candidiasis

Contraindication: 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, page 102](#)

7,8

5. Follow up

- Advise to be reviewed the next day
- If not improving consult MO/NP
- If a rash develops tell health professional as it may indicate an underlying condition that requires follow up

6. Referral/consultation

- Consult MO/NP as above

HMP Sore throat - child

PHARYNGITIS, TONSILLITIS, QUINSY

Recommend^{1,2}

- 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, torticollis i.e. twisted or wry neck
- 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 Torres Strait Islander children
- Ten (10) days of oral antibiotics or one dose of benzathine benzylpenicillin (Bicillin LA®) IM is required to eradicate group A Streptococcus
- Pay careful attention to care giver in order to clarify the exact nature of the complaint

Background^{3,4,5}

- Most sore throats are viral in origin and do not require antibiotic treatment however special considerations need to be applied for populations at high risk of RHD
- 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 pancreatitis
- With the exception of scarlet fever type rash there is no individual clinical feature to make a definitive diagnosis of streptococcal infection
- Antibiotics are recommended to prevent the non-suppurative 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. 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)

Related topics

[APSGN, page 700](#)

[Acute rheumatic fever, page 705](#)

[Upper respiratory tract infection \(URTI\) - child, page 682](#)

1. May present with¹

- 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 under 5 years of age
- Difficulty or pain on swallowing
- Irritability and reduced oral intake
- Enlarged tender anterior cervical (neck) lymph nodes
- Mouth breathing or voice change
- Fever > 38°C
- Headache
- Malaise

- Abdominal pain
- Nausea and vomiting
- Halitosis
- Scarlet fever rash - is the only individual clinical feature to discriminate streptococcal infection

2. Immediate management

- Assess and maintain airway. See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- **Any patient with impending airway obstruction should be referred early for definitive airway management**

3. Clinical assessment¹

- 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 CEWT score or other local Early Warning and Response Tools) +
 - urinalysis - haematuria and/or proteinuria may indicate APSGN
- Collect throat swab for MCS
- 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 [Tetanus immunisation, page 773](#)

4. Management^{3,6}

- Consult MO/NP if child:
 - < 3 months of age
 - looks sick, not alert or interactive and has T > 38°C
 - still looks sick when T reduced
 - has any rash
 - has tonsillitis and is systemically unwell
 - has/or is suspected to have quinsy or epiglottitis. See [Croup/epiglottitis, page 691](#)
 - CEWT score triggers a clinical review
- If child has cough as the main feature, consider other diagnoses. See [Child with cough flowchart in Differential diagnosis - child, page 673](#)
- If child has an increased RR or any chest findings consider other diagnoses see [Bronchiolitis, page 695](#), and [Pneumonia - child, page 697](#)
- If child has evidence of secondary ear infection. See [Acute otitis media \(AOM\) with/without perforation, page 712](#)

- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#). Symptomatic relief can also be provided by:
 - 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 indicated
- Antibiotic treatment is recommended to prevent nonsuppurative complications of *S. pyogenes* infection e.g. ARF and APSGN for high risk patients:
 - aged 2-25 years with sore throat in communities with a high incidence of ARF e.g. Aboriginal and Torres Strait Islander communities in central and northern Australia, Maori and Pacific Islander people
 - with existing RHD
 - 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
- Additionally it is reasonable to prescribe antibiotics for patients who are particularly unwell and/or with 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
- If indicated for antibiotic treatment give:
 - oral phenoxymethylpenicillin if not allergic OR
 - IM benzathine benzylpenicillin (Bicillin LA®) if a lack of adherence with oral medicine is anticipated or intolerant of oral therapy
- If hypersensitive to penicillin (excluding immediate hypersensitivity) use:
 - cefalexin
- If immediate hypersensitivity to penicillin use:
 - azithromycin

Schedule	4	Phenoxymethylpenicillin	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Capsule	250 mg 500 mg	Oral	Child 15 mg/kg/dose bd to a max.of 500 mg/dose bd	10 days
Powder for reconstitution to oral liquid	125 mg/5 mL 250 mg/5 mL			
Provide Consumer Medicine Information: May cause diarrhoea, nausea and candidiasis. Food has little effect on absorption				
Contraindication: 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, page 102				

3,7

3,7

Schedule	4	Benzathine benzylpenicillin (Bicillin LA®)	Extended authority ATSIHP/IHW/IPAP/RIPRN			
ATSIHP, IHW, IPAP and RN must consult MO/NP						
RIPRN may proceed						
Form	Strength	Route of administration	Recommended dosage			Duration
Injection (pre-filled syringe)	1.2 million units/2.3 mL (900 mg)	IM	Weight	Dose	Volume	stat
			3 - < 6 kg	225 mg	0.5 mL	
			6 - < 10 kg	337.5 mg	0.76 mL	
			10 - < 15 kg	450 mg	1 mL	
			15 - < 20 kg	675 mg	1.52 mL	
			≥ 20 kg	900 mg	2.3 mL	
Provide Consumer Medicine Information: May cause diarrhoea, nausea and pain at injection site						
Note: Stop injection immediately if patient shows signs of severe pain. See Administration tips for benzathine benzylpenicillin, page 787						
Contraindication: 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, page 102						

3,8,9

3,8,9

Schedule	4	Cefalexin	Extended authority ATSIHP/IHW/IPAP/RIPRN		
ATSIHP, IHW, IPAP and RN must consult MO/NP					
RIPRN may proceed					
Form	Strength	Route of administration	Recommended dosage		Duration
Capsule	250 mg 500 mg	Oral	Child 25 mg/kg/dose bd to a max. 1 g/dose bd		10 days
Powder for reconstitution to oral liquid	125 mg/5 mL				
Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea, vomiting, dizziness, headache and candidiasis					
Note: If renal impairment seek MO/NP advice					
Contraindication: Severe or immediate allergic reaction to a cephalosporins or a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems					
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102					

3.10

3,10

Schedule	4	Azithromycin		Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP					
RIPRN 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
Powder for reconstitution to oral liquid	200 mg/5 mL				
Provide Consumer Medicine Information: Take with or without food. May cause rash, diarrhoea, nausea, abdominal cramps and candidiasis					
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102					

3, 11

3, 11

5. Follow up

- Request to return for review the 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 705](#) or if abnormal urinalysis, see [APSGN, page 700](#)

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

Recommend¹

- 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
- Coughing may continue for 6-8 weeks after treatment and may recur with the next URTI

Background^{1,2}

- Common respiratory illness caused by *Bordetella pertussis*. Also known as the '100 day cough'
- Pertussis is highly contagious. 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

Related topics

[Upper respiratory tract infection \(URTI\) - child, page 682](#)

1. May present with²

- 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
- Bradycardia or tachycardia if severe
- Absence of fever
- 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. Apnoea may occur without preceding coughing bouts
- 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 particularly those > 3 years of age may present with a prolonged cough - consider investigation
- Pertussis can cause pneumonia

2. Immediate management

- If severe consult MO/NP immediately

3. Clinical assessment³

- See [Upper respiratory tract infection \(URTI\) - child, page 682](#) to guide assessment
- 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 768](#)

4. Management^{3,4}

- Consult MO/NP (as there are public health implications) if pertussis suspected, 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 MCS
 - 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 received
 - pertussis fact sheet available at: <http://conditions.health.qld.gov.au/HealthCondition/condition/14/33/150/whooping-cough-pertussis>

5. Follow up

- If not evacuated/hospitalised advise to be reviewed daily, at least initially

6. Referral/consultation

- Consult MO/NP on all occasions pertussis 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>

HMP Croup/epiglottitis - child

Recommend¹

- **Keep the child as calm as possible, with and in the arms of parent if possible**
- Do not examine the mouth or throat and do not lie the child flat

Background²

- Croup usually follows 3 or 4 days after a mild URTI when the infection spreads to the upper airways. It is usually mild and self-limiting
- Epiglottitis (supraglottitis) is a life-threatening bacterial infection characterised by rapidly progressive inflammation of and around the epiglottis
- Epiglottitis (cellulitis of the epiglottis) is rare since introduction of the Hib vaccination

Related topics

Foreign body airway obstruction (choking), page 99

Sore throat, page 685

1. May present with

Acute epiglottitis ³	Croup ²
• Restlessness • Decreased level of consciousness • Hypotonia, cyanosis and pallor • Weak or no cough • T > 38.5°C • Septicaemia • Looks sick • Drooling saliva • Unable to eat or drink • Doesn't talk • Any age • Reluctant to move neck	• Croupy (barking) cough • T < 38.5°C (however viral croup often has a high temperature) • Inspiratory stridor • No systemic disturbance • Able to swallow • Will usually drink • Normal or hoarse voice

2. Immediate management

- If epiglottitis is suspected:
 - do not examine mouth or throat - this can cause airway spasm and complete obstruction
 - gain IV/intraosseous access and maintain airway
 - do not lie the child flat
 - consult MO/NP as soon as circumstances allow

- If severe respiratory distress, lethargic or cyanosed:
 - give O₂ to maintain SpO₂ ≥ 94%. See [Oxygen delivery, page 64](#)
 - consult MO/NP immediately
 - a calm atmosphere is beneficial
 - if O₂ therapy not tolerated, avoid agitating child. Hold the O₂ tubing/mask close to face

3. Clinical assessment^{1,4}

- Obtain patient history including onset and preceding URTI
- Perform standard clinical observations (full CEWT score or other local Early Warning and Response Tools). **Note** in particular T and RR (when the child is quiet)
- Inspect for drooling in a sick looking child. This along with high fever is suggestive of epiglottitis
- The degree of airway obstruction can be estimated based upon physical findings in the following table

Mild	Moderate/severe	Complete
• Ability to speak (voice may be hoarse) or hoarse cry • Good air entry • Inspiratory stridor (may only be heard while crying, agitated, excited, or tachypnoeic) • Occasional snoring	• Audible inspiratory stridor (and possibly expiratory stridor) with every breath • Prolonged inspiratory time • Signs of significant respiratory effort (suprasternal retractions, nasal flaring, or grunting) • Decreased air entry • Hypoxaemia (SpO₂ 91%), cyanosis • Presence of 'sniffing' • Adopts 'tripod' positioning to maintain an open airway • Decreased mental alertness	• Marked reduction of air movement • Struggling to breathe • Nasal flaring • Grunting • Marked suprasternal or supraclavicular retractions • Silently gagging or coughing in an attempt to clear the airway • Rapid deterioration and loss of consciousness

4. Management^{2,5}

- Consult MO/NP
- If epiglottitis suspected:
 - have the parents/carer stay to comfort child
 - handle the child as little as possible
 - MO/NP will organise urgent evacuation
 - assess and maintain airway
 - insert IV cannula or intraosseous cannula. See [Intraosseous infusion, page 69](#)
 - MO/NP may order:
 - IV dexamethasone (repeated at 24 hours if required)
 - IV ceftriaxone
- If croup:
 - symptomatic treatment as per URTI. See [Upper respiratory tract infection \(URTI\) - child, page 682](#)
 - humidified air or steam inhalations are of no additional benefit
 - for **mild to moderate** cases MO/NP may advise:
 - nebulised budesonide **OR**

- oral prednisolone with a second dose the following evening **OR**
- oral dexamethasone
- for **severe** cases MO/NP may advise:
 - nebulised adrenaline (epinephrine) 1:1,000 solution

plus either

- nebulised budesonide **OR**
- oral prednisolone **OR**
- oral dexamethasone (or IM or IV if vomiting)

- MO/NP will consider evacuation/hospitalisation

Schedule	4	Dexamethasone	Extended authority ATSHI/IHW/IPAP	
ATSIHP, IHW, IPAP, RN and RIPRN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	8 mg/2 mL 4 mg/mL	IV/IM/Oral (Note: ATSIHP, IHW and IPAP may NOT administer IV or IM)	Child > 1 month 0.15 to 0.3 mg/kg/dose up to a max. of 12 mg	stat
Tablet	0.5 mg 4 mg			If IV inject slowly over 3-5 minutes
Provide Consumer Medicine Information: May cause mood or sleep disturbances				
Contraindication: Severe or immediate allergic reaction to sulfites. Any serious concern of encephalitis				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
5,6,7,8				

5,6,7,8

Schedule	4	Ceftriaxone	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection (powder for reconstitution)	1 g	IV/Intraosseous	Child > 1 month 50 mg/kg to a max. of 1 g	stat Inject over at least 3 minutes OR infuse over 30 minutes
Provide Consumer Medicine Information: May cause nausea, diarrhoea, rash, headache, dizziness, and candidiasis				
Note: Rapid IV injection of large doses may cause seizures. Can cause severe colitis due to <i>Cl. difficile</i> . If renal impairment seek MO/NP advice				
Contraindication: Severe or immediate allergic reaction to a cephalosporins or a penicillin. Be aware of cross-reactivity between penicillins, cephalosporins and carbapenems				
Management of associated emergency: Contact the MO/NP. See Anaphylaxis, page 102				

5.9

5,9

Schedule	4	Budesonide	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RN and RIPRN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Inhalation solution	0.5 mg/2 mL 1 mg/2 mL	Nebulise with oxygen 8 L/min	2 mg	stat
Provide Consumer Medicine Information: May cause dysphonia, oropharyngeal candidiasis, bruising, facial skin irritation				
Note: Cover eyes during nebulisation and wash face afterwards. If possible use a mouthpiece rather than a mask to reduce risk of facial irritation. Rinse mouth with water, gargle and spit out after nebuliser				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

2,11

Schedule	4	Prednisolone		Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RIPRN and RN must consult MO/NP					
Form	Strength	Route of administration	Recommended dosage	Duration	
Tablet	1 mg 5 mg 25 mg	Oral	Child > 1 month 1 mg/kg	stat	
Oral liquid	5 mg/mL				
Provide Consumer Medicine Information: May cause increased BGL and affect mood and sleep. Take with food to help reduce stomach upset					
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102					
2,12,13					

Schedule	3	Adrenaline (epinephrine)	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW, IPAP, RN and RIPRN must consult MO/NP				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	1:1,000 1mg/1mL	Nebulise with oxygen 8 L/min	5 mL (5 mg) undiluted	stat Repeat after 30 minutes if no improvement
Provide Consumer Medicine Information: May cause restlessness, anxiety, headache and palpitations				
Management of associated emergency: Consult MO/NP				
2,10				

5. Follow up

- If child with croup is not evacuated/hospitalised, advise to be reviewed next day and consult MO/ NP if not improving

6. Referral/consultation

- Consult MO/NP as above

Bronchiolitis - child

Recommend^{1,2,3}

- Bronchodilators are not recommended
- Do not administer:³
 - beta 2 agonists e.g. salbutamol if ≤ 12 months of age
 - corticosteroids
 - adrenaline (epinephrine) except in an arrest scenario
 - nebulised hypertonic saline
 - antibiotics including azithromycin

Background^{1,4}

- Bronchiolitis is a condition that affects the lower respiratory tract caused by a virus
- Symptoms are usually mild and may only last for a few days, but can sometimes cause severe illness
- Mild cases can be managed at home and the child gets better within 5 days
- Bronchiolitis is a major cause of morbidity in regional Australia
- Aboriginal and Torres Strait Islander children are diagnosed with bronchiolitis and other lower respiratory tract infections at a much greater rate than others
- Can occur throughout the year in north Queensland. In southern Australia more common in winter - spring
- More significant in babies < 10 weeks of age, those with underlying heart or lung problems and those exposed to cigarette smoke
- A bedside guideline for health professionals is available at www.predict.org.au/download/Australasian-bronchiolitis-bedside-clinical-guideline.pdf

Related topics

Acute asthma, page 119

Pneumonia - adult, page 329

Upper respiratory tract infection (URTI) - child, page 682

1. May present with⁵

- Looks very unwell
- Cough night and day, fever, nasal discharge is often profuse
- Rapid breathing, chest wheezes and crackles, chest recession ('sinking' chest when breathing)
- Nasal flaring, grunting respirations and sternal or intercostal recession
- Low SpO₂, cyanosis (severe), apnoea (sometimes apnoea is the only sign)
- Poor feeding
- Dry nappy > 12 hours

2. Immediate management^{3,5}

- Consult MO/NP urgently if severe
- Give O₂ to maintain SpO₂ > 95%. If > 95% not maintained, consult MO/NP, see [Oxygen delivery, page 64](#)
- Urgent evacuation will be required if any of the following are present:
 - apnoea (observed or reported)
 - child appears seriously unwell to health professional
 - severe respiratory distress, including grunting, chest recession, RR of > 70 breaths/min
 - cyanosis
 - persistent low SpO₂

3. Clinical assessment^{3,5}

- 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, congenital heart or lung problems
 - premature birth
 - if wheeze is present
 - if child has stopped breathing (apnoea) for short periods of time
 - how well is the child/infant feeding and hydration
- Perform standard clinical observations (full 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
 - listen to chest for presence of wheezes/crackles

4. Management^{3,5}

- Consult MO/NP who will consider treating similar to:
 - acute asthma if wheeze is prominent. See [Acute asthma, page 119](#)
 - pneumonia if fever and rapid breathing is prominent. See [Pneumonia - child, page 697](#)
 - monitor SpO₂
 - If child/infant is not feeding well, fluids may be required by NGT or IV
- If respiratory support is required, organise evacuation as soon as possible
- In Queensland:⁶
 - high flow O₂ via High Flow Nasal Cannula (HFNC) can only be initiated for a child < 24 months of age following consultation with a Paediatrician at a Level 4 facility
 - HFNC should not be used for children > 24 months of age
- Children receiving HFNC should be immediately evacuated

5. Follow up^{1,3,5}

- If not evacuated/hospitalised advise to be reviewed daily
- Consult MO/NP if not improving
- Instruct to return immediately if any of the following signs are observed:
 - breathing is more difficult, grunting, flaring nostrils, chest 'sucking in' between ribs and using

- stomach to breathe
- feeding falls to less than half of normal amount, and no wet nappy for 12 hours
- > 10 seconds between breaths (apnoea)
- blue around lips or under tongue (cyanosis)
- exhaustion (sleepy, irritable, floppy, hard to wake up)
- Instruct parents/carers that nobody should smoke in house as it increases the risk of more severe symptoms of bronchiolitis

6. Referral/consultation

- Consult MO/NP on all occasions bronchiolitis is suspected

HMP Pneumonia - child

Recommend¹

- Children with severe pneumonia living in the tropics (north of Mackay, Tennant Creek and Port Hedland), require a different antibiotic regimen. The regimen will vary according to the time of year

Background¹

- 70% of pneumonia is viral
- Acute viral bronchiolitis should be considered in children < 18 months of age when presenting with a cough and respiratory distress. See [Bronchiolitis, page 695](#)
- Children with co-existing illnesses e.g. bronchiolitis and chronic lung disease, are at more risk of pneumonia

Related topics

[Bronchiolitis, page 695](#)

[Sepsis/septic shock, page 80](#)

[Upper respiratory tract infection \(URTI\) - child, page 682](#)

1. May present with^{1,2}

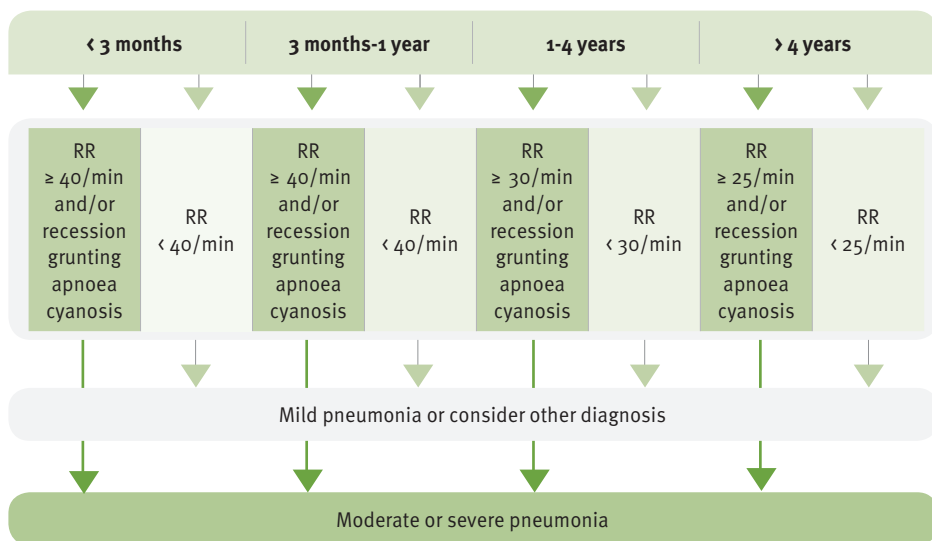
- Cough - dry or with sputum, fever, tachycardia
- Rapid breathing, nasal flaring, grunting respirations and chest recession in infants
- Cyanosis and apnoea in infants
- Abdominal pain associated with right lower lobe pneumonia
- Chest pain
- Lethargy
- Poor feeding and dehydration

2. Immediate management

- Complete rapid assessment
- Perform standard clinical observations (full CEWT score or other local Early Warning and Response Tools)
- Give O₂ to maintain SpO₂ ≥ 94%. See [Oxygen delivery, page 64](#)

3. Clinical assessment^{1,2}

- Obtain patient history including:
 - length of time signs or symptoms have been present
 - if child has stopped breathing (apnoea) for short periods of time
 - signs of hypoxia - agitation, cyanosis
 - feeding, fluid intake and output including wet nappies, passing urine, diarrhoea
 - medicines taken
- Obtain past history, including:
 - past episodes or complications
 - asthma, bronchiolitis or chronic lung disease
- Perform physical examination including inspection of/for:
 - lips, tongue, extremities for cyanosis
 - signs of dehydration - moist tongue, skin elasticity. Severe dehydration is unusual
 - skin surface for any skin rash
 - respiratory distress e.g. grunting, nasal flaring, sternal/intercostal/subcostal recession. May be subtle in babies and infants
- Auscultate the chest for air entry and any added sounds (crackles or wheezes)
- Check vaccination status. See [Immunisation program, page 768](#)
- The following flowchart can be used as a guide, in conjunction with the age appropriate CEWT for the clinical setting, to determine pneumonia severity



4. Management

- Consult MO/NP for any suspicion of pneumonia

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^{1,2}

- Give O₂ to maintain SpO₂ ≥ 94%. If unable to maintain ≥ 94% consult MO/NP
- MO/NP may advise:
 - insert IV/intraosseous cannula - if possible take blood cultures prior to commencing antibiotics
 - IV fluids - sodium chloride 0.9%. MO/NP will advise quantities and rate
 - IV antibiotics
- Evacuation/hospitalisation
- Give oral fluids as tolerated
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

5. Follow up

- If not evacuated/hospitalised advise to be reviewed daily
- Consult MO/NP if not improving
- Advise to see MO/NP at next clinic

6. Referral/consultation

- Consult MO/NP on all occasions pneumonia is suspected
- Some children with pneumonia will require a paediatric referral

Post streptococcal diseases

HMP Acute post streptococcal glomerulonephritis (APSGN) - adult/child

Recommend

- ① All suspected cases of APSGN should be notified by phone to the local public health unit (PHU). The PHU will monitor and advise on public health interventions
- The PHU will declare if a community outbreak is identified and provide the necessary community intervention response required
- To help prevent APSGN:²
 - community control of scabies and skin sores
 - regular washing, particularly of children, to decrease spread of the bacteria
 - treat skin sores/sore throats promptly

Background^{1,2}

- APSGN:
 - is caused by prior infection with specific strains of Group A *Streptococcus* (GAS) infection resulting in a complex immune response and glomerulonephritis
 - is common among Aboriginal and Torres Strait Islander children in northern Australia in communities with high levels of scabies, skin sores, and overcrowded living conditions
 - most commonly impacts children from 2-17 years of age, but can occur at any age
- Latent period between respiratory infection and nephritis is 7-10 days, and 2-4 weeks post a skin infection⁵

Related topics

[Impetigo, page 392](#)
[Scabies, page 415](#)

[Sore throat, page 685](#)

1. May present with¹

- Asymptomatic - microscopic haematuria e.g. detected on routine screening
- Acute nephritis - **typical presentation:**^{2,3,4}
 - oedema - puffy face, eyes, limbs
 - microscopic haematuria OR
 - macroscopic (frank/gross) haematuria - urine looks smoky, and tea or cola coloured
 - proteinuria
 - ↓ urine output; oliguria
 - hypertension - varies mild to severe
 - in severe cases respiratory distress due to pulmonary oedema - due to fluid overload
 - lethargy, general weakness, or anorexia
 - uncommon: hypertensive encephalopathy - severe headache, convulsions, coma
- Skin sores/infected scabies³
- Recent history of skin sores and/or sore throat

2. Immediate management

- If fitting see [Fits/convulsions/seizures, page 109](#)

3. Clinical assessment²

- Take complete patient history
- Ask about:
 - puffiness of face or eyes, legs or arms
 - urine colour
 - urine output - has it decreased
 - any other symptoms e.g. shortness of breath, feeling unwell, off food
 - do any close contacts have similar symptoms
- Any recent history of:
 - skin sores
 - sore throat
 - when, how treated
- Previous medical history
- Previous history of APSGN or close contacts with APSGN
- Social history e.g. crowded living conditions
- Perform physical examination including:²
 - standard clinical observations (full Q-ADDs/CEWT score or other local Early Warning and Response Tools)
 - do not rely on CEWT BP ranges to trigger referral if suspected APSGN

BP in children⁶

- Measure on right arm for consistency, with appropriately sized cuff
 - Can vary considerably during the same visit or across visits
 - If the initial BP is elevated, perform 2 more BP measurements at the same visit and average them
 - Differs with age, gender and height
-
- Check BP against the **Screening BP values requiring further evaluation** table (next page):
 - if BP elevated see instructions in table to determine BP percentile based on child's height
 - if unsure, consult MO/NP
 - Urinalysis - check for blood and protein
 - Weight - bare weight if < 2 years. Assess against recent weights
 - Examine:
 - skin for sores/infected scabies
 - face, hands and feet for oedema
 - throat - any redness
 - Listen to chest for crackles or wheezes - may indicate fluid overload/pulmonary oedema
 - Take pathology:
 - swabs from 2 different sites if skin sores present.² See How to collect a wound swab/culture in [Chronic wounds, page 427](#)
 - otherwise, take a throat swab if indicated on history, for identification of GAS
 - blood for:
 - ASOT, antiDNAase B titres, C3, C4, FBC, film, CHEM20
 - on the pathology form, include clinical information 'suspected APSGN'
 - urine microscopy for RBC, culture, albumin creatinine ratios

Screening BP values requiring further evaluation⁶

- If BP is < the values on this table, the child does not have an elevated BP
- If the BP is ≥ the values on this table, measure child's height, then:
 - **check against appropriate values table 4 or 5** in the *Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children*: <http://pediatrics.aappublications.org/content/pediatrics/early/2017/08/21/peds.2017-1904.full.pdf>
 - a normal or elevated BP based on the child's height, gender and age can then be determined
 - BP percentiles are **given in tables 4 or 5** in the *Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children*: <http://pediatrics.aappublications.org/content/pediatrics/early/2017/08/21/peds.2017-1904.full.pdf>
 - a BP percentile of > 90% is elevated

Age (years)	Boys		Girls	
	Systolic mm/Hg	Diastolic mm/Hg	Systolic mm/Hg	Diastolic mm/Hg
1	98	52	98	54
2	100	55	101	58
3	101	58	102	60
4	102	60	103	62
5	103	63	104	64
6	105	66	105	67
7	106	68	106	68
8	107	69	107	69
9	107	70	108	71
10	108	72	109	72
11	110	74	111	74
12	113	75	114	75
≥ 13	120	80	120	80

Diagnosis of APSGN³

Possible APSGN	Requires <i>laboratory suggestive evidence</i> only	
Probably APSGN	Requires <i>clinical evidence</i> only	
Confirmed APSGN	Requires either: • <i>Laboratory definitive evidence</i> OR • <i>Laboratory suggestive evidence</i> AND <i>clinical evidence</i>	
Clinical evidence	Laboratory suggestive evidence	Laboratory definitive evidence
At least 2 of the following: • Facial oedema • $\geq$ moderate haematuria on dipstick • Hypertension • Peripheral oedema	• Haematuria on microscopy (RBC $> 10/\text{ul}$) AND • Evidence of recent GAS infection e.g. positive culture from skin or throat, or elevated ASO titre or Anti-DNase B AND • Reduced C₃ level	• Renal biopsy suggestive of APSGN

4. Management

- **Always consult MO/NP for:**
 - all suspected cases of APSGN
 - any child with oedema or hypertension (but do not fulfil the clinical evidence criteria for APSGN)
- **If BP is elevated:**
 - BP $> 90^{\text{th}}$ percentile is elevated and requires further investigation
 - BP $> 95^{\text{th}}$ percentile requires aggressive treatment
 - **note:** see information under clinical assessment about BP percentiles in children
- **If clinical evidence suggests probable APSGN:²**
 - MO/NP will likely consult with paediatrician for specialist advice
 - evacuation/hospitalisation required
 - if hypertension and/or heart failure, MO/NP may order furosemide (frusemide)
 - give benzathine benzylpenicillin (Bicillin LA®) - **take bloods first**
 - if allergic to penicillin give oral azithromycin
 - treat scabies if present. See [Scabies, page 415](#)
 - get contacts from previous 2 weeks - adults and children staying in house⁷
- Notify local public health unit for further advice on management of contacts
- **If microscopic haematuria incidentally found on urinalysis but NO other symptoms:**
 - If prior history of APSGN - haematuria can persist for up to 3-6 months post resolution¹
 - children with a history of APSGN should be monitored through an individual care plan developed in conjunction with a paediatrician
 - check care plan is in place and follow up anything outstanding
 - If there is no history of APSGN in last 6 months:
 - obtain urine microscopy for RBC, culture, albumin creatinine ratios
 - advise to come to next MO/NP clinic

Schedule	4	Benzathine benzylpenicillin (Bicillin LA [®])	Extended authority ATSIHP/IHW/IPAP/RIPRN			
ATSIHP, IHW, IPAP and RN must consult MO/NP						
RIPRN may proceed						
Form	Strength	Route of administration	Recommended dosage			Duration
Injection (pre-filled syringe)	1.2 million units/2.3 mL (900 mg)	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: May cause diarrhoea, nausea and pain at injection site						
Note: Stop injection immediately if patient shows signs of severe pain. See Administration tips for benzathine benzylpenicillin, page 787						
Contraindication: 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, page 102						

2,8,9

2,8,9

Schedule	4	Azithromycin	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	Adult and child ≥ 12 years 500 mg daily	5 days
Powder for reconstitution to oral liquid	200 mg/5 mL		Child 6 months - ≤ 12 years 12 mg/kg/dose daily to a max. of 500 mg daily	
Provide Consumer Medicine Information: Take with or without food. May cause rash, diarrhoea, nausea, abdominal cramps and candidiasis				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

10, 11

10, 11

5. Follow up

- Follow up close contacts in collaboration with local public health unit
- Children with a history of APSGN should be monitored through an individualised care plan developed in conjunction with a paediatrician
- Resolution of APSGN:¹
 - usually resolves quite rapidly assuming concurrent resolution of infection
 - haematuria can persist for up to 3-6 months
 - proteinuria may persist longer - mild increase sometimes up to 3 years or more

6. Referral/consultation

- Consult MO/NP on all occasions of suspected APSGN
- APSGN is not a notifiable condition. However, to enable follow up of close contacts, clinicians should notify by phone to the local public health unit ①

HMP Acute rheumatic fever (ARF) - adult/child

Recommend¹

- ① ARF is a notifiable disease
- All patients with suspected ARF should be admitted to hospital for a specialist paediatric review and echocardiography
- ARF should always be considered in the differential diagnosis of patients presenting with arthritis (swollen and hot joint, with pain on movement) in high risk populations
- If mono-arthritis (inflammation of 1 joint) septic arthritis to be considered until proven otherwise
- ARF is difficult to diagnose - an incorrect diagnosis, either positive or negative, can have significant consequences
- In Aboriginal and Torres Strait Islander communities treat sore throat and skin infections early to prevent the initial case of ARF

Background¹

- ARF is an auto-immune response to infection with Group A *Streptococcus* (GAS) in the throat, and possibly the skin. ARF affects the heart, joints, skin and the nervous system
- People at most risk:
 - Aboriginal and Torres Strait Islander people living in rural and remote areas
 - children aged 5-14 years; however adults can have recurrent episodes into their 40's
- Recommended resource: *Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease* (2nd edition) available from <http://www.RHDAustralia.org.au>. **Note:** this resource refers to benzathine penicillin as benzathine penicillin G (BPG) - these are the same

Related topics

[Secondary prophylaxis for acute rheumatic fever, page 442](#)

1. May present with^{1,2,3}

Arthritis - most common presentation

- Swollen hot joint with pain on movement
- Usually asymmetrical and migratory - 1 joint becoming inflamed as another subsides
- May involve multiple joints
- Large joints usually affected - especially knees and ankles
- May be extremely painful - often out of proportion with clinical signs
- Pain responds very well to NSAIDs
- Problems weight-bearing or walking unaided
- Joints may be painful but not swollen

Heart murmur

- Indicates possible carditis

Fever $\geq 38^{\circ}\text{C}$ - common

Sydenham's chorea

- Jerky, uncoordinated movements
- Especially affects hands, feet, tongue, face
- Disappears during sleep
- May affect 1 side only
- Very common in Aboriginal and Torres Strait Islander children (28% of presentations)
- Relatives and teachers may describe them as 'jumpy kids'
- **Note:** chorea with no other possible neurological cause will be considered ARF

Rare - subcutaneous nodules

- Crops of small round painless nodules over elbows, wrists, knees, ankles, achilles tendon, occiput and vertebrae
- Highly specific symptom of ARF; strongly associated with carditis

Extremely rare - erythema marginatum

- Circular patterns of bright pink macules or papules on trunk and proximal extremities
- Difficult to detect in Aboriginal and Torres Strait Islander people, but highly specific for ARF

2. Immediate management Not applicable

3. Clinical assessment¹

- Obtain history about presenting symptoms, in particular:
 - pain or swelling in limb(s) or joint(s)
 - jerky/uncoordinated movements
 - recent fever
 - measures taken to treat presenting symptoms:
 - have they tried ibuprofen for joint pain; how effective
 - history from a relative or teacher e.g. strange movements
 - recent history of sore throat, painful joint(s) or skin infections and whether treated
- Obtain past history. Ask about:
 - 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: <https://www.rhdaustralia.org.au/queensland>
- current medicines. See [Medication history and reconciliation](#), page 778
- Perform physical examination, including:
 - standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
 - note any fever
 - ECG - note prolonged P-R interval

Upper limits of normal P-R interval ¹	
Age (years)	Seconds
3-12	0.16
12-16	0.18
17+	0.20

- Inspect and palpate joints for:
 - swelling, tenderness and mobility
 - does the pain seem out of proportion to the joint signs
- Inspect:
 - skin for old or infected sores
 - throat for inflammation
 - for any jerky movements of the face, tongue, trunk and limbs
- Auscultate the heart if skilled - listen for a murmur/abnormal sounds e.g. whooshing sound
- Look for indications of heart failure e.g. ↑↑ or irregular HR, ↑RR, basal crackles in chest
- Take bloods:¹
 - FBC, ESR, C-reactive protein (CRP)
 - anti-streptococcal serology - both ASO and anti-DNase B titres
 - blood cultures if T ≥ 38°C
- Do throat swab¹ - culture for *Group A streptococcus* (preferably before antibiotics)
- Swab any skin sores for MCS. See [Chronic wounds](#), page 427, for how to take a swab

4. Management¹

- Administer analgesia as clinically indicated. See [Acute pain management](#), page 35
 - **give paracetamol** rather than ibuprofen until diagnosis made
 - NSAIDs are very effective - can cause joint symptoms to disappear complicating the diagnosis¹
- Consult MO/NP who will:¹
 - refer for baseline echocardiogram
 - arrange evacuation/hospitalisation for specialist paediatric/physician/cardiology review and diagnosis
 - **note:** hospitalisation should occur as soon as possible after onset of symptoms
 - thorough investigations for alternative diagnoses should always be undertaken¹ e.g. septic arthritis, disseminated gonococcal infection, gout, innocent murmur, congenital heart disease, etc.
- If probable ARF give a single dose of benzathine benzylpenicillin (Bicillin LA®) if not allergic³
- Contact local public health unit for advice/support for suspected ARF

Schedule	4	Benzathine benzylpenicillin (Bicillin LA®)	Extended authority ATSIHP/IHW/IPAP/RIPRN			
ATSIHP, IHW, IPAP and RN must consult MO/NP						
RIPRN may proceed						
Form	Strength	Route of administration	Recommended dosage			Duration
Injection (pre-filled syringe)	1.2 million units/2.3 mL (900 mg)	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: May cause diarrhoea, nausea and pain at injection site						
Note: Stop injection immediately if patient shows signs of severe pain. See Administration tips for benzathine benzylpenicillin, page 787						
Contraindication: 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, page 102						

3.4

5. Follow up¹

- Follow up to be under guidance of specialist MO

6. Referral/consultation

- Consult MO/NP on all occasions of suspected ARF
- ① ARF requires immediate notification to the local Public Health Unit based on clinical history, signs and symptoms. See <http://disease-control.health.qld.gov.au/Condition/804/rheumatic-fever-acute>

Ear problems

Ear and hearing assessment - adult/child

- Obtain a complete patient history

This presentation ask about¹

- Ear symptoms:
 - pain, fever, discharge, itchy
 - a young child may be unsettled or pulling at their ears
 - onset and severity
- Details of past medical treatment and response
- 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 otitis media (OM) and hearing loss

Past history of ear problems¹

- First episode or previous episodes - acute otitis media with or without perforation; chronic ear discharge; operations and when; treatments
- Hearing loss and any hearing tests
- Under care of ENT Specialist/Audiologist
- Delayed speech or language development, learning and behavioural issues in children

Hearing screening and assessment¹

- 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 at: <https://publications.qld.gov.au/dataset/chronic-conditions-manual>
- If a patient is under the care of an ENT 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. Can use front hugging position. Older children can stand while adult sits
- Often very painful - approach gently



Examples of positioning of children for examination of throat and ears

Outer ear

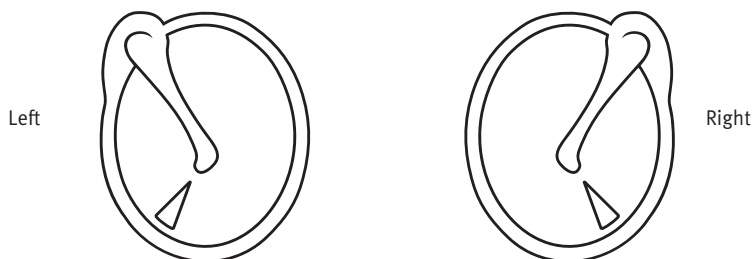
- Inspect - any inflammation
- Palpate:
 - ear - warm to touch, pain on moving pinna, tender
 - mastoid bone - swollen, hot, tender
 - occiput, around ears, both sides or neck for lymph glands

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

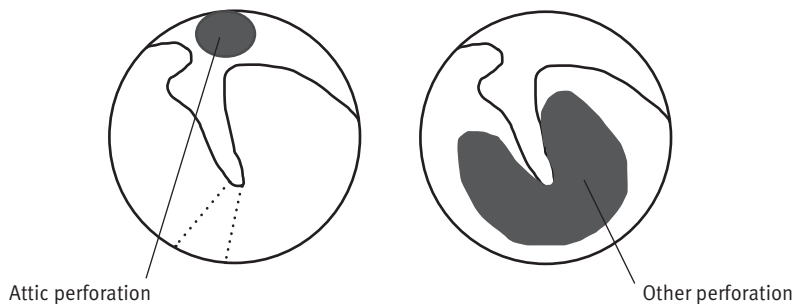
Tympanic membrane (TM) (eardrum)

- Clean the ear canal. See [Chronic suppurative otitis media \(CSOM\), page 719](#)
- 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



Inspect TM (eardrum) for:

- intact, pink, pearly, red, dull, bulging, retracted
- fluid or bubbles behind the eardrum
- perforations - document the size and position on a diagram in the case notes
- discharge
- **any perforation in the attic region requires an urgent referral to an ENT specialist**



Nose and throat

- Any discharge from nose or redness of the throat

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 (general) - adult/child

Recommend¹

- Ask about speech, language, learning and behaviour because ear disease and hearing impairment at an early age, can have lifelong impacts on children's development

Prevention of otitis media and hearing loss in Aboriginal and Torres Strait Islander children:^{1,2}

- **Tell all expectant mothers** about importance of prevention, early detection and treatment of otitis media (OM) to prevent hearing loss. The potential effects on language and education should be emphasised
- **Encourage early interventions:**
 - ensure effective communication strategies for people with hearing loss
 - onset of OM in Aboriginal and Torres Strait Islander infants may occur within the first months of life
 - children are at increased risk of acute otitis media (AOM) when they have other upper respiratory infections
 - encourage early presentation to the health centre when any child develops ear pain or discharge
 - all forms of OM can be associated with some degree of hearing loss
 - babies with cleft palate, fetal alcohol syndrome, fragile X syndrome and Downs syndrome are at high risk of developing AOM
- **Breastfeeding** - encourage mothers to continue breastfeeding
- **Personal hygiene** - encourage children to wash face and hands regularly, especially after nose blowing or coughing. Children should be taught and encouraged to blow their noses regularly, especially if nasal discharge is present
- **Vaccination** - age appropriate vaccinations as per current edition of the *Australian Immunisation Handbook*
- **Dummy** - use of a dummy after 6 months of age can increase the risk of OM
- **Smoking** is a risk factor and is strongly discouraged around children
- **Bottle feeding** - should be performed in an upright position. Bottle feeding children laying down, prop fed or in children's bed while going to sleep, increases the incidence of ear infections significantly
- Higher dose and longer duration antibiotics are recommended in rural and remote Aboriginal and Torres Strait Islander children due to higher incidences and complications from OM, while in non-Aboriginal and Torres Strait Islander people the advantage of antibiotics is small unless systemic features are present
- Dosing in this area is complex, for more details see *Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and/or Torres Strait Islander Populations* available at: Aboriginal and Torres Strait Islander resources are available from the national 'Care for Kids Ears' campaign at: <http://www.health.gov.au/internet/main/publishing.nsf/Content/indigenous-otitismedia-clinical-care-guidelines>
- Aboriginal and Torres Strait Islander resources are available from the national 'Care for Kids Ears' campaign at: <http://www.careforkidsears.health.gov.au/internet/cfke/publishing.nsf/Content/Home>

Ear conditions differential diagnosis table - definitions¹

Condition	Definition
Acute otitis media (AOM) without perforation	Fluid behind the eardrum and at least one of the following: bulging eardrum, red eardrum, fever, ear pain or irritability
Acute otitis media with acute perforation	Discharge of pus through a perforation in the eardrum < 2 weeks
Recurrent acute otitis media (rAOM)	Three or more episodes of AOM in a six month period or four or more episodes in the last twelve months
Otitis media with effusion (OME, glue ear)	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 in the eardrum ≥ two weeks. The diagnosis of CSOM is only appropriate if the perforation is seen and is large enough to allow the discharge to flow out of the middle ear
Dry perforation	A 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 include 'swimmer's ear' and 'tropical ear'

HMP Acute otitis media (AOM) with/without perforation - adult/child

Recommend¹

- Consult MO/NP immediately if child is < 3 months of age, sick, febrile or meets any of the other criteria outlined at the beginning of paediatric section
- Consider higher dose and/or longer course of antibiotics if persistent or recurrent perforation
- Always follow up acute perforations to ensure they have healed
- If discharge continues through a perforation after 14 days of treatment see [Chronic suppurative otitis media \(CSOM\)](#), page 719

Background¹

- Infection behind the eardrum may cause the drum to perforate
- 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)

Related topics

[Chronic suppurative otitis media \(CSOM\)](#), page 719

[Ear and hearing assessment](#), page 708

1. May present with

- Irritability
- Fever
- Ear ache
- Fluid behind the eardrum, a red and/or bulging eardrum
- Ear discharge within the last 6 weeks

2. Immediate management Not applicable

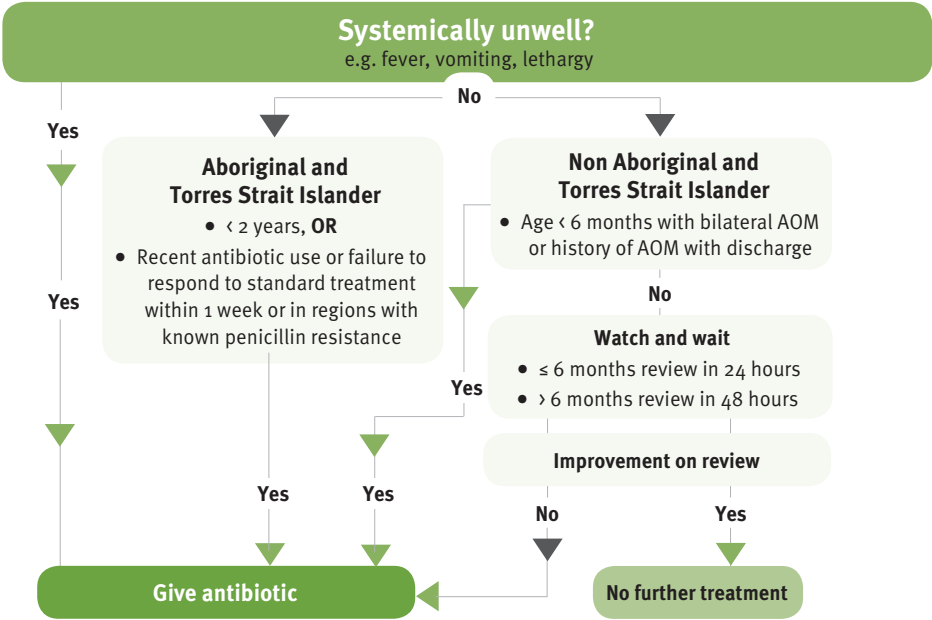
3. Clinical assessment

- Obtain a complete patient history
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Perform physical examination:
 - gently clean any discharge from the ear canal with a tissue spear before examining the ear drum with an otoscope. See [Chronic suppurative otitis media \(CSOM\)](#), page 719
 - look for a red and/or bulging eardrum
 - document the size and position of any perforation on a diagram in the case notes
- Document how long the perforation has been present
- See [Ear and hearing assessment](#), page 708

4. Management^{1,2}

- Administer analgesia as clinically indicated. See [Acute pain management](#), page 35
- Consult MO/NP if child is/has:
 - < 3 months of age
 - T > 38°C or < 35.5°C
 - any rash, increased RR or respiratory distress or meets any of the other criteria as outlined at the beginning of the paediatric section - consider sepsis. See [Sepsis/septic shock](#), page 80
- For indications for antibiotics and for selection of recommended antibiotics. See following flowchart - Management of acute otitis media (with or without perforation)
- If unilateral disease and no systemic features treat symptomatically and consult MO/NP if concerned
- Discuss with family/client:
 - the correct storage, dose and method to give antibiotics (give first dose to demonstrate if required)
 - request to return in 4-7 days for review
- 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

Management of acute otitis media (with and without perforation)¹



Antibiotic selection for acute otitis media^{1,2,10}

Aboriginal and/or Torres Strait Islander	Not allergic to penicillin	No perforation and no complicating factors	Amoxicillin
		No perforation and complicating factors i.e. • recent antibiotic use • failure to respond to standard dosage within 1 week OR • in regions with known penicillin resistance	High dose amoxicillin 7 days
		Perforation	High dose amoxicillin 14 days
	Allergy to penicillin	Child < 3 months	Consult MO/NP
Non Aboriginal and/or Torres Strait Islander	Not allergic to penicillin	Adult and child > 3 months	Trimethoprim + sulfamethoxazole
		Child < 3 months	Consult MO/NP
	Allergic to penicillin	Adult and child > 3 months	Amoxicillin
		Child < 3 months	Consult MO/NP

Schedule

4

Amoxicillin

Extended authority

ATSIHP/IHW/IPAP/RIPRN

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN 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
			Child < 12 years - non-Aboriginal and Torres Strait Islander 15 mg/kg/dose tds up to a max. of 500 mg/dose tds or 30 mg/kg/dose bd up to a max. of 1 g/dose bd	5 days
Powder for reconstitution to oral liquid	250 mg/5 mL 500 mg/5 mL		Child < 12 years - Aboriginal and Torres Strait Islander 25 mg/kg/dose bd up to a max. of 1 g/dose bd	7 days
			HIGH DOSE Child < 12 years 45 mg/kg/dose bd up to a max. of 1 g/dose bd	7 days (if perforation give for 14 days)

Provide Consumer Medicine Information: May cause rash, diarrhoea, nausea and candidiasis**Contraindication:** 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, page 102](#)

1,2,4,9

Schedule**4****Trimethoprim + sulfamethoxazole****Extended authority**

ATSIHP/IHW/IPAP/RIPRN

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN 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
Oral liquid	40 mg/5 mL + 200 mg/5 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: May cause fever, nausea, vomiting, diarrhoea, itch, rash and, sore mouth. Take with food to reduce stomach upset. Avoid sun exposure. Report sore throat, fever, rash, cough, breathing difficulties, joint pain, dark urine or pale stools

Note: If renal impairment seek MO/NP advice. May increase risk of hyperkalaemia especially when taken in conjunction with an ACEI and ARB

Contraindication: Severe or immediate allergic reaction to sulfonamides, megaloblastic anaemia, severe hepatic impairment, elderly and pregnancy

Use in pregnancy: Do not use

Management of associated emergency: Consult MO/NP. See [Anaphylaxis, page 102](#)

2,6,10

5. Follow up¹

- Request to return for review in 4-7 days (or earlier if indicated)
- If red or bulging eardrum persists after 7 days increase dose of amoxicillin
- Then review weekly until the signs of AOM and/or perforation have resolved
- If failing to resolve ensure the child is being given antibiotics, whether they are spitting it out or vomiting it up afterwards
- If discharge continues after 2 weeks of treatment check family's ability to clean the ear. See [Chronic suppurative otitis media \(CSOM\), page 719](#)
- If perforation heals review in 6 weeks and continue to monitor hearing according 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>
- Review at 3 months to identify those with chronic ear disease

6. Referral/consultation¹

- Consult MO/NP as above
- If otitis media is recurrent the MO/NP may consider antibiotics for prophylaxis
- 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
- If there are concerns about child's hearing, speech development, behaviour, school progress. Refer for formal hearing assessment if not done recently
- If a hearing loss is identified, ensure the school/kindy/day care is informed, with parental consent, as educators/staff can implement measures to assist the child e.g. sound field amplification systems and student placement (seating) in the classroom

Otitis media with effusion (OME) - adult/child

PAINLESS NON-DISCHARGING EARS, GLUE EAR

Recommend^{1,2}

- Review children with bilateral OME at 3 monthly intervals and refer if required
- The most effective method to prevent the spread of ear infections is regular nose blowing, washing hands and face and keeping face clear of nasal discharge
- If hearing, speech, development or language is impaired refer to ENT Specialist, Audiologist, Speech Pathologist
- Decongestants and antihistamines are not recommended
- Steroids are not recommended but inhaled steroids may be trialled in children where significant nasal obstruction, sneezing etc. suggests allergic rhinitis

Background¹

- OME results in thick glue-like material filling the middle ear which may take many months to resolve. Children with OME will have impaired hearing, which at the critical age of language development (the first 5 years), may result in significant developmental and educational impacts
- Risk factors for OME include strong family history for OM, attending child care, frequent exposure to other children and being of Aboriginal and Torres Strait Islander descent

Related topics

[Acute otitis media \(AOM\) with/without perforation, page 712](#)
[Immunisation program, page 768](#)

[Ear and hearing assessment, page 708](#)

1. May present with

- No symptoms
- Reported hearing concerns from parents/carers/educators
- Diagnosis may also be suspected at routine ear examination, in a child being followed up after AOM, or a child referred for medical assessment after a routine child health check
- Child may have:
 - past history of recurrent otitis media
 - concerns about speech, learning, behaviour or language development

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history and physical examination. See [Ear and hearing assessment, page 708](#)
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Otoscopy may reveal:
 - fluid or bubbles behind the eardrum
 - retraction of eardrum
- In conjunction with history and otoscopy, diagnosis is confirmed by tympanometry which shows a type B pattern (limited or absent movement of the eardrum)

4. Management^{1,2}

- Antibiotics are not routinely recommended for OME. However, long term antibiotics (e.g. amoxicillin 25-50 mg/kg 1-2 times daily for 3-6 months) are an option for infants who are at high risk of developing CSOM
- 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 offer catch up immunisation if required. See [Immunisation program, page 768](#)

5. Follow up

- Advise to be reviewed 3 monthly
- Advise to see MO/NP at next visit
- If there are concerns about hearing, speech, learning difficulties or OME is persistent for > 3 months arrange for a diagnostic audiology assessment or ear and hearing health check if no audiology service available
- See the current edition of the *Chronic Conditions Manual: Prevention and Management of Chronic Conditions in Australia* available from: <https://www.publications.qld.gov.au/dataset/chronic-conditions-manual> for ongoing child health checks

6. Referral/consultation

- Refer to ENT Specialist:
 - if hearing test shows impairment in both ears for > 3 months
 - effusion persists > 3 months
 - any concerns about hearing or speech
 - antibiotic therapy has failed
 - has severe retracted eardrum
- If there is speech delay refer to Speech Pathologist
- For hearing impaired school children ensure (with parental consent) the school is notified, so they can take measures to support the child's learning environment. e.g. sound fields amplification system and student placement

HMP Chronic suppurative otitis media (CSOM) - adult/child

EAR HAS BEEN DISCHARGING FOR ≥ 2 WEEKS

Recommend¹

- Consult MO/NP for immediate ENT referral if perforation of the eardrum found in the attic region
- Treat discharging ears actively by cleaning pus from the canal with a tissue spear and instilling antibiotic ear drops using tragal pumping
- Document the duration of ear discharge and size and position of perforation

Background^{1,2}

- CSOM is diagnosed in people who have discharging ears for more than 2 weeks

Related topics

[Acute otitis media \(AOM\) with/without perforation, page 712](#)

1. May present with

- Ear discharge for > 2 weeks
- Decrease in hearing
- Concerns with behaviour, learning or speech and language development

2. Immediate management Not applicable

3. Clinical assessment

- Dry mop pus and debris from ear canal prior to assessment. See Cleaning techniques for ears with chronic discharge below
- Obtain a complete patient history and perform physical assessment. See [Ear and hearing assessment, page 708](#)
- Ask about hearing, learning, speech and language
- Document length of time discharge has been present
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Document the size and position of perforation on a diagram in the case notes

4. Management

- Teach patient/carer cleaning technique and instillation of drops
- Twice daily dry mopping of pus and debris from ear canal, followed by ciprofloxacin ear drops 2 times daily
- In young children it may be difficult for family members to adequately clean the ears and instil the drops - clinic staff are advised to assist with this daily for 7 days
- Encourage regular nose blowing, hand and face washing and keeping face clear of nasal discharge
- Use the national 'Care for Kids Ears' website and resources to support families, health professionals and early childhood educators: <http://www.careforkidsears.health.gov.au/internet/cfke/publishing.nsf/Content/Home>
- Avoid swimming unless ears can be kept dry
- **Consult MO/NP if perforation found in attic region of the eardrum**

Schedule	4	Ciprofloxacin	Extended authority ATSI P/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed for Aboriginal and Torres Strait Islander persons only				
Form	Strength	Route of administration	Recommended dosage	Duration
Ear drops	0.3%	Ear	Child ≥ 1 month Instil 5 drops in affected ear bd	Until the ear has been dry for at least 3 days Max. 9 days supply
Provide Consumer Medicine Information: For administration tips see Cleaning techniques for ears with chronic discharge				
Note: For use in Aboriginal and Torres Strait Islander persons only. MO/NP note additional PBS restrictions for other populations				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				
1,2,3,4				

1,2,3,4

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
- Tissue spears should be used for managing chronic suppurative otitis media
- 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

Suction³

- Suction under direct vision is the most effective technique but this requires special equipment and training. Significant damage can occur if untrained staff perform suctioning

Ear drop administration with dry mopping^{1,3}

- The patient should be sitting or lying down with the affected ear upwards
- Clean and dry the ear canal with 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
- 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

5. Follow up

- Children < 5 years of age, advise to be reviewed and treated daily for 7 days
- Encourage parents/carers to return to a clinic early if discharge becomes worse or an ear that was dry starts discharging again
- 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

- Review weekly thereafter until ear is dry
- If the ear continues to discharge consult an MO/NP. Consider admission for IV antibiotics
- When the ear dries review at 3 months
- 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 ongoing child health checks

6. Referral/consultation

- **Note:** attic retraction or perforation, suspicion of cholesteatoma or non-resolving discharging ear requires urgent referral to an ENT Specialist
- Refer to a Speech Pathologist if speech, language, learning or behaviour issues exist

Ear discharge in the presence of grommets - child

1. May present with¹

- History of insertion of grommet in 1 or both ears
- Recent history of swimming (water immersion) without earplugs
- Discharge of pus from a grommet, fever or URTI

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history
- Perform standard clinical observations (full CEWT score or other local Early Warning and Response Tools)
- Perform physical examination
- Document the size and position of grommet on a diagram in the case notes
- See [Ear and hearing assessment, page 708](#)

4. Management¹

- Treat as per acute otitis media. See [Acute otitis media \(AOM\) with/without perforation, page 712](#)
- Consult MO/NP as per AOM if not responding to treatment
- Use the national 'Care for Kids Ears' website and resources to support families, health professionals and early childhood educators: <http://www.careforkidsears.health.gov.au/internet/cfke/publishing.nsf/Content/Home>
- Advise no swimming. If this is not possible use ear plugs with a swimming cap. Effective ear plugs can be custom built or made from silicone putty, cotton wool with petroleum jelly or adhesive putty e.g. 'Blu-Tack®'

5. Follow up¹

- As per MO/NP instructions

6. Referral/consultation

- Consult MO/NP as above
- Where prolonged medical therapy fails i.e. > 6 weeks, or frequent painful AOM, the MO/NP may

refer to ENT Specialist

- Refer for audiology and speech pathology if concerns about hearing, speech, language development, learning difficulties or the child has had recurrent AOM
- For hearing impaired school children notify (with parental consent) the school, so they can take measures to support the child's learning environment. e.g. sound fields amplification system and student placement

Dry perforation - adult/child

1. May present with¹

- Perforated eardrum (hole) without any discharge
- Decrease in hearing
- Concerns with behaviour, listening, learning or speech and language development

2. Immediate management Not applicable

3. Clinical assessment¹

- Obtain a complete patient history and perform physical assessment
- Ask about hearing, learning, behaviour, speech and language
- Document length of time perforation has been present
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Document the size and position of perforation on a diagram in the case notes
- See [Ear and hearing assessment, page 708](#)

4. Management¹

- Discuss with parent/carer/patient to keep ears dry, especially when bathing, by keeping head out of water or by using water proof ear plugs
- Consult MO/NP if perforation in the attic region

5. Follow up¹

- Advise patients to attend the clinic for antibiotics if any episodes of discharge occur
- Follow up as per Audiologist/ENT Specialist care plan

6. Referral/consultation¹

- Refer to 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 of the eardrum
- Full audiology assessment - otoscopy, tympanometry and audiometry to determine level of hearing
- Speech Pathologist for all patients with language, learning, speech or behavioural problems
- For hearing impaired school children ensure (with parental consent) the school is notified, so measures are taken to support the child's learning environment. e.g. sound fields amplification system and student placement

Cholesteatoma - adult/child

Recommend

- If suspected refer immediately to ENT Specialist

Background^{1,2,3,4}

- Cholesteatoma is a keratinised mass in the middle ear or mastoid usually acquired in those with a history of recurrent acute otitis media and/or chronic middle-ear perforation or eustachian tube dysfunction
- Cholesteatoma is treated surgically and success is highly dependent on early recognition and the extent of the lesion

1. May present with^{2,3}

- If diagnosed early may have no symptoms. Otherwise may present with:
 - white mass behind eardrum on otoscopic examination
 - discharge associated with a 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 and perform physical examination
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Otoscopic examination may reveal:
 - 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
- See [Ear and hearing assessment, page 708](#)

4. Management

- If suspected refer immediately 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

HMP Acute mastoiditis - adult/child

Recommend

- Urgent referral to hospital with Paediatrician and/or ENT Specialist for management

Background¹

- Mastoiditis is inflammation in the mastoid air cells and typically occurs after acute otitis media

1. May present with¹

- 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 and perform a physical examination
- Perform standard clinical observations (full ADDS/CEWT score or other local Early Warning and Response Tools)
- Palpate behind the ear. Palpate the mastoid tip noting any tenderness
- Note any swelling or warmth around the mastoid bone - describe
- Palpate the occiput, around the ears and both sides of the neck for lymph glands
- See [Ear and hearing assessment, page 708](#)

4. Management¹

- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Consult MO/NP who will arrange:
 - urgent referral to hospital with Paediatrician and/or ENT Specialist for management
 - discuss antibiotic regimen with Infectious Disease Specialist
- First dose of antibiotics may need to be administered prior to evacuation

5. Follow up

- As per discharge orders

6. Referral/consultation

- Urgent referral to Paediatrician and/or ENT Specialist

HMP Otitis externa - adult/child

SWIMMER'S EAR OR TROPICAL EAR

Recommend¹

- The ear canal should be kept as dry as possible. Remove discharge or other debris from the ear canal with a dry aural toilet (tissue spear), not by syringing with water

Background

- Otitis externa can become chronic or recurrent, especially in hot humid climates

1. May present with

- Tender, swollen outer ear and ear canal
- Pain if outer ear manipulated
- Canal redness and peeling
- Ear pain (sometimes severe) or itch
- Discharge not always present
- Ear blockage, deafness or fullness
- Foreign body/debris may be present

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history and perform a physical examination
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Movement of the pinna is often very painful; approach gently
- 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
- See [Ear and hearing assessment, page 708](#)

4. Management^{1,2}

- Consult MO/NP if fever, cellulitis or enlarged pre/post auricular lymph nodes
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- General prevention involves keeping the ear canal dry for at least 2 weeks after treatment and protected by a lining of wax
- Advise not to swim until healed
- Using drying acetic acid ear drops e.g. Aquaeear®/Vosol®, after swimming and showering will help prevent recurrence. Do not use if grommets or perforation present
- Advise patient to keep foreign objects such as cotton buds out of their ears. If necessary remove built-up wax with a wax softener e.g. Waxsol®
- Gently dry mop the ear canal followed by:
 - dexamethasone + framycetin + gramicidin ear drops/ear wick **OR**
 - flumetasone 0.02% + clioquinol 1% ear drops/wick **OR**
 - triamcinolone compound ointment ear wick to prevent further acute bacterial infection

- See Ear wick technique for otitis externa below
- For ear drop administration tips, see Cleaning techniques for ears with chronic discharge in [Chronic suppurative otitis media \(CSOM\)](#), page 719

Ear wick technique for otitis externa^{1,2}

Materials

- Ear drops/ear ointment as per management
- 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

Schedule	4	Dexamethasone + framycetin + gramicidin (Otodex®, Sofradex®)	Extended authority ATSIHP/IHW/IPAP/RIPRN

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Ear drops	Dexamethaxone 0.05% Framycetin 0.5% Gramicidin 0.005%	Affected ear	3 drops tds OR Soak ear wick in drops (severe cases)	Continue until a few days after symptoms have disappeared (no longer than 2 weeks)

Provide Consumer Medicine Information: May cause ringing in the ears, hearing loss and difficulty with balance; stop using this medication and report. Allergic dermatitis after prolonged use is common

Note: Ciprofloxacin ear drops are preferred if eardrum perforation cannot be excluded

Management of associated emergency: Consult MO/NP. See [Anaphylaxis](#), page 102

1,3

Schedule	4	Flumetasone + clioquinol (Locacortin vioform®)		Extended authority ATSIHP/IHW/IPAP/RIPRN
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Ear drops	Flumetasone 0.02% Clioquinol 1%	Affected ear	Adult and child > 2 years 3 drops bd OR Soak ear wick in drops (severe cases)	Continue until a few days after symptoms have disappeared (no longer than 2 weeks)
Provide Consumer Medicine Information: Allergic dermatitis after prolonged use is common				
Contraindication: Coprofloxacin ear drops are preferred if ear drum perforation cannot be excluded				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1

Schedule	4	Triamcinolone compound (Kenacomb Otic®)	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN 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	Affected ear	Soak ear wick in ointment	Leave wick in affected ear canal for 1-3 days then review
Provide Consumer Medicine Information: May cause ringing in the ears, hearing loss and difficulty with balance; stop using this medication and report. Allergic dermatitis after prolonged use is common				
Note: Ciprofloxacin ear drops are preferred if eardrum perforation cannot be excluded				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,4

5. Follow up

- Advise to be reviewed in 2 days and in 1 week
- Advise to keep ears dry until healed
- Advise to see MO/NP at next visit if ear canal not back to normal at 1 week or if recurrent

6. Referral/consultation

- As per MO/NP orders

HMP Traumatic rupture of the eardrum - adult/child

Related topics

[Head injuries, page 175](#)

1. May present with¹

- A history of the injury for example:
 - 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

- Manage any life threatening injuries

3. Clinical assessment¹

- Obtain a complete patient history and perform a physical examination:
 - ask about the circumstances and mechanism of injury
 - time, date of occurrence and when first noticed
 - does the patient have decreased hearing
 - note other injuries if present
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- See [Ear and hearing assessment, page 708](#)

4. Management^{1,2}

- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- 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)
- The majority of traumatic perforations heal spontaneously without any intervention, and only few patients require surgical intervention

5. Follow up

- Ask to return for 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

HMP Foreign body/insect in ear - adult/child

Background¹

- The main danger of a foreign body in the ear lies in its careless removal

Related topics

[Otitis externa, page 725](#)

1. May present with

- Foreign body in ear canal such as an insect, gravel or a twig

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a full history including circumstances: accidental, purposeful, incidental finding
- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools)
- Examine the ears. See [Ear and hearing assessment, page 708](#)

4. Management^{1,2}

- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Small objects seen to be near external ear opening can be easily removed 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 lidocaine (lignocaine) 1% 2-3 drops or cooking oil introduced by the blunt end of a syringe or via a cut-off 'butterfly' needle, or other plastic tubing. Then gently syringe with warm water
- Ear canal abrasion or laceration is the most common complication of foreign body removal and occurs in up to 50% of patients. If ear canal is traumatised consider Dexamethasone + framycetin + gramicidin ear drops¹

Schedule	4	Dexamethasone + framycetin + gramicidin (Otodex®, Sofradex®)	Extended authority ATSI P/IHW/IPAP/RIP N

ATSIHP, IHW, IPAP and RN must consult MO/NP

RIPRN may proceed

Form	Strength	Route of administration	Recommended dosage	Duration
Ear drops	Dexamethasone 0.05% Framycetin 0.5% Gramicidin 0.005%	Affected ear	3 drops tds	3-7 days

Provide Consumer Medicine Information: May cause ringing in the ears, hearing loss and difficulty with balance; stop using this medication and report. Allergic dermatitis after prolonged use is common

Ear drop administration tips: See Cleaning techniques for ears with chronic discharge in [Chronic suppurative otitis media \(CSOM\), page 719](#)

Note: Ciprofloxacin ear drops are preferred if ear drum perforation cannot be excluded

Management of associated emergency: Consult MO/NP. See [Anaphylaxis, page 102](#)

3

5. Follow up

- If foreign body or insect easily removed, ask to return for review in 2 days
- See [Otitis externa, page 725](#) if secondary infection occurs after removal

6. Referral/consultation

- Consult MO/NP

Gastrointestinal problems

HMP Acute gastroenteritis/dehydration - child

VOMITING AND DIARRHOEA

Recommend^{1,2}

- Contact MO/NP immediately if infant is < 3 months of age
- High risk children include:
 - excessive diarrhoea with > 8 watery stools in 24 hours
 - those with congenital or chronic conditions e.g. cardiac, gastrointestinal or neurological
 - where social conditions are concerning and/or where the parents may have difficulty managing at home

Related topics

[Giardiasis, page 738](#)

[Lactose intolerance, page 736](#)

1. May present with

- Diarrhoea and vomiting; consider other diagnoses if persistent/bilious vomiting and no diarrhoea
- Lethargy or altered level of consciousness, floppy, unresponsive or fitting

- Irritability
- High pitched or weak cry
- Not feeding well
- Increased RR:
 - < 1 year with > 45 respirations/min
 - 1-4 years with > 35 respirations/min
 - 5-11 years with > 30 respirations/min
 - ≥ 12 years with > 25 respirations/min
- Fever or rash
- Dehydration
- Abdominal distension

2. Immediate management

- See [DRS ABCD resuscitation/the collapsed patient, page 54](#)
- Monitor conscious state closely. See [Glasgow Coma Scale/AVPU, page 785](#)
- Consult MO/NP immediately if any risk factors present or child is < 3 months of age
- Commence rehydration according to MO/NP advice

3. Clinical assessment^{1,2,3,4}

- Perform standard clinical observations (full CEWT score or other local Early Warning and Response Tools) +
 - weight - bare weight if < 2 years. Assess against recent weights
- Obtain a complete history including:
 - diarrhoea - how much and for how long, is it watery or semi formed, is there blood or mucus
 - vomiting - how much and for how long, is there bile
 - fluid intake - how much and what type
 - recent diet history - how much food has the child eaten and what, changes in appetite
 - weight loss
 - 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
 - similar household illnesses or with other social contacts
 - recent antibiotic use
 - contact with other sick people and children
 - day care attendance
- Did the child receive rotavirus vaccine
- Perform a complete physical examination with particular attention to:
 - degree of dehydration. See Clinical assessment of hydration in child table below
 - abdominal distension, guarding, rigidity
- Consider a faeces specimen for MCS and ova, cysts and parasites (OCP) and viral studies if:
 - blood or mucous in the stool, severe prolonged diarrhoea (> 7 days)
 - suspicion of septicaemia
 - recent travel overseas

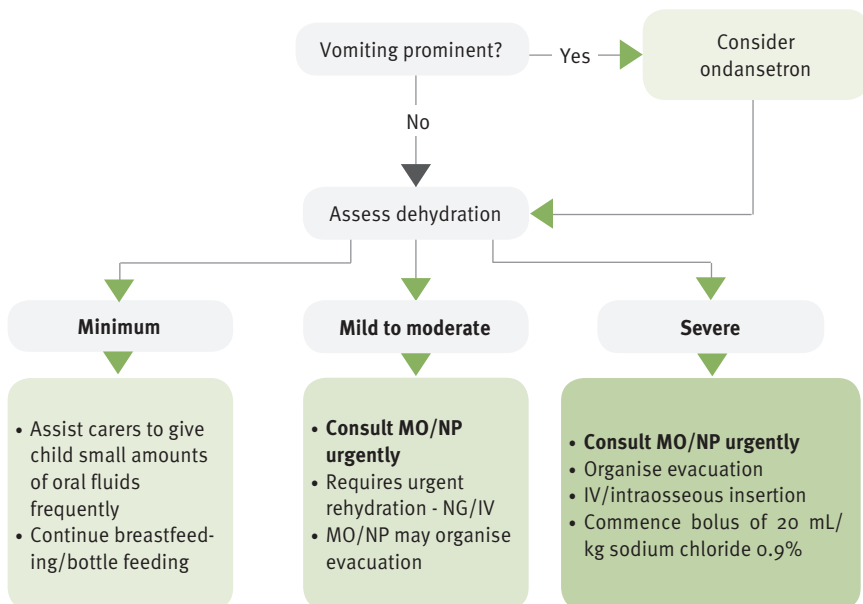
Clinical assessment of hydration in child⁴

Clinical feature	Minimal < 3%	Mild to moderate 3-9%	Severe > 9%
Eyes and fontanelle	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	Fast/deep
Pulse	Normal	Fast	Fast, weak
Capillary return	Normal (≤ 2 seconds)	Delayed (> 2 seconds)	Very delayed (> 3 seconds)
Extremities	Warm hands and feet	Cool hands and feet	Cold, mottled, cyanosed hands and feet
Urine output	Normal to reduced Clear to straw coloured	Reduced Yellow/orange coloured	Minimal to anuric Dark orange/brown
Management	Can usually be treated at home or with close monitoring by PHC or rural/remote facility	Consult MO/NP urgently. Requires urgent rehydration nasogastric/IV	Consult MO/NP urgently. Requires resuscitation

4. Management^{2,3,5}

- Consult MO/NP immediately for children with:
 - risk factors
 - moderate/severe dehydration
 - < 3 months of age
- 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. See [Nausea and vomiting, page 48](#)
- Avoid using:
 - anti-diarrhoeal agents
 - antibiotics (rarely indicated)
- Place child on care plan with individualised review, fluid balance and weights according to severity and family situation
- 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 gastrointestinal symptoms

Management of dehydration in children flowchart



Minimal dehydration < 3% loss of body weight^{2,4,5}

- Keep child drinking small amounts of fluids often. Use:
 - oral rehydration fluids e.g. Gastrolyte®, Hydralyte®, Pedialyte®
 - breastfeeding/bottle feeding
 - diluted commercial cordials (1:20), fruit juice drinks and lemonade (1:5) with water if oral rehydration fluids not available
- Continue to offer fluids even if the diarrhoea seems to get worse
- Can be monitored and cared for at home, however if significant ongoing vomiting and/or diarrhoea occurs, child should return and be reviewed by the MO/NP
- Consider early NG rehydration in these children if oral replacement is not successful
- Maintain a record of fluid intake and output - by staff or family
- For breastfed infants:
 - continue breastfeeding on demand or at least every 2 hours
 - offer water or oral rehydration solution between breast feeds
 - avoid solids if the child is vomiting
 - offer solids when vomiting has stopped or after 24 hours
 - continue to offer bland solids i.e. rice cereal, potato or pumpkin if diarrhoea is present
- For bottle-fed infant and older child:
 - replace formula and usual drinks with oral rehydration fluid if child still vomiting
 - reconstitute oral rehydration fluids with cooled boiled water
 - aim to resume usual full-strength formula/diet within 24 hours
 - offer age appropriate foods at meal times if diarrhoea is present
 - see [Lactose intolerance, page 736](#)

Mild to moderate dehydration 3-9% loss of body weight

- If not being evacuated child must be managed in appropriately equipped and staffed facility
- Consult MO/NP who may consider:
 - commencing oral/NG rehydration therapy. See below table for rehydration volumes **OR** provide 50-100mL/kg over the first 4 hours
 - commencing a fluid balance sheet
 - monitoring child's observations closely
- Discuss ongoing management with MO/NP after 4 hours
- Continue to breastfeed, formula feed and/or offer solids as per mild dehydration

Guide for oral/NG fluid replacement for mild to moderate dehydration 3-9%⁶

Weight kg	mL/hour for the first 6 hours	mL/hour from 6 hours onwards
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 > 9% loss of body weight

- Monitor conscious state closely
- Evacuation required
- Consult MO/NP urgently who may consider:
 - inserting IV/intraosseous. See [Intraosseous infusion, page 69](#)
 - taking bloods for UE, glucose, acid base
 - commencing a fluid resuscitation regime according to following table
 - monitor fluid balance
 - if hypoglycaemic giving IV glucose 10%. See [Hyperglycaemia, page 113](#)
- Ongoing fluid input should be managed in consultation with a Paediatrician

Fluid resuscitation regimen for severe > 9% dehydration^{2,4,5}**Initial treatment:**

- 20 mL/kg bolus sodium chloride 0.9%
- Reassess
- Give second bolus of 20 mL/kg if still shocked
- Ongoing maintenance or replacement fluids in children include sodium chloride 0.9%
OR sodium chloride 0.9% + 5% glucose
- Contact MO/NP for ongoing fluid orders

Advice to parent/carer(s):

- Discuss hand washing, personal hygiene, avoiding food preparation and public swimming pools until diarrhoea and vomiting has settled
- Bowel actions may not return to normal for 2 weeks
- Avoid medicines to reduce vomiting and diarrhoea
- Use methods to help children drink e.g. cup, ice block, bottle, syringe
- Keep child away from other children, including child care and/or school, until the diarrhoea and vomiting has stopped for at least 24 hours
- Return to clinic if child:
 - is not drinking and still has vomiting and diarrhoea
 - 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
 - has stomach pain
 - has any blood in the faeces
 - has green vomit
 - you are worried for any other reason
- 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
 - if the child has an appetite, eating should be encouraged, avoiding fatty or high sugar foods and drinks
- Nutrition after gastroenteritis:
 - continue to breastfeed, bottle feed and offer solids as per normal age-related recommendations
 - an episode of acute gastroenteritis may result in weight loss
 - for children > 6 months of age encourage parent/carer to offer extra healthy foods until normal weight is regained. Healthy foods that replace lean body tissue after weight loss include:
 - lean meat and fish
 - eggs
 - fruit and vegetables
 - peanut paste
 - baked beans

- cheese and yoghurt
- wholegrain cereals like Weet-Bix®

5. Follow up^{1,2,3,4}

- If not evacuated, all children should be reviewed the following day or earlier if parent/carer is concerned that the child is worse
- Children with watery diarrhoea lasting longer than 2-3 days should have bloods taken for UE. Babies may require this earlier
- If diarrhoea continues beyond 10 days, see chronic diarrhoea in [Differential diagnosis - child, page 673](#)
- Monitor weekly to ensure healthy growth is resumed
- Refer to MO/NP if healthy growth is not resumed within 4 weeks - repeated or chronic infections can result in poor appetite and growth failure

6. Referral/consultation

- 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 current 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: <https://www.health.gov.au/internet/main/publishing.nsf/Content/ohp-communic-1>

Lactose intolerance - child

Recommend^{1,2}

- Continue breastfeeding breastfed infants
- Use lactose-free formulas for artificially fed infants
- Consider other causes of chronic diarrhoea

Background^{1,2}

- Lactose intolerance occurs when the gastrointestinal tract is unable to absorb lactose due to deficiency of the lactase enzyme
- Any incompletely absorbed lactose is fermented by bacteria in the large bowel causing abdominal pain, bloating, diarrhoea and/or vomiting
- In young children lactose is a common transient complication of gastroenteritis, in particular when caused by rotavirus. It is usually of short duration

Related topics

[Acute gastroenteritis/dehydration - child, page 730](#)

1. May present with

- Chronic diarrhoea, bloating, vomiting, irritability
- Stool may be 'frothy'
- Excoriated perianal area (due to diarrhoea)

2. Immediate management Not applicable

3. Clinical assessment

- Obtain a complete patient history:
 - symptoms reoccur upon reintroduction of dairy products after a trial of a lactose-free diet
- Perform standard clinical observations (full CEWT score or other local Early Warning and Response Tools) +
 - weight - bare weight if < 2 years. Assess against recent weights
- Collect a faeces specimen for MCS, ova, cysts and parasites (OCP) and reducing substances (unabsorbed sugars) to rule out other causes of symptoms
- Perform a complete physical examination with emphasis on:
 - hydration status. See [Acute gastroenteritis/dehydration - child, page 730](#)
 - palpate abdomen for tenderness or guarding
 - inspect the perianal area for signs of excoriation

4. Management^{1,2}

- Discuss with the MO/NP or child health nurse if lactose intolerance is suspected
- Breastfed infants should continue to be breastfed:
 - in some breastfed children lactose intolerance can continue longer because of the lactose in breast milk
 - a low lactose formula may need to be used as a short-term measure on advice from MO/NP
- Encourage extra fluids if the child continues to have diarrhoea
- Temporarily avoid or reduce lactose based formulas and dairy products:
 - custards
 - milk; cow, goat, full cream, low fat, skim, powdered
 - yoghurt
 - cheese; cottage, cream, any soft cheeses
 - cream
 - ice-cream
- For formula fed infants consider lactose free formulas such as De-Lact® or O-Lac®
- 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

- Ask to return for review 1-2 days after starting on lactose free formula
- Consult MO/NP if diarrhoea persists
- Advise to see next Child Health Nurse or MO/NP clinic

6. Referral/consultation

- Consult MO/NP on all occasions lactose intolerance suspected
- Dietitian if available

HMP Giardiasis - adult/child

Recommend

- Consider other diagnoses for abdominal pain and cramping and large-volume, watery, and foul-smelling diarrhoea if symptoms don't settle after treatment

Background^{1,2,3}

- Ingestion of Giardia protozoan cysts from contaminated water or food is the most common route of transmission but person-to-person transmission may occur
- Giardiasis is one of the most common causes of diarrhoea worldwide

Related topics

[Acute gastroenteritis/dehydration - child, page 730](#)

[Acute gastroenteritis/dehydration - adult, page 243](#)

1. May present with

- Foul smelling watery diarrhoea
- Chronic diarrhoea, frequent loose and pale greasy stool
- Abdominal cramps
- Abdominal distension, flatulence
- Nausea, poor appetite
- If prolonged untreated asymptomatic episodes then:
 - anaemia
 - weight loss/poor growth

2. Immediate management Not applicable

3. Clinical assessment

- Perform standard clinical observations (full Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weight - bare weight if < 2 years. Assess against recent weights
- Collect 2 faeces specimen for MCS and ova, cysts and parasites (OCP)
- Perform a complete physical examination with emphasis on:
 - assess for dehydration. See [Acute gastroenteritis/dehydration - child, page 730](#)
 - palpate the abdomen for tenderness or guarding
 - inspect the perianal area for signs of irritation

4. Management

- Discuss with MO/NP
- Encourage oral fluids
- Treat all patients once laboratory results confirms presence of cysts, whether symptomatic or not, with:
 - tinidazole **OR** metronidazole
- If symptoms do not resolve then reassess and discuss with MO/NP who may consider:
 - repeat treatment after 24-48 hours **OR**
 - a differential diagnosis

Schedule	4	Tinidazole	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	500 mg	Oral	Adult 2 g Child 50mg/kg to a max. of 2 g May need to repeat after 24-48 hours for child	once
Provide Consumer Medicine Information: Avoid alcohol while taking and for 72 hours thereafter. Take with food to reduce stomach upset. May cause nausea, anorexia, abdominal pain, vomiting, diarrhoea, metallic taste, dizziness or headache				
Use in pregnancy: Use metronidazole instead of tinidazole				
Note: Tinidazole tablets should be taken whole. If necessary, peel and crush the tablets, then weigh the appropriate dose and mix with flavouring				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,2,3,4

1,2,3,4

Schedule	4	Metronidazole	Extended authority ATSIHP/IHW/IPAP/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg 400 mg	Oral	Adult 2 g daily	3 days
Oral liquid	200 mg/5 mL		Child > 1 month 30 mg/kg to a max. of 2 g daily	
Provide Consumer Medicine Information: Avoid alcohol while taking and for 24 hours thereafter. Take tablet with food to reduce stomach upset. Take oral liquid 1 hour before food for better absorption. May cause nausea, anorexia, abdominal pain, vomiting, diarrhoea, metallic taste, dizziness or headache				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

1,2,3,5

1,2,3,5

5. Follow up

- Ask to return for 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

HMP Intestinal worms - adult/child

Recommend

- Routine deworming without evidence is not recommended. Indicated in 3 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
- Exclusion of infected patients is not usually required

Background¹

- Disease from worms is dependent on the worm burden, the location of the worm and the duration and intensity of the exposure to eggs and larvae
- Threadworm infection is common in Australia
- Strongyloides and other worms are common in Northern Australia
- Pinworms (thread worms) are caused by poor hygiene
- Tapeworms are transmitted by food e.g. undercooked pork
- Strongyloides is transmitted through soil
- Medicines for treatment of worm infections are usually well tolerated²
- Factsheet: <http://conditions.health.qld.gov.au/HealthCondition/condition/8/121/661/worms-in-childhood>

Related topics

[Anaemia, page 749](#)

1. May present with³

- Perianal/perineal itch - pinworm (thread worm). Small threadlike worm may be seen. Doesn't cause diarrhoea or poor growth
- Presence of worms or worm segments in faeces or around anus
- Anaemia - hookworm
- Acute diarrhoea - strongyloides
- Poor growth - strongyloides can contribute
- Abdominal pain, nausea, vomiting (high worm burden)
- Mild fever
- Itchy skin with red or pink track marks with some strongyloides infections⁴

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 Q-ADDS/CEWT score or other local Early Warning and Response Tools) +
 - weight - bare weight if < 2 years. Assess against recent weights
 - check Hb
 - collect a faeces specimen for MCS and ova, cysts and parasites (OCP) and OCPPCR
- Perform physical examination:
 - palpate the abdomen for tenderness or guarding
 - inspect the perianal/perineal area for signs of irritation (if indicated)

4. Management⁵

- Consult MO/NP if abdominal pain present. See [Acute abdominal pain, page 238](#)
- Reassurance, education and advice regarding handwashing, wearing shoes and personal hygiene
- Advise that house and clothing should be cleaned well to destroy the ova and prevent reinfection
- If treating worms without laboratory confirmation use:²
 - albendazole OR mebendazole - if ≥ 6 months and not pregnant
 - pyrantel - if < 6 months or pregnant^{2,6}
- Treat household contacts and carers at the same time to reduce risk of relapse
- Consult MO/NP for strongyloides infection in immunocompromised patients

Schedule	4	Albendazole	Extended authority ASTIHP/IHW/IPAP/RIPRN	
ASTIHP, IHW, IPAP and RN must consult MO/NP				
RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	200 mg 400 mg	Oral	Adult and child > 10 kg 400 mg Child < 10 kg 200 mg	Hookworm, roundworm, threadworm once
				Strongyloidiasis bd for 3 days Repeat course after 7-14 days if treatment unsuccessful
				Whipworm daily for 3 days
Provide Consumer Medicine Information: Tablets may be crushed, chewed or swallowed whole. May cause nausea, vomiting, diarrhoea, headache, dizziness, fever and abdominal pain				
Note: Women should use contraception during, and for 1 month after treatment				
Contraindicated: Ocular cysticercosis				
Use in pregnancy: Avoid during first trimester of pregnancy				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5,8

5,8

Schedule	2	Mebendazole		Extended authority ASTIHP/IHW/IPAP
ASTIHP, IHW, IPAP and RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	100 mg	Oral	Adult and child > 6 months and > 10 kg 100 mg	Threadworm once Repeat dose after 2 weeks if treatment unsuccessful
Oral liquid	100 mg/5 mL		Child > 6 months and < 10 kg 50 mg	Whipworm, hookworm, roundworm bd for 3 days Repeat course after 3 weeks if treatment unsuccessful
Provide Consumer Medicine Information: Tablets may be crushed, chewed or swallowed whole. May cause nausea, vomiting, diarrhoea, headache and abdominal pain				
Use in pregnancy: Avoid during first trimester of pregnancy				
Management of associated emergency: Consult MO/NP. See Anaphylaxis, page 102				

5.7

5,7

Schedule	2	Pyrantel		Extended authority ATSIHP/IHW/IPAP
ATSIHP, IHW, IPAP and RIPRN may proceed				
RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Tablet	125 mg 250 mg	Oral	Adult and child > 1 year 10 mg/kg to a max. of 1 g	Roundworm once Repeat after 7 days if heavy infestation
Oral liquid	50 mg/mL			Threadworm once Consider repeating dose after 2 weeks
				Hookworm daily for 3 days
Provide Consumer Medicine Information: Can cause nausea, vomiting, diarrhoea, abdominal cramps, and headache. Tablets may be crushed and mixed with jam				
Management of associated emergency: Consult MO/NP				

5,6

5,6

5. Follow up

- Advise to see MO/NP at next clinic if anaemia or weight loss/poor growth

6. Referral/consultation

- Consult MO/NP as above

Constipation - child

Recommend^{1,2}

- Dietary and bowel habit discussions should be part of routine child health check visits for children of all ages
- Initial simple measures such as increasing dietary fibre and fluid intake, and encouraging regular toileting may be sufficient

Background^{1,2,3,4}

- Constipation is a delay or difficulty in defecation for ≥ 2 weeks that is characterised by infrequent, large, and/or painful stools preventing a complete evacuation of the lower colon
- Constipation is common in children < 4 years of age
- Breastfed babies may defaecate once a week. This is not constipation
- Healthy infants < 6 months of age can strain and cry before passing soft stools. This is not constipation and will self-resolve
- Faecal retention and stool withholding behaviour, low fibre diet, reduced fluid intake and malnutrition are the most common causes
- Continued voluntary withholding of faeces to avoid painful bowel movements contributes to a cycle of worsening constipation

1. May present with^{1,2,3}

- Hard painful stools - often small pellets
- Excessive straining at stool
- Soiling (encopresis)

2. Immediate management Not applicable

3. Clinical assessment^{1,2,3}

- Obtain a complete patient history including:
 - medical history including delayed passage of meconium at birth (can indicate conditions such as Hirschsprung's disease which can present throughout early childhood)
 - usual bowel pattern, stool colour, consistency and size, past episodes of constipation or encopresis (faecal incontinence), time since last bowel motion
 - parental expectations of 'normal' stool pattern
 - urinary output including new enuresis (day or night urinary incontinence)
 - current stage and methods of toilet training
 - current diet including food allergies, recent introduction of solids, cow's milk or medicines
 - fluid intake i.e. breastfed, formula fed or drinking from cup and how formula is prepared
 - social history including family routine, recent school or day-care entry, change in child's behaviour and physical activity levels

- Perform standard clinical observations (full CEWT score or other local Early Warning and Response Tools) +
 - weight - bare weight if < 2 years. Assess against recent weights
 - plot growth and height/length
- Perform a complete physical examination with emphasis to inspect:
 - mouth, look for mouth ulcer(s) and state of teeth/gums
 - palpate abdomen for masses
 - anus and perianal area - position of the anus, pressure of stool around anus, perineal sensation, skin tags, anal fissures and bleeding
- 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^{1,2,3}

- If faecal impaction is suspected, always consult MO/NP or specialist
- The main principles of constipation management are to:
 - adequately soften stools to eliminate fear of painful evacuation
 - empty the rectum, if impacted, and keep it empty
 - encourage good toileting behaviour
- Dietary interventions:
 - transitioning to solids or from breastfeeding to formula feeding can briefly trigger constipation
 - 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
 - formula preparation must be in accordance with the manufacturers recommendations to avoid dehydration and constipation
 - avoid excessive amounts of cow's milk which can slow intestinal motility and diminishes intake of foods and fluids that promote soft stools
- Encourage physical activity
- Toilet training:
 - take advantage of the gastrocolic reflex. Most people have the urge to pass a motion after eating a meal, especially breakfast
 - encourage the child to sit routinely on the toilet after each meal and attempt to pass a motion
 - this process should be fun, unhurried and free of anxiety for the parent and child
 - smiling, laughing, cuddling and/or a reward for sitting on the toilet is beneficial, whether a stool is passed or not, to reinforce good behaviour
 - children should avoid sitting on the toilet for longer than 10 minutes at a time
- School entry:
 - transitioning to school can trigger constipation due to reluctance to use the school toilet, changes to daily schedule or embarrassment
 - encourage parents to discuss monitoring of any concerning bowel habits with carers and teachers
- If simple measures for constipation are ineffective consider starting a laxative **on MO/NP advice**

- See Laxatives for children table:
 - titrate dose until the stool has the consistency of porridge
 - daily dose is preferable to intermittent or less frequent dosing
 - long-term laxative use is not harmful, addictive or damaging to enteric nerves
- Most constipation in children will resolve with these measures

Laxatives for children^{1,2,3}

Laxative	Administration
Initial treatment with a stool softener for up to 3 months with one of the following	
Macrogol or polyethylene glycols (PEGs)	0.7-1 g/kg orally, daily See individual product CMI for preparation e.g. Clearlax®, Movicol Junior®, OsmoLax®
Lactulose	1-3 mL/kg orally, daily in divided doses (max. daily dose 60 mL) If needed, mix with other drinks to improve taste
Sorbitol	1-3 mL/kg orally, daily in divided doses (max. daily dose 60 mL) If needed, mix with other drinks to improve taste
OR a short course daily for 3 days of a lubricant laxative if stools are hard to pass	
Liquid paraffin 50%	1-6 years: 10-15 mL orally, once daily > 6 years: 20 mL orally, once daily Adjust the dose by 5 mL as required. Must remain upright for 2 hours after the dose
If no regular stooling after 2-3 months	
Contact MO/NP who may order stimulant laxative	

5. Follow up

- Children with constipation are advised to be reviewed regularly to assess progress
- Once the problem settles continue with dietary improvement and increased water intake to prevent recurrence

6. Referral/consultation

- If constipation persists, refer to the next Child Health Nurse or MO/NP clinic or Continence Advisor
- Consult MO/NP if constipation is severe or the child is unwell in any way
- MO/NP may consider referral to a Paediatrician

Pyloric stenosis - child

Recommend^{1,2,3}

- Due to ongoing vomiting, child requires correction of:
 - significant volume depletion
 - metabolic alkalosis
 - electrolyte abnormalities
- Requires evacuation for further investigation and surgical intervention

Background^{1,2,3}

- Caused by a thickening of the pylorus (gastric outlet at the bottom of the stomach) causing obstruction and subsequent forceful vomiting
- Infants usually present between 2-8 weeks of age and is 5 times more common in males

Related topics

[Acute gastroenteritis/dehydration - child, page 730](#)

[Intussusception, page 747](#)

1. May present with^{1,2,3}

- Vomiting which:
 - is recurrent and progressively gets worse, sometimes projectile
 - occurs soon after feeds
 - non-bilious but blood stained in 10% of cases
- Always hungry
- Poor weight gain or weight loss
- Dehydration

2. Immediate management

- Consult MO/NP immediately

3. Clinical assessment^{1,2,3}

- Obtain a complete patient and family history:
 - progressive increase in projectile vomiting after feeds
 - infant is eager to feed following the vomiting episode
 - positive family history for pyloric stenosis especially twin or sibling
 - bottle feeding
 - postnatal exposure to macrolide antibiotics, especially erythromycin
 - maternal smoking
- Perform standard clinical observations (full CEWT score or other local Early Warning and Response Tools) +
 - weight - bare weight if < 2 years. Assess against recent weights
- Perform a complete physical examination with emphasis on:
 - inspect and palpate abdomen
 - visible peristalsis which is more obvious following a feed
 - abdominal ultrasound if available. This can confirm diagnosis
- Assess degree of dehydration. See [Acute gastroenteritis/dehydration - child, page 730](#)

- Assessment of electrolyte and acid base abnormalities i.e. hypokalaemia

4. Management^{1,2,3}

- Consult MO/NP who may advise:
 - insert IV/intraosseous cannula. See [Intraosseous infusion, page 69](#)
 - bloods for FBP, UEC, LFT, BGL, capillary or venous blood gas
 - fluid resuscitation
 - nil by mouth
 - arrange evacuation/hospitalisation for surgery
- Monitor closely until evacuated

5. Follow up

- All babies with suspected pyloric stenosis must be managed in an appropriately resourced hospital

6. Referral/consultation

- Consult MO/NP on all occasions of suspected pyloric stenosis

Intussusception - child

Recommend^{1,2,3}

- Suspect in a young child who has intermittent severe abdominal pain which may be associated with drawing up of the legs and has blood and/or mucus in the stools
- Treat without delay due to risk of bowel ischaemia and perforation

Background^{1,2,3}

- Intussusception is telescoping of the proximal segment of intestine into a distal segment of intestine that may result in bowel obstruction, venous congestion, and bowel wall oedema
- It is most common in infants and children aged 3 months-3 years with peak incidence between ages 5-9 months

1. May present with^{1,2,3}

- Intermittent severe abdominal pain typically 2-3 times an hour and may increase over the next 12-24 hours
- Inconsolable crying where child may look pale. Other causes of infant crying are associated with facial redness rather than pallor
- Poor feeding
- Vomiting is common. Bile stained is a late sign
- Diarrhoea is common
- Bowel motions may have blood and/or mucus. Classic red currant jelly stool is a late sign

2. Immediate management

- Consult MO/NP

3. Clinical assessment^{1,2,3}

- Obtain a complete patient history:
 - intermittent, severe, cramping, progressive abdominal pain

- vomiting
- rectal bleeding, gross or occult
- pallor, lethargy. Often episodic and may look well between episodes
- recent rotavirus vaccination
- Perform standard clinical observations (full CEWT score or other local Early Warning and Response Tools) +
 - fever may be a late sign
 - weight - bare weight if < 2 years. Assess against recent weights
- Perform complete physical examination with emphasis on:
 - initially no abdominal tenderness or distension
 - focal tenderness especially in the right mid or upper abdomen
 - right lower quadrant that is scaphoid (empty) (Dance's sign)
 - palpable “sausage-shaped” mass in the right mid or upper abdomen
 - abdominal ultrasound if available (this can confirm diagnosis)
 - assess degree of dehydration. See [Acute gastroenteritis/dehydration - child, page 730](#)

4. Management^{1,2,3}

- All children with suspected intussusception should be evacuated
- Consult MO/NP who may advise:
 - insert IV/intraosseous cannula. See [Intraosseous infusion, page 69](#)
 - fluid resuscitation
 - analgesia
 - keep nil by mouth

5. Follow up

- Monitor child on return to community

6. Referral/consultation

- Consult MO/NP on all occasions of suspected intussusception

HMP Anaemia - child

Recommend^{1,2,3}

- Aim to achieve haemoglobin (Hb) level within normal range
- Parental dietary education and understanding is the key to improving childhood anaemia, namely:
 - providing children a diet high in iron rich foods
 - discouraging excessive cow's milk or other non-iron-fortified milks and drinks
- Accurate point-of-care testing should be maintained by regular calibration of haemoglobinometer e.g. HemoCue®

Background^{1,2,3}

- Anaemia is defined as Hb less than the lower limit of the reference ranges for age. See Average and lower limit haemoglobin ranges for age table
- Iron deficiency anaemia is low Hb or haematocrit due to insufficient iron stores
- Iron deficiency is the most common nutritional deficiency worldwide and the most common cause of anaemia in Aboriginal and Torres Strait Islander children aged 6 months-4 years
- Anaemia is a late indicator of iron deficiency
- Many children will have iron deficiency without symptoms of anaemia
- Iron deficiency is associated with reduced psychomotor and cognitive development, breath holding episodes, restless legs syndrome (RLS), attention-deficit hyperactivity disorder (ADHD), Tourette syndrome and stroke
- 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

Related topics

[Giardiasis, page 738](#)

[Intestinal worms, page 740](#)

1. May present with^{1,2,3,4}

- No symptoms
- Low capillary Hb detected during routine well child health check
- Tiredness, lethargy, irritability, pallor
- Poor growth
- Pale conjunctivae
- Recent bleeding episodes
- 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), hair loss

2. Immediate management Not applicable

3. Clinical assessment^{1,2,3,4}

- Obtain a complete patient past medical history:
 - history of infections
- Systems review:
 - blood loss including epistaxis, urinary and stool losses, menstrual patterns in adolescent girls
- 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:
 - types of iron rich foods consumed and when they were introduced
 - types and amount of milk consumed and when they were introduced
 - eating of non-food substances such as sand, chalk, paper and dirt
- Social history:
 - primary care giver
 - who provides and cooks food
 - carer or family support
- Family history of members with anaemia, thalassaemia or other conditions
- Perform standard clinical observations (full CEWT score or other local Early Warning and Response Tools) +
 - urinalysis
 - point of care capillary Hb check
 - weight - bare weight if < 2 years. Assess against recent weights
 - record length/height and head circumference for children < 2 years
 - tachycardia
- Perform a complete physical examination of all systems:
 - heart murmur

Average and lower limit haemoglobin ranges for age^{4,5,6}

Age	Average Hb g/L	Lower limit Hb g/L
Birth (cord blood)	165	135
1-3 days (capillary)	185	145
1 week	175	135
2 weeks	165	125
1 month	140	100
2 months	115	90
2 - 6 months	115	95
6 - 24 months	120	105
2 - 6 years	125	115
6 - 11 years	135	115
> 12 years girls	140	120
> 12 years boys	155	130

Infants born at term and of normal birthweight usually have sufficient iron stores for 4-6 months

4. Management^{1,2,3,4,5,6,7}

- 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
- See **Anaemia Management** table on following page
- The MO/NP may order:
 - oral elemental iron for 3 months in the first instance:
 - once anaemia is diagnosed via haemoglobinometer
 - for those that can tolerate oral medications
 - single dose of mebendazole if:
 - faecal sample is positive for intestinal parasites. See [Intestinal worms, page 740](#)
- Iron doses (see drug box):^{8,9}
 - 3 mg/kg elemental iron for mild to moderate anaemia
 - 6 mg/kg elemental iron for severe anaemia (Hb ≤ 80 g/L) on MO/NP order
- The MO/NP may:
 - decide to administer IM/IV elemental iron after consultation with specialist paediatric services
 - order folic acid and vitamin B12 supplements to treat rare cases of megaloblastic anaemia
- Provide nutritional advice **encouraging foods that are iron rich or improve iron absorption**:
 - breastfeeding exclusively to around 6 months
 - age appropriate infant formulas
 - red meat, beef/lamb liver or kidneys, bush meat
 - chicken, fish, egg yolks
 - iron fortified baby cereal
 - fruit juice which improves iron absorption
 - fresh or dried fruit and green vegetables such as spinach, silverbeet, broccoli
 - lentils, beans, grains, whole wheat, brown rice, nuts (in children > 2 years)
- Provide information on foods that **should be avoided which are iron poor or inhibit absorption**:
 - cow's milk < 1 years of age
 - large amounts of cow's milk > 1 years of age (> 500 mL/day)
 - coconut milk, goats milk, powdered milks or soy milks
 - caffeinated drinks such as tea or coffee
 - soft drinks or cordial
- Provide medication information to parents:
 - iron overdose can be fatal
 - iron should be stored safely away from reach of children
 - if safe storage is a concern or administering doses will be difficult at home, administer at the clinic
 - only give iron as directed

Anaemia management		
Age group	Hb (g/L)	Management
0 - < 6 months	All cases below normal range	- Consult MO/NP immediately - Initial investigations include FBC/film - MO/NP will inform further investigations guided by clinical scenario and pathology results
	< 80	- Consult MO/NP immediately - Initial investigations as per (1) below and MO/NP will inform further investigations guided by results and clinical scenario - Recheck Hb in 1 month
6-12 months	80 - < 90	- Commence iron supplements - Give a single dose of mebendazole. See Intestinal worms, page 740 - Ensure child seen at next MO/NP visit. MO/NP may advise to investigate further as per (2) below - Recheck Hb in 1 month
	90-105	- Commence iron supplements - Give a single dose of mebendazole. See Intestinal worms, page 740 - Ensure child seen at next MO/NP clinic - Recheck Hb in 1 month: - if not improving with iron supplements refer to MO/NP clinic for further management/investigations
> 12 months	< 80	- Consult MO/NP immediately to determine treatment - Initial investigations as per (1) below and MO/NP will inform further investigations guided by results and clinical scenario - Recheck Hb in 1 month
	80 - < 90	- Commence iron supplements - Give a single dose of mebendazole. See Intestinal worms, page 740 - Recheck Hb in 1 month - Ensure child seen at next MO/NP clinic. MO/NP may advise to investigate further as per (3) below
	90-110	- Commence iron supplements - Give a single dose of mebendazole. See Intestinal worms, page 740 - Ensure seen at next MO/NP clinic - Recheck Hb in 1 month: - if not improving with iron supplements refer to MO/NP clinic for further management/investigations

(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®)	Extended authority ATSIHP/IHW/IPAP	
ATSIHP, IHW and IPAP must consult MO/NP				
RIPRN may proceed. RN may administer; for supply see Authority to administer and supply medicines, page 9				
Form	Strength	Route of administration	Recommended dosage	Duration
Oral liquid	Ferrous sulfate 30 mg/mL (equivalent to 6 mg/mL of elemental iron)	Oral	1 month-18 years 3-6 mg of elemental iron/kg/day to a max. of 100-200 mg/day (May be divided into 2-3 doses) OR Daily dose given twice weekly supervised Quick dose guide for mild-moderate anaemia (3mg/kg) < 6 months 1 mL daily (dose in collaboration with MO/NP on individual patient basis) < 10 kg 0.5 mL/kg daily	For at least 3 months then review by MO/NP
Tablet	Ferrous sulfate 325 mg (equivalent to elemental iron 105 mg)		10-19 kg 5 mL daily 20-29 kg 10 mL daily 30-39 kg 15 mL OR 1 tablet daily > 40 kg 20 mL OR 1-2 tablets daily	
Provide Consumer Medicine Information: overdose of iron can be fatal. Keep out of reach of children. May cause dark, tarry stools, diarrhoea or constipation. Better absorbed with orange juice. 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				

1,2,6,7,8,9

1,2,6,7,8,9

5. Follow up

- Follow-up severe cases in 1 week:
 - Hb levels should start to respond to treatment within a week
- Follow-up all cases monthly to evaluate response to treatment:
 - Hb level should increase by about 10 g/L every 2-3 weeks

- ferritin level may take up to 4 months to return to normal
- repeat FBC to confirm response to treatment
- check Hb
- Place child on individualised care plan with treatment goals and clearly define who is responsible for providing ongoing support and monitoring
- If no response to oral iron therapy after 1 month consider:
 - other causes
 - further investigations

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

Urinary tract problems

HMP Urinary tract infection (UTI) - child

Recommend¹

- Any child presenting with an unexplained fever of $> 38^{\circ}\text{C}$ should have their urine tested²
- Dipstick testing of urine for leukocytes and nitrites is as useful as urine culture²
- Collection of urine for diagnosis of UTI is best using a sterile method. Bag samples are not recommended
- Any child who is unwell, children presenting < 6 months of age, children not responding to therapy and children with known kidney/urinary system abnormalities should be admitted to hospital for IV antibiotics
- Finding a UTI in a sick child does not rule out other sources of infection so keep looking e.g. meningitis, pneumonia or even viral infections

Background³

- UTI may present with non-specific symptoms and signs, particularly in infants and young children^{4,5}
- Up to 30% of children who experience a UTI will have a recurrence within one year

Related topics

[Child protection, page 760](#)

[Sepsis/septic shock, page 80](#)

1. May present with^{1,2,4}

- Infant < 3 months:
 - fever
 - unwell - looks sick
 - poor feeding and vomiting
 - may be irritable, have smelly urine, fail to gain weight
- Infants and children 3 months - 1 year:
 - fever

- abdominal pain
- poor feeding
- may be irritable, have smelly urine, fail to gain weight
- Older children:
 - frequency
 - dysuria
 - haematuria
 - loss of continence or new bed wetting
 - may be unwell with fever, smelly urine, cloudy or blood-stained urine
 - abdominal or loin pain

2. Immediate management²

- Screen for sepsis/septic shock. See [Sepsis/septic shock, page 80](#)

3. Clinical assessment^{2,3,4}

- Obtain a complete patient history, including:
 - when did symptoms start, what has the progression been
 - fever, cough, fast breathing, diarrhoea, vomiting
 - child's appetite, feeding, sleeping, waking, level of irritability
 - history of constipation
 - history of kidney problems, urinary reflux, genital problems
 - growth history
- For sexually active girls, history of sexual activity, use of barrier contraception
- Always consider non-accidental injury where injury or presentation is inconsistent with history or is unexpected in children or other vulnerable people. See [Child protection, page 760](#)
- Perform standard clinical observations (full CEWT score or other local Early Warning and Response Tools) +
 - weight - bare weight if < 2 years. Assess against recent weights
 - 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, genitalia
 - 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 sample⁵

- Children who are unwell and most children < 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 than waiting for a sample if the child is unwell¹

Midstream sample - children old enough to pass urine on demand

- Method:
 - clean genital area with saline soaked gauze for 10 seconds and collect a midstream sample¹

Clean catch - younger children who cannot cooperate⁵

- Method:
 - give the child a feed

- clean genital area with saline soaked gauze for 10 seconds
- wait for the child to pass urine
- catch a urine sample in a sterile container
- Bladder stimulation may assist a young infant providing a sample.^{5,6,7} Two techniques that can be used:
 - **Paravertebral massage:**^{5,6}
 - give the child a feed
 - clean genital area with saline soaked gauze for 10 seconds
 - one person holds the infant under the arms with legs dangling
 - a second person gently finger taps over the suprapubic area at a frequency of 100 taps/min for 30 seconds, followed by gentle massage of the lower back for 30 seconds
 - capture urine in sterile container
 - **‘Quick wee’:**⁷
 - give the child a feed
 - clean genital area with saline soaked gauze for 10 seconds. See Figure 1
 - gently rub the lower abdomen for a few minutes using a circular motion with a gauze soaked in cold water. See Figure 2
 - capture urine in sterile container. See Figure 3



Figure 1: Clean



Figure 2: Rub



Figure 3: Catch

Republished, with permission, from resources at The Royal Children's Hospital, Melbourne, Australia

Suprapubic aspirate or catheter specimen

- These should only be done by staff who have been trained otherwise child will need evacuation/hospitalisation
- A bag urine should only be used as a last resort. Cultures from bag urine are mostly false positives
- If dipstick shows leukocytes, nitrites or blood, a clean catch **MUST** be obtained before starting antibiotics (unless the child is too sick to wait). Only the clean catch should be sent for culture
- After collecting a clean sample on a child where UTI is suspected, 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 leukocytes. 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 leukocytes are positive but nitrites negative, UTI is possible but less likely. Wait for pathology culture results before starting antibiotic treatment

- If both leukocytes and nitrites negative including from a bag urine, 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. If the specimen is from a bag, culture should not be attempted

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 with IV antibiotics and may need a full sepsis work-up. Older children who appear well may be treated with oral antibiotics
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)

5. Follow up

- If not evacuated advise to be reviewed daily for next 2 days - if not improving, consult MO/NP
- Check results of urine MCS (24-48 hours) and discuss with MO/NP - advice on interpreting culture results may be required
- Follow up with urinalysis or urine culture 1 week after treatment to indicate treated successfully
- See next MO/NP clinic

6. Referral/consultation

- Consult MO/NP on all occasions of suspected UTI in children
- All children < 3 years of age with UTI should be discussed with a paediatrician; Children > 2 years of age if the infection is a non-*E. coli* organism or when there is recurrent UTI
- Suspected pyelonephritis should be discussed with a paediatrician

Bone and joint problems

HMP Bone and joint infections - child

OSTEOMYELITIS AND SEPTIC ARTHRITIS

Recommend¹

- Suspected bone and joint infections should always be referred to hospital for investigation and management
- Bone and joint infections should be considered if a skin infection is taking a long time to resolve or occurs over a joint
- Infections of bones/joints can often present with a reported history of injury in children e.g. sprained ankle
- Consider bone or joint infection in children if a repeat presentation of an apparent injury

Background¹

- Septic arthritis can affect any joint or bone, but most commonly involve the lower limbs
- Acute haematogenous osteomyelitis (OM) and septic arthritis (SA) are serious conditions, may be life threatening and can cause life-long disability. Both are surgical emergencies and require urgent orthopaedic consultation
- Acute rheumatic fever (ARF) must be considered as possible septic arthritis until excluded

Related topics

[Acute rheumatic fever, page 705](#)
[Cellulitis, page 401](#)

[Impetigo, page 392](#)

1. May present with^{2,3}

Signs and symptoms of osteomyelitis and septic arthritis

Osteomyelitis	Septic arthritis
• Pain, limp, refusal to weight bear • Localised pain and tenderness • May be soft tissue swelling, heat and redness • Usually fever • Can be systemically unwell	• Pain, limp, refusal to weight bear • Refusal to move joint or pain on moving joint • Pain and tenderness localised to joint • May be swelling, heat and redness over joint • Fever, systemically unwell

2. Immediate management

- Consult MO/NP

3. Clinical assessment⁴

- 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
- any injury
- significant pain
- recent diarrhoea
- recent viral illness, tonsillitis
- rash
- current medicines taken
- any foreign travel
- signs and symptoms of tuberculosis. See [Tuberculosis, page 333](#)
- exposure to varicella
- Perform standard clinical observations (full 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. Management¹

- Insert IV or Intraosseus cannula:
 - bloods including blood cultures may be required
- Consult MO/NP who will arrange:
 - evacuation/hospitalisation
 - referral to Orthopaedic Specialist or Paediatrician or both
 - may order x-ray and IV antibiotics
- Rest and immobilise limb
- Treat pain and fever with paracetamol. See [Acute pain management, page 35](#)
- ARF should be considered in all cases

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 confirmed

Child protection

Child protection

Recommend

- If a reasonable suspicion of harm to a child/young person is formed consider consulting with a line manager or senior colleague, a Child Protection Liaison Officer (CPLO) or Child Protection Advisor (CPA) (*S13H Child Protection Act 1999*)
- Each Queensland Health Hospital and Health Service has a CPLO and CPA available to provide advice and assistance
- Maintain 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.csyw.qld.gov.au/about-us/partners/child-family/our-government-partners/queensland-child-protection-guide/online-child-protection-guide>
- In Queensland when a written or online 'Report of suspected child in need of protection' form has been submitted, also phone Child Safety Services - Regional Intake Service (CSS-RIS) or Child Safety After Hours Service (CSAHS). See: <https://www.csyw.qld.gov.au/contact-us/department-contacts/child-family-contacts/child-safety-service-centres/regional-intake-services>
- Print 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 but the family has multiple or complex needs:
 - obtain consent
 - make a referral to local family support services e.g. Family and Child Connect or Intensive Family Support
- Document any concerns, symptoms, injuries or disclosures, exact quotes and diagrams in the child/young person's clinical record
- Child safety issues can be extremely distressing. Consider seeking support. Agencies include CRANApplus Bush Support Services ☎1800 805 391 or the Employment Assistance Program (EAP)
- Child Protection laws are state-based. Health professionals in jurisdictions outside of Queensland should refer to local policy and procedures

Related topics

[Rape and sexual assault, page 659](#)

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 a parent of the child (*S11 of the Child Protection Act 1999*)
- **Mandatory reporter** - doctors, registered nurses, teachers, police officers, early childhood education and care professionals and child advocates are mandatory reporters (*S13E(1) of the Child Protection Act 1999*)
- **Mandatory reporting** - 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 well-being. 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

1. May present with (general)²

- **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 supervision
- **Emotional/psychological abuse** - developmental or emotional delay, disruptiveness, aggressiveness, bullying, withdrawn, extreme attention seeking behaviour, non-organic physical complaints

- For clinical risk factors and indicators of the types of harm to children see <https://qheps.health.qld.gov.au/csu/factsheets> for more detailed information

2. Immediate management (general)

- 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

PHYSICAL ABUSE

3. Clinical 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, who is the child/young person's carer/guardian
- Past history: previous injuries, medical problems
- Examine the child/young person: record the injury and also any other injuries. Check the whole body. Child abuse diagrams to assist with recording abuse available at: https://www.rch.org.au/clinicalguide/guideline_index/Child_Abuse_Diagrams/
- 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 < 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

4. Management

- Ensure child/young person is safe
- Treat the physical injury
- Document the history and the injury. Child abuse diagrams to assist with recording abuse are available at: https://www.rch.org.au/clinicalguide/guideline_index/Child_Abuse_Diagrams/
- 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 to consider discussion with a referral centre about transfer for further investigation
- Discuss with MO/NP. May need to transfer to hospital for further investigation
- If suspicion of non-accidental injury is formed notify Child Safety Services, Queensland Department of Communities, Child Safety and Disability Services. See <https://www.csyw.qld.gov.au/contact-us/department-contacts/child-family-contacts/child-safety-service-centres/regional-intake-services>

SEXUAL ABUSE

3. Clinical assessment

- If the history suggests recent sexual abuse e.g. within the last 72-96 hours because of the information provided, 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. For any disclosures made, document the child/young person's exact words and the question that was asked before disclosure
 - 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 required to physically touch the child/young person during the assessment, always ask for permission. It is best practice to further explain what you are doing and why
- **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

4. Management

- Child Sexual Assault (CSA) examinations should usually 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. Consult with a CPA to advise how best to approach the case
- Do not request STI tests in an asymptomatic child/young person as the initial response to a child 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
 - 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
- **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
 - If the child is medically stable and assessed to be safe with their parent or carer, health professionals can consider advising the family to report concerns or disclosures of sexual abuse to the police
 - support child/young person and their protective parent/carers
 - notify Child Safety Services

NEGLECT**3. Clinical assessment**

- Check the following issues which might suggest/impact on carer/guardian 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

4. Management

- Ensure the carer/guardian understand the needs of the child/young person
- Work with carer/guardian 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

EMOTIONAL ABUSE³**3. Clinical 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

4. 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 concerns

5. Follow up (general)

Information sharing and documentation

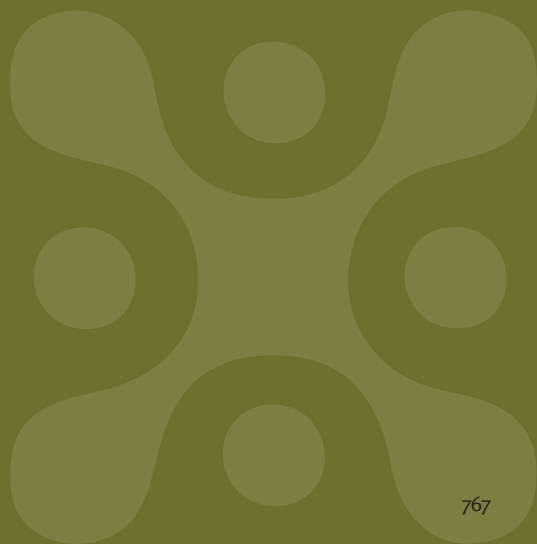
- All delegated staff must provide relevant information in their possession regarding a child/young person to an authorised officer of the Department of Communities Child Safety and Disability Services (Child Safety Services) upon request (S159N(1) *Child Protection Act 1999*). Relevant information may 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
- 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 (general)

- Consult MO/NP. Child may need evacuation
- Seek advice from the local Hospital Health Services medico-legal services and/or Child Protection Advisor and/or Child Protection Liaison Officer who are available to offer support, clinical advice and reporting information

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Immunisations



Immunisations

HMP Immunisation program - adult/child

Recommend

- Utilise all clinical encounters to assess vaccination status and when indicated, vaccinate children and adults
- If the patient has no record of vaccination for the age appropriate National Immunisation Program schedule (NIPs) a catch-up schedule should be planned

Background

- The 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
- The *Australian Immunisation Handbook* is available at: immunisationhandbook.health.gov.au

Related topics

[Anaphylaxis, page 102](#)

[Sexual health immunisation, page 771](#)

[Tetanus immunisation, page 773](#)

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 the current *Australian Immunisation Handbook*

2. Immediate management Not applicable

3. Clinical assessment

- Standard vaccination procedures should be followed as the current *Australian Immunisation Handbook*
- Obtain documented evidence of vaccines already given and assess which vaccines are due at presentation. Check:
 - Australian Immunisation Register (AIR)
 - My Health Record
 - clinical notes
 - other clinics/GP practice where may have been vaccinated

4. Management^{1,2}

- 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 'Strive for 5'*. Record minimum/maximum temperatures twice daily
- Appropriate information about the risks and benefits of vaccination and the risk of vaccine preventable diseases must be provided to, and 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
- 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 *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'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
 - in the AIR encounter form or equivalent
 - on the clinic recall database as appropriate i.e. patient information recall system

Schedule	4	Vaccines	Extended authority ATSIHP/IHW/IPN/MID/RIPRN
ATSIHP, IHW and RN must consult MO/NP			
IPN and RIPRN may proceed			
MID may proceed with # only. MID may proceed with Ω if completed an immunisation training course, and only in the antenatal setting			
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 of Queensland Health or delegate		
Antigens (vaccine)*			
Diphtheria-tetanus (dT)	Inactivated poliomyelitis (IPV)		
Diphtheria-tetanus-acellular pertussis adult/adolescent (dTpa) # Ω	Influenza # Ω		
Diphtheria-tetanus-acellular pertussis child (DTPa)	Japanese encephalitis - inactivated		
Diphtheria-tetanus-acellular pertussis-inactivated poliovirus (DTPa-IPV)	Japanese encephalitis - live attenuated		
Diphtheria-tetanus-acellular pertussis-inactivated poliovirus (dTpa-IPV)	Measles, mumps, rubella (MMR) #		
Diphtheria-tetanus-acellular pertussis-hepatitis B-inactivated poliovirus- <i>Haemophilus influenzae</i> type B (DTPa-hepB-IPV-Hib)	Measles, mumps, rubella, varicella (MMRV)		
<i>Haemophilus influenzae</i> type B (Hib)	Meningococcal ACWY		
<i>Haemophilus influenzae</i> type B-meningococcal C conjugated (Hib-MenCCV)	Meningococcal C conjugated (MenCCV)		
Hepatitis A	Rotavirus		
Hepatitis B #	Varicella (herpes zoster)		
Hepatitis A and Hepatitis B combination	Varicella (VV)		
Hepatitis B Immunoglobulin # (Midwives only) For babies of HBsAG positive mothers only	13-valent pneumococcal conjugate (13vPCV)		
Human papillomavirus (HPV)	23-valent pneumococcal polysaccharide (23vPPV)		
Note: Dose, route and timing interval of administration of these vaccines to be in accordance with the current edition of the <i>Australian Immunisation Handbook</i>			
Management of associated emergency: See Anaphylaxis, page 102			

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*See the NIPs for funded (free) vaccines

ADDITIONAL VACCINES WITH SPECIAL CONDITIONS¹

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 the current *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 the current *Australian Immunisation Handbook*

5. Follow up¹

- Confirm date next vaccinations are due
- All serious or unexpected adverse events following immunisation **must** be promptly reported ①::
 - 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/clinical-practice/guidelines-procedures/diseases-infection/immunisation/service-providers/adverse-event>
 - if practising outside of Queensland use the local reporting systems

HMP Sexual health immunisation

Recommend

- Opportunistically assess for risk factors requiring additional immunisations
- Always refer to The *Australian Immunisation Handbook* to guide practice in relation to immunisations. For further advice contact your local sexual health nurse, Public Health Unit or Communicable Diseases Control Centre

Background¹

- The *Australian Immunisation Handbook* identifies groups with special vaccination requirements, including but not limited to:
 - men who have sex with men, persons who inject drugs, inmates of correctional facilities, sex industry workers
- The *Australian Immunisation Handbook* is available at: immunisationhandbook.health.gov.au

Related topics

Acute hepatitis A, page 433
Acute hepatitis B, page 435

Anaphylaxis, page 102
Immunisation program, page 768

1. May present with

- Opportunistic assessment for immunisations as part of routine sexual and reproductive health/ other clinical practice
- Risk factor(s) identified as per the current *Australian Immunisation Handbook*

2. Immediate management Not applicable

3. Clinical assessment¹

- Assess person for recommended vaccination in their individual context as per the current *Australian Immunisation Handbook*
- Check with your local Public Health Unit, or state or territory immunisation program for advice as needed, and to check if recommended vaccines are funded
- For assessment prior to immunisation, see [Immunisation program, page 768](#)

4. Management¹

- Ensure all standard vaccination procedures are followed. See [Immunisation program, page 768](#)

Schedule	4	Vaccines	Extended authority ATSIHP/IHW/IPN/RIPRN/SRH
ATSIHP, IHW and RN must consult an MO/NP			
IPN, RIPRN and SRH may proceed			
Conditions/ situations	• In accordance with the current edition of the <i>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)
Note: Dose, route and timing interval of administration of these vaccines to be in accordance with the current edition of the <i>Australian Immunisation Handbook</i>			
Management of associated emergency: See Anaphylaxis, page 102			

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*Vaccines on NIPs are funded (free) for eligible patients

5. Follow up¹

- Confirm date(s) for next vaccinations due as appropriate
- All serious or unexpected adverse events following immunisation **must** be promptly reported ①:
 - in Queensland report any significant adverse event following immunisation (AEFI) directly to Queensland Health by completing an *AEFI Reporting Form* available at: <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/immunisation/service-providers/adverse-event>
 - if practising outside of Queensland use the local reporting systems

6. Referral/consultation

- Consult with a specialist immunisation clinic, an MO/NP/IPN 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

HMP Tetanus immunisation - adult/child

Recommend

- Assess tetanus immunisation status before giving vaccination

Background¹

- 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 prone
- The *Australian Immunisation Handbook* is available at: immunisationhandbook.health.gov.au

Related topics

[Anaphylaxis, page 102](#)

[Immunisation program, page 768](#)

1. May present with

- As part of immunisation schedule
- Tetanus prone wound

2. Immediate management Not applicable

3. Clinical assessment¹

- Assess for appropriateness of tetanus immunisation as per the current *Australian Immunisation Handbook*:
 - routine scheduled vaccine
 - tetanus prone wound
- Generally, all wounds other than clean minor cuts are considered tetanus prone. In particular:
 - compound fractures
 - bite wounds
 - deep penetrating wounds, wounds containing foreign bodies, especially sharp objects
 - 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
- Obtain history of previous tetanus vaccinations:
 - have ≥ 3 doses of a tetanus containing vaccine been given previously
 - when was the last tetanus containing vaccine given:
 - < 5 years
 - 5-10 years
 - > 10 years
 - is there any uncertainty around previous doses

- If patient has a humoral immune deficiency they may require tetanus immunoglobulin (TIG)
- Using information you have obtained from the history of previous tetanus vaccinations, refer to the *Australian Immunisation Handbook* section on tetanus to determine if a tetanus booster and/or tetanus immunoglobulin is required
- If a vaccine is recommended today, ensure standard pre-vaccination procedures are adhered to see [Immunisation program, page 768](#)

4. Management¹

- Pre and post vaccination procedures must be followed. See [Immunisation program, page 768](#)
- If a tetanus prone wound:
 - local disinfection and, where appropriate, surgical treatment of wound must never be omitted
- Administer tetanus containing vaccine ± TIG as appropriate

Schedule	4	Tetanus vaccines	Extended authority ATSIHP/IHW/IPAP/IPN/RIPRN
ATSIHP, IHW, IPAP and RN must consult MO/NP			
IPN and RIPRN may proceed			
Vaccine	Route of administration	Recommended age	Duration
Diphtheria, tetanus acellular pertussis (DTPa)	IM	Paediatric formulation if < 10 years	stat
Diphtheria, tetanus acellular pertussis (dTpa)		Adolescent/adult formulation if > 10 years ‡	
Diphtheria, tetanus dT (ADT)		Adult formulation	
Note: Dose, route and timing interval of administration of these vaccines to be in accordance with the current edition of <i>The Australian Immunisation Handbook</i>			
Management of associated emergency: See Anaphylaxis, page 102			
‡ dTpa provides added protection against pertussis and should be considered - not funded on NIPs			

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Schedule	4	Tetanus immunoglobulin (TIG)	Extended authority ATSIHP/IHW/IPAP/IPN/RIPRN	
ATSIHP, IHW, IPAP and RN must consult MO/NP				
IPN and RIPRN may proceed				
Form	Strength	Route of administration	Recommended dosage	Duration
Injection	250 units	IM	250 units OR 500 units if more than 24 hours have elapsed since wound	stat
Note: Dose, route and timing interval of administration of TIG to be in accordance with the current edition of <i>The Australian Immunisation Handbook</i>				
Management of associated emergency: See Anaphylaxis, page 102				

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5. Follow up

- If TIG or vaccine given provide patient with record of vaccination for them to notify their primary health care provider
- If primary tetanus course not completed, catch-up schedule may be required - arrange/confirm next visit(s) to complete course
- All serious or unexpected adverse events following immunisation **must** be promptly reported ①:
 - in Queensland report any significant adverse event following immunisation (AEFI) directly to Queensland Health by completing an *AEFI Reporting Form* available at: <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/immunisation/service-providers/adverse-event>
 - if practising outside of Queensland use the local reporting systems

6. Referral/consultation

- Consult with a specialist immunisation clinic, an MO/NP/IPN 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

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Appendices



Medication history and reconciliation

Medication reconciliation^{1,2}

Background

- Medication reconciliation:
 - is a formal process of obtaining and verifying a complete and accurate list of each patient's current medicines
 - matches the medicines the patient should be prescribed against those they are actually prescribed. Any discrepancies are discussed with the MO/NP³
 - is a requirement to meet the national Medication Safety Standards¹
 - is a strategy that has been shown to improve medication safety and significantly decrease errors.
- Medication history errors:¹
 - are common
 - often occur when patients are being transferred e.g. evacuated to hospital, returning home
 - can cause harm in up to 30% of cases
 - have been shown to occur in 26-87% of medication records

General approaches

- Medication reconciliation must be documented and where possible be recorded on a clinical form such as a National Medication Management Plan.
- The Queensland Medication Action Plan is available at https://qheps.health.qld.gov.au/__data/assets/pdf_file/0030/335478/sw016.pdf or <https://www.safetyandquality.gov.au/wp-content/uploads/2010/01/Medication-Management-Plan.pdf>
- Where possible, use a pharmacist, including via telehealth services for remote support³
- Medication reconciliation is a 4 step process.³ See **Four steps of medication reconciliation** table on following page:
 - obtain and document the best possible medication history (BPMH). See [Best possible medication history \(BPMH\)](#), page 780
 - confirm the accuracy of the medication history
 - reconcile the history with prescribed medicines and follow up discrepancies
 - supply accurate medicines information when care is transferred
- Ideally medication reconciliation should be completed on all patients before any medicines are ordered, administered or supplied
- Target patients at greater risk of adverse medication events and those using high risk medications where resources are limited e.g. time.⁴ See **Target patients at greater risk of adverse medication events** on the following page

Target patients at greater risk of adverse medication events⁵

- The elderly
 - > 65 years for non-indigenous people
 - > 45 years for Aboriginal and Torres Strait Islander people
- Children
- Those who are clinically deteriorating
- Those taking > 4 medicines or medicines with complex regimens
- Those with a history of medication allergy, adverse drug reaction or medication intolerances
- Those with a poor level of adherence to medication regimens
- Those with impaired kidney, liver or heart function
- Those who are morbidly obese
- Those diagnosed with cancer
- Those diagnosed with a mental health condition

- High-risk medicines are known by the acronym **APINCH** and include:⁶
 - Anti-infectives
 - Potassium and other electrolytes
 - Insulin
 - Narcotics and other sedatives
 - Chemotherapeutic agents
 - Heparin, enoxaparin, warfarin and other anticoagulants

Four steps of medication reconciliation¹

1. Obtain best possible medication history

- See [Best possible medication history \(BPMH\)](#), page 780
- **Compile list of medicines from patient interview and other sources such as:**
 - referrals, discharge summary
 - medication charts
 - prescriptions

2. Confirm the accuracy of the history

- Review medication list
- Inspect patient's medication containers including blister packs
- Contact MO/NP and other prescribers and pharmacists
- Interview carers and family members
- Review health records

3. Reconcile the history with prescribed medicines

- Compare the patient's medication history with the prescribed medicines
- Check that these MATCH
- Document reasons for change to medicines
- Where there are discrepancies, discuss these with the MO/NP or other prescriber
- Document reasons for change to medicines

4. Supply accurate medicines information

- Provide a list of medicines and reasons for any changes to:
 - the incoming clinician when care is being transferred
 - the retrieval team when transported i.e. RFDS, RSQ
 - a carer when patient is being discharged
 - the patient

Best possible medication history (BPMH)⁷

Background

- A medication history is a record of all prescribed and non-prescribed medicines that are taken at the time of presentation.
 - Obtaining a BPMH is one of the **4 steps in the medication reconciliation process**, which aims to improve patient safety¹
 - Use the checklist below to prompt specific questions to obtain the best possible medication history⁸
 - A BPMH is the responsibility of each clinician involved in the medication reconciliation process. It is a collaborative process
-
- A BPMH consists of:
 - an interview with the patients and/or family/carer wherever possible
 - patient details, date of history, name of staff member, sources of information
 - verification with more than one source e.g. previous medication charts, carer, MO/NP, GP
 - recording adverse reactions
 - document the history
 - Types of medication to be noted include:
 - prescribed and prescription medicines
 - non-prescribed and non-prescription medicines
 - complementary or herbal medicines
 - traditional medication e.g. bush medicine
 - recreational drugs
 - prn medicines
 - The following checklist can assist to complete a thorough BPMH

☐	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 • Nicotine replacement patches, gum, spray
☐	Injected medicines including insulin pumps, analgesia pumps
☐	Topical medicines e.g. creams, ointments, lotions, patches
☐	Inserted medicines e.g. nose/ear/eye drops, pessaries, suppositories, vaginal rings, medicated IUCD
☐	Implantable medicines e.g. contraceptive rods, hormonal implants for cancer
☐	Complementary medicines • Traditional medicines • Herbal medicines • Bush medicines • Vitamins • Natural therapies
☐	Other people's medicine
☐	Social and recreational drugs e.g. tobacco, alcohol, marijuana, illicit drugs
☐	Intermittent medicines e.g. weekly or twice weekly
☐	Recently changed medicines or regimens including: • Completed courses of medicine • Ceased medicines • Altered medicines
☐	Any previous adverse medication reactions , include allergies, reactions and intolerances
☐	Wearing any medical alert jewellery
☐	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?'

Notification of a patient death

Information

- The following refers to the management of a patient death in the state of Queensland
- Other jurisdictions are advised to follow local policy and procedures
- Some resources for other States are listed in the Resources section below

1. Obvious death

- Complete a **Life Extinct Form**
 - can be completed by an 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 Queensland facilities or on the Queensland Health intranet at: https://qheps.health.qld.gov.au/__data/assets/pdf_file/0035/577673/life_extinct.pdf

2. Reportable death

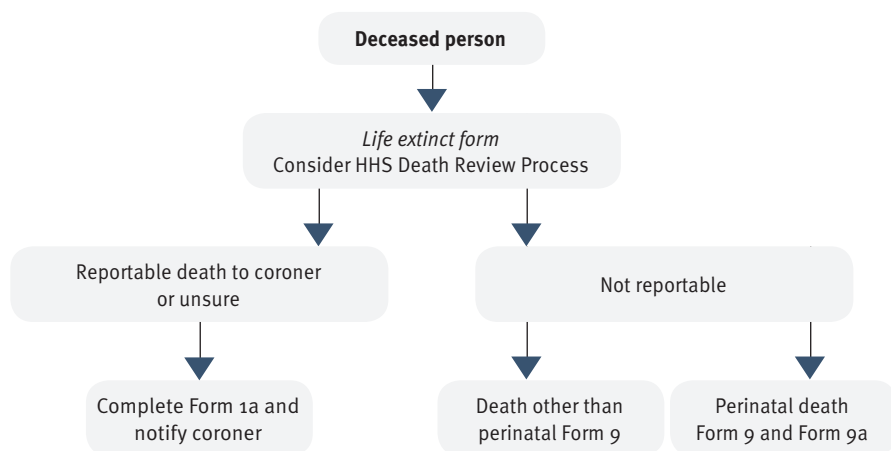
- A decision must be made if the death is a reportable death in accordance with the *Coroners Act 2003* (Qld). The **criteria for a reportable death**¹ are:
 - death of an unknown person
 - death in suspicious circumstances
 - death in care (applies to people cared for under disability, mental health, justice, child guardianship or child protection legislation)
 - violent or otherwise unnatural death
 - death in custody of police, courts, corrective services or juvenile justice
 - death as a result of police operations
 - health procedure related death where death was not reasonably expected to be the outcome
 - 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, the MO will complete a *Form 1a: Medical practitioner report of death to a coroner* and fax/scan/email to the coroner available from: https://www.courts.qld.gov.au/__data/assets/pdf_file/0008/87803/cor-f-1a.pdf
- 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
- An MO is not to complete a *Form 9: Cause of Death Certificate* for a reportable death, unless authorised to do so by the coroner
- Information for health professionals about Coronal processes is available at: https://www.courts.qld.gov.au/__data/assets/pdf_file/0006/92868/m-osc-fs-information-for-health-professionals.pdf
- Medical equipment, tubes and medical devices attached or inserted should remain in situ until police investigations have concluded, unless otherwise directed by the police

3. Non-reportable death

- Where the death is **not a reportable death** a *Form 9: Cause of Death Certificate* can be completed by an 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: https://www.courts.qld.gov.au/__data/assets/pdf_file/0014/210218/osc-fs-issuing-cause-of-death-certificates-apparent-natural-causes-deaths.pdf
- 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
- Since November 2016, all expected **stillbirths** > 24 weeks gestation are a reportable event in the *Hospital and Health Boards Regulation 2012 – s29(1)*. Unexpected stillbirths should be reported using the RiskMan incident reporting tool. Refer to the Queensland Health Guide to reporting a stillbirth in RiskMan <http://qheps.health.qld.gov.au/psu/clinicalincident/docs/fs-stillbirth-report.pdf>
- Form 9 and Form 9a are triplicate forms available in all facilities

4. Specific instances

- 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/PrescribedEntityChildSafetyReport>. See *Child protection*, page 760
 - mental health patient** - contact Hospital and Health Service Director of Mental Health
 - maternal patient death** - contact Hospital and Health Service Director of Obstetrics
 - perioperative 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



5. Resources

Queensland

- The Queensland Coroner is available for advice and assistance Monday to Friday 0830-1630 hours ☎ 07 3239 6193, or On Call after hours ☎ 07 3247 3372
- Coronial management resources: <https://www.courts.qld.gov.au/courts/coroners-court/about-coroners-court/resources-and-legislation#state>

Victoria

- Coroners court available at: www.coronerscourt.vic.gov.au
- Coroner Clinical Liaison Service available at: www.health.vic.gov.au/cls/index.htm

Glasgow Coma Scale/AVPU

A	Alert
V	Responds to verbal statement
P	Responds to painful stimuli
U	No response (unresponsive)

Glasgow coma scale (GCS) - adult/child/infant^{1,2}

(GCS)	Adult Child > 5 years	Child 2-5 years
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. Orientated/interacts/follows objects/smiles/alert/coos/babbles words to usual ability 4. Confused, cries but is consolable 3. Inappropriate words/moaning/persistent cries and/or screams 2. Grunts, moans, inconsolable, irritable, restless 1. No sounds
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	

• **Maximum scale: 15 (fully alert, conscious) Minimum scale: 3 (unconscious)**

• Always act on:

- Scale < 15
- Drop of 2 or more from last assessment. If GCS ≤ 8 prepare to intubate

GCS not testable if any of the following apply:

- had medicines including anaesthetics, sedatives, neuromuscular blockades and similar, intoxication with alcohol or drugs
- a direct eye injury or periorbital swelling
- cranial nerve injuries
- a hearing impairment
- been intubated or has a tracheostomy
- immobilised limbs or spinal cord injuries
- dysphasia
- a language or cultural barrier
- dementia or some psychiatric disorders

In these situations, it is appropriate to record the individual scales for each measurable response (motor, verbal or eyes)

Safe use of paracetamol

Background¹

- 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 hepatotoxicity
- 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 https://www.rch.org.au/childgrowth/Growth_Charts/#
- For neonates and infants < 3 months seek specialist advice

Recommended dose paracetamol (oral) - Prescribing guide³

Risk Factor (see next Table)	Dose	Duration
Children 3 months to 1 year^{1,2}		
• No risk factors (see risk factors on next page)	• 15 mg/kg/dose every 4-6 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
• 1 or more risk factors	• 15 mg/kg/dose every 4-6 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 LFT and INR
Adult and child ≥ 12 years¹		
• No risk factors	• 0.5-1 g every 4-6 hours, up to a maximum of 4 g in 24 hours	• Review at 48 hours
• 1 or more risk factors and actual weight ≥ 50 kg	• 0.5-1 g every 4-6 hours, up to a maximum of 3 g in 24 hours	• Review at 48 hours • If treatment to continue beyond 48 hours, consider monitoring LFT and INR
• 1 or more risk factors and actual weight < 50 kg	• 15 mg/kg/dose every 4-6 hours up to a maximum of 4 doses in 24 hours	
• Severe hepatic impairment and actual weight ≥ 50 kg	• 0.5-1 g every 4-6 hours, up to a maximum of 2 g in 24 hours	
• Severe hepatic impairment and actual weight < 50 kg	• 15 mg/kg/dose every 4-6 hours up to a maximum of 3 doses in 24 hours	

Factors that may increase the risk of paracetamol toxicity¹

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

Administration tips for benzathine benzylpenicillin (Bicillin LA®) and procaine benzylpenicillin (procaine penicillin)

1. Administration tips

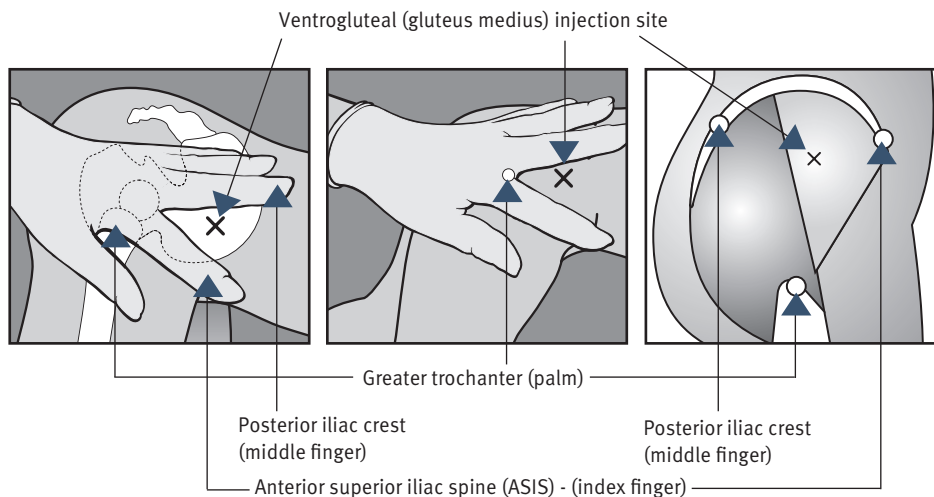
- Apply EMLA® cream to the injection site 30-60 minutes prior to giving needle
- Allow medicine to warm up to room temperature by rolling the syringe between hands for 1-2 minutes
- Consider other pain management measures such as applying ice to injection site 10 minutes prior to injection, use of a 'Buzzy®' device, and distraction techniques for children^{1,2,3}
- Administer analgesia as clinically indicated. See [Acute pain management, page 35](#)
- Give by deep IM injection only into the upper, outer quadrant of the buttock, mid lateral aspect of the thigh or into the ventrogluteal area
- 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
- **Note:** The addition of 0.5-1.0 mL of 1% lidocaine (lignocaine) is used elsewhere but is not recommended with preloaded syringes available in Australia

2. Giving a ventrogluteal (gluteus medius muscle) injection⁴

- 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 needle stick 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

Finding the ventrogluteal site^{5,6}



De-escalation techniques^{1,2}

- De-escalation is the use of techniques, including verbal and non-verbal communication skills, aimed at short-term defusing of anger, avoiding aggression and reducing the use of restrictive interventions. The aim is to avoid confrontation, to offer the patient choices in a difficult situation and to assist in reaching a calmer state³
- Never attempt to manage a distressed or agitated patient without adequate support and resources
- If a patient presents a risk to public safety or their own safety which cannot be managed by resources within the facility, call Police
- In smaller health facilities and in remote areas, referral should occur at a much earlier stage
- Follow your facility's *Emergency Preparedness Plan*, including activating a Code Black emergency if appropriate

1. General principles

- Establish a working relationship with patients who may be angry or uncooperative
- Use 'active listening' techniques, and a verbal 'loop' seeking to find a way to respond that agrees with the patient
- Explain to the patient what the clinician wants the patient to do e.g. accept medication, sit down with the clinician
- Empower patients to actively participate in their care, including young patients and children
- Work in partnership with patients and their families or carers
- Monitor changes in mood or composure that may lead to aggression
- Manage patients who may become, or who are, angry, aggressive or uncooperative in areas away from other patients or visitors, but ensure staff are not alone
- Use a wide range of verbal and non-verbal skills and interactions to avoid or manage 'flashpoints'
- Consent to administration of sedating medication can be used as part of the de-escalation process
- Use patients' behaviour care plans (if they have one) to discuss their wishes if they become agitated
- Continually show respect and empathy for patient
- Be aware of or suspect abuse as a contributory factor in violence and aggression in children. See [Child protection, page 760](#)
- Consider de-escalation techniques that have worked in the past for this patient

2. Techniques

- Make sure more than one staff member is present. If there is a trusted staff member of the patient available this may help in de-escalation
- If patient persists in directing anger or suspicion at the staff member, change to another staff member to continue de-escalation
- One staff member should take the primary role in communicating with an agitated or angry patient
- Introduce yourself, your role and the purpose of the discussion
- Do not routinely administer sedating medicines upon presentation
- Lead the discussion and engage the patient. Even though other staff are nearby, it is imperative that only one staff member verbally engage the patient
- Be empathic, non-judgemental and respectful. Emphasise your desire to help

- Avoid potentially provocative statements such as 'calm down' or 'if you don't settle down x will happen', 'you'd better stop that right now ... or else' as this is likely to be perceived as a threat by the patient and aggressive behaviour may escalate
- Listen to the patient's concerns, ask what they want and what they are worried about
- Try to identify patient's needs that have not been met and help them explore their fears
- Focus on the here and now, identify what is achievable, rather than declining all requests, small concessions can build trust and rapport
- Use short, clear statements, avoid medical jargon. The patient may not have the capacity to process information
- Use a slow, clear and steady voice and do not raise your voice. If the patient raises their voice, pause and wait for an opening to allow the patient to vent some of their frustrations
- Courtesies such as a cup of (lukewarm) tea, sandwiches, access to a telephone (or a staff member making a phone call on their behalf) and attending to physical needs can be very helpful
- Where relevant, the patient should be given the option of taking oral medication
- Avoid entering discussion about leaving the facility, focus conversation on staying within the room/area. If patient wants a cigarette consider nicotine replacement e.g. gum/lozenges, patches or nicotine inhaler
- For patients with a disability, ensure that the communication aligns with the patient's communication plans

3. Additional techniques with children and adolescents

- Use calming techniques and distraction with children - if appropriate ask parents/guardians which de-escalation techniques they use
- Offer opportunity for a child or young person to move away from situations where violence or aggression is occurring i.e. to a quiet room or area
- Using a non judgemental attitude towards the behaviour of the child or adolescent is critical to engagement
- Where relevant, the child or adolescent should be given the option of taking oral medication (most children/adolescents can be supported to take this option)
- Reassure and help parents/guardians with their own anxiety
- If the presence of parents/guardians/friends is increasing the level of agitation then separating them within the facility may be useful. Individuals who appear to calm the patient can be asked to stay if it is safe to do so

Abbreviations and acronyms

↑	Increasing/increased
↓	Decreasing/decreased
<	Greater than
>	Less than
≤	Less than or equal to
≥	Greater than or equal to
±	Plus or minus
®	Registered trade mark
①	Phone number OR notifiable
13vPCV	13-valent pneumococcal conjugate
23vPPV	23-valent pneumococcal polysaccharide
ABCD	Airway Breathing CPR Defibrillation
ABPI	Ankle-brachial pressure index
ABW	Actual body weight
ACAT	Aged Care Assessment Team
ACE	Angiotensin converting enzyme
ACEI	Angiotensin converting enzyme inhibitors
ACS	Acute coronary syndrome
ACWY	Four meningococcal groups - A, C, W, Y
ADDS	Adult Deterioration Detection System
ADHD	Attention-deficit hyperactivity disorder
AdjBW	Adjusted body weight
ADT	Adult diphtheria and tetanus
AED	Automated external defibrillator
AEFI	Adverse event following immunisation
AFB	Acid-fast bacilli
AIR	Australian Immunisation Register
ALS	Advanced life support
ALT	Alanine aminotransferase
anti-HBc	Anti-hepatitis B core total antibodies
anti-HBs	Anti-hepatitis B surface antibody
ANZCOR	Australia and New Zealand Committee on Resuscitation
AOM	Acute otitis media
AMH	Australian Medicines Handbook
APH	Antepartum haemorrhage
App	Application
ARB	Angiotensin-receptor blocker

aPTT	Activated partial thromboplastin time
ARDS	Acute respiratory distress syndrome
ARF	Acute rheumatic fever
ART	Antiretroviral therapy
ASB	Asymptomatic bacteriuria
ASBD	Acute severe behavioural disturbance
ASCIA	Australian Society of Clinical Immunology and Allergy
ASIS	Anterior superior iliac spine
ASO ASOT	Antistreptolysin O titre
APSGN	Acute post streptococcal glomerulonephritis
AST	Aspartate aminotransferase
ATODS	Alcohol, Tobacco and Other Drugs Service
ATSIHP	Aboriginal and Torres Strait Islander Health Practitioner
AVPU	Alert Voice Pain Unresponsive scale
Bare	Naked
BBV	Blood borne virus
BCG	Bacille Calmette Guérin
BF	Breastfeeding
BFV	Barmah Forest Virus
BGL	Blood glucose level
BLS	Basic life support
BMI	Body mass index
BP	Blood pressure
BPD	Borderline personality disorder
bpm	Beats per minute
BPMH	Best possible medication history
BPSD	Behavioural and psychological symptoms of dementia
BV	Bacterial vaginosis
C3	Complement component 3
C4	Complement component 4
CALD	Culturally and linguistically diverse
CCG	Clinical Care Guideline
CCM	Chronic Conditions Manual
CCT	Controlled cord traction
CEWT	Children's Early Warning Tool
chem20	Comprehensive metabolic panel 20

CIW-Ar	Clinical Institute Withdrawal Assessment for Alcohol - revised
CK	Creatine kinase
CMV	Cytomegalovirus
CNS	Central nervous system
CO ₂	Carbon dioxide
COAGs	Coagulation tests
COPD	Chronic obstructive pulmonary disease
CPA	Child Protection Advisor
CPLO	Child Protection Liaison Officer
CPR	Cardiopulmonary resuscitation
CrCl	Creatinine clearance
CRP	C-reactive protein
CSAHS	Child Safety After Hours Service
CSF	Cerebrospinal fluid
CSOM	Chronic suppurative otitis media
CSS-RIS	Child Safety Services - Regional Intake Service
CST	Cervical screening test
CSWD	Conservative sharp wound debridement
CT	Computed tomography
CTG	Cardiotocography
CVA	Cerebrovascular accident
dB	Decibel(s)
DBP	Diastolic blood pressure
DCI	Decompressive illness
DKA	Diabetic ketoacidosis
DM	Diabetes mellitus
DMPA	Depot medroxyprogesterone acetate
DT	Delirium tremens
dT	Diphtheria-tetanus
DTP	Drug Therapy Protocol
dTpa	Diphtheria-tetanus-acellular pertussis
DTPa	Diphtheria-tetanus-acellular pertussis
DVT	Deep vein thrombosis
EAC	Exercise associated collapse
EAP	Employment Assistance Program
EAR	Expired air resuscitation
EBV	Epstein-Barr virus
ECC	Endocervical curettage
ECG	Electrocardiogram
ECP	Emergency contraception pill
EEG	Electroencephalogram

eFAST	Extended focused assessment with sonography in trauma
eGFR	Estimated glomerular filtration rate
EIA	Enzyme-linked immunosorbent assay
eLFT	Electrolytes and liver function test
ENT	Ear, nose and throat
EPDS	Edinburgh Postnatal Depression Scale
ESR	Erythrocyte sedimentation rate
ETCO ₂	End-tidal carbon dioxide
eTG	Online Therapeutic Guidelines®
EWARS	Early Warning and Response System
FAST	Focused assessment with sonography in trauma
FBC	Full blood count
FBP	Full blood picture
FEV	Forced expiratory volume
ffn	Fetal fibronectin
FHR	Fetal heart rate
FiO ₂	Fraction of inspired oxygen concentration
FLACC	Face, Legs, Activity, Cry, Consolability scale
FMH	Fetomaternal haemorrhage
FMO	Forensic Medical Officer
FNE	Forensic Nurse Examiner
FPS-R	Faces pain scale revised
FTA	Fluorescent treponemal antibody
G	Gauge e.g. 14 gauge
G6PD	Glucose-6-phosphate dehydrogenase deficiency
GAS	Group A <i>Streptococcus</i>
GBS	Group B <i>Streptococcus</i>
GCS	Glasgow Coma Scale
GDM	Gestational diabetes mellitus
GFR	Glomerular filtration rate
GHB	Gamma hydroxybutyrate
GI	Gastrointestinal
GIT	Gastrointestinal tract
GORD	Gastro-oesophageal reflux disease
GP	General Practitioner
GTN	Glyceryl trinitrate
GTT	Glucose tolerance test
GUD	Genital ulcer disease
Hb	Haemoglobin
HbA1C	Glycated haemoglobin

HBcAb	Hepatitis B core antibody
HBcIgM	IgM antibody to hepatitis B antigen
HBeAg	Hepatitis B e-antigen
HBIG	Hepatitis B immunoglobulin
HBsAb	Hepatitis B surface antibody
HBsAG	Hepatitis B surface antigen
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HDFN	Haemolytic disease of the fetus and the newborn
hepB	Hepatitis B
HFNC	High flow nasal cannula
HHS	Hyperosmolar hyperglycaemic state
HHS	Hospital and Health Service
Hib	<i>Haemophilus influenzae</i> type B
HIV	Human immunodeficiency virus
HMP	Health Management Protocol
HPV	Human papillomavirus
HR	Heart rate
HRT	Hormone replacement therapy
HSV	Herpes simplex virus
HSV ₂	Herpes simplex virus type 2
HVS	High vaginal swab
IAP	Intrapartum antibiotic prophylaxis
IBD	Inflammatory bowel disease
IBW	Ideal body weight
ICP	Intracranial pressure
ICU	Intensive care unit
IDC	Indwelling catheter
IDU	Injecting drug use
IgA	Immunoglobulin A
IgM	Immunoglobulin M
IHW	Authorised Indigenous Health Worker
IM	Intramuscular
IMB	Intermenstrual bleeding
INR	International Normalised Ratio
IPAP	Isolated Practice Area Paramedic
IPN	Immunisation Program Nurse
IPV	Inactivated poliomyelitis vaccine
iSTAT	Brand of hand held blood analyser
IUCD	Intrauterine contraceptive device
IUD	Intrauterine device
IUGR	Intrauterine growth restriction
IV	Intravenous
IVC	Intravenous cannula

LAM	List of Approved Medicines (Qld public hospitals and institutions)
LBBB	Left bundle branch block
LDH	Lactate dehydrogenase
LFT	Liver function test
LGBTIQ+	Lesbian gay bisexual transgender intersex queer and others
LIF	Left inguinal fossa
LMA	Laryngeal mask airway
LMP	Last menstrual period
LNMP	Last normal menstrual period
LOC	Loss of consciousness
LSD	Lysergic acid diethylamide
LVS	Lower vaginal swab
MAD	Mucosal atomisation device
MAOI	Monoamine oxidase inhibitor
max.	Maximum
MCS	Microscopy, culture, sensitivity
MDI	Metered dose inhaler
MDT	Multi-drug therapy
MenCCV	<i>Meningococcal C</i> conjugated vaccine
MEWT	Maternity Early Warning Tool
MHRT	Mental Health Review Tribunal
MID	Midwife
Min	Minutes
mmHg	millimetres of mercury
MMR	Measles, mumps, rubella
MMRV	Measles, mumps, rubella, varicella
MO	Medical Officer
MO/NP	Medical Officer/Nurse Practitioner
MRSA	Methicillin-resistant <i>staphylococcus aureus</i>
MSE	Medical State Examination
MSM	Men who have sex with men
MSU	Midstream urine sample
MTOP	Medical termination of pregnancy
NAT	Nucleic acid testing
NEXUS	National Emergency X-Radiography Utilisation Study
NG	Nasogastric
NGT	Nasogastric tube
NHMRC	National Health and Medical Research Council
NIPs	National Immunisation Program schedule

NIPT	Non-invasive pre-natal screening test
nmMRSA	Non multi-resistant MRSA
NPWT	Negative-pressure wound therapy
NSAID	Non-steroidal anti-inflammatory drug
NSSI	Non-suicidal self-injury
NSTEACS	Non-ST elevation acute coronary syndrome
NSTEMI	Non STEMI
NT	Northern Territory
O ₂	Oxygen
OCP	Ova, cysts and parasites
OCP	Oral contraceptive pill
OCP PCR	Faecal multiplex polymerase chain reaction
ODT	Oral disintegrating tablet
OGT	Orogastric tube
OGTT	Oral glucose tolerance test
OM	Otitis media
OME	Otitis media with effusion
ORS	Oral rehydration solutions
P ₂ /N ₉₅	Standards applying to particulate filtering personal masks
PAAP-A	Pregnancy associated placental protein-A
PBS	Pharmaceutical Benefits Scheme
PCB	Post coital bleeding
PCCM	Primary Clinical Care Manual
PCP	Phencyclidine
PCR	Polymerase chain reaction OR Prot
PCR	Protein/creatinine ratio
PE	Pulmonary embolism
PEA	Pulseless electrical activity
PEFR	Peak expiratory flow rate
PEGs	Polyethylene glycols
PEP	Post-exposure prophylaxis
PHU	Public health unit
PIC	Poisons Information Centre
PICU	Paediatric intensive care unit
PID	Pelvic inflammatory disease
PNG	Papua New Guinea
PoCT	Point of care testing
POC	Product of conception
POP	Progestogen only pill

pPCI	Primary percutaneous coronary intervention
PPE	Personal protective equipment
PPH	Post-partum haemorrhage
PPI	Proton pump inhibitor
PPV	Positive pressure ventilation
PrEP	Pre-exposure prophylaxis
PROM	Premature rupture of membranes
PTB	Preterm birth
PTSD	Post-traumatic stress disorder
Q-ADDS or QADDS	Queensland Adult Deterioration Detection System
QAS	Queensland Ambulance Service
Qld	Queensland
Q-MEWT	Queensland Maternity Early Warning Tool
QPS	Queensland Police Service
rAOM	Recurrent acute otitis media
RBC	Red blood cells
RFDS	Royal Flying Doctor Service
RHD	Rheumatic heart disease
RhD	Rhesus factor
RIF	Right inguinal fossa
RIPRN	Rural and Isolated Practice Registered Nurse
RLS	Restless legs syndrome
RN	Registered Nurse
RNA	Ribonucleic acid
ROM	Rupture of membrane
RPR	Rapid plasma reagin test
RR	Respiratory rate
RRV	Ross River Virus
RSQ	Retrieval Services Queensland
RV	Review
SA	Septic arthritis
SAH	Subarachnoid haemorrhage
SaO ₂	Oxygen saturation
sBP	Systolic blood pressure
SC	Subcutaneous
SIDS	Sudden infant death syndrome
SLE	Systemic lupus erythematosus
SM	Scheduled medicines
SNRI	Serotonin and norepinephrine reuptake inhibitors
SOB	Shortness of breath
SpO ₂	Peripheral capillary oxygen saturation

spp	Several species
SPPH	Secondary postpartum haemorrhage
SRH	Sexual Health Program Nurse
SROM	Spontaneous rupture of membranes
SSRI	Selective serotonin reuptake inhibitors
STEMI	ST-elevation myocardial infarction
STI	Sexually transmitted infection
STOP	Surgical termination of pregnancy
Subling	Sublingual under the tongue
SUDI	Sudden unexplained death in infants
SVDK	Snake venom detection kit
T	Temperature
TB	Tuberculosis
TBSA	Total body surface area
TCA	Tricyclic antidepressant
TEMSU	Telehealth Emergency Management Support Unit
TFT	Thyroid function test
TGA	Therapeutic Goods Administration
TIA	Transient ischaemic attack
TIG	Tetanus immunoglobulin
TM	Tympanic membrane
TOM	Termination of pregnancy
TPHA	Treponema pallidum haemagglutination assay
TPPA	Treponema pallidum particle agglutination assay
TSH	Thyroid stimulating hormone
TSS	Toxic shock syndrome
TVCL	Transvaginal ultrasound of cervical length
TVS	Transvaginal Scan
UE	Urea and electrolytes
UEC	Urea, electrolytes and creatinine
UKMEC	United Kingdom Medical Eligibility Criteria
UPA	Ulipristal acetate
UPSI	Unprotected sexual intercourse
UR	Unique record, unique record number
URN	Unique record, unique record number
URTI	Upper respiratory tract infection
USB	Universal Serial Bus
USS	Ultrasound scan
UTI	Urinary tract infection

UV	Ultraviolet
VA	Visual acuity
VE	Vaginal examination
VF	Ventricular fibrillation
VKDB	Vitamin K deficiency bleeding
VT	Ventricular tachycardia
VTE	Venous thromboembolism
VV	Varicella virus
WCC	White cell count
WHO	World Health Organization
β-hCG	Beta human chorionic gonadotropin
°C	Degrees celsius
Acceptable medicine terms and abbreviations ³	
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)
secs	seconds

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