

Overview of Aboriginal and Torres Strait Islander health status 2019



The Australian Indigenous HealthInfoNet

The Australian Indigenous HealthInfoNet's mission is to contribute to improvements in Aboriginal and Torres Strait Islander health by making relevant, high quality knowledge and information easily accessible to policy makers, health service providers, program managers, clinicians and other health professionals (including Aboriginal and Torres Strait Islander Health Workers) and researchers. The HealthInfoNet also provides easy-to-read and summarised material for students and the general community.

The HealthInfoNet achieves its mission by undertaking research into various aspects of Aboriginal and Torres Strait Islander health and disseminating the results (and other relevant knowledge and information) mainly via the Australian Indigenous HealthInfoNet websites (<https://healthinfonet.ecu.edu.au>), The Alcohol and Other Drugs Knowledge Centre (<https://aodknowledgecentre.ecu.edu.au>) and Tackling Indigenous Smoking (<https://tacklingsmoking.org.au>). The research involves analysis and synthesis of data and information obtained from academic, professional, government and other sources. The HealthInfoNet's work in knowledge exchange aims to facilitate the transfer of pure and applied research into policy and practice to address the needs of a wide range of users.

Recognition statement

The Australian Indigenous HealthInfoNet recognises and acknowledges the sovereignty of Aboriginal and Torres Strait Islander people as the original custodians of the country. Aboriginal and Torres Strait cultures are persistent and enduring, continuing unbroken from the past to the present, characterised by resilience and a strong sense of purpose and identity despite the undeniably negative impacts of colonisation and dispossession. Aboriginal and Torres Strait Islander people throughout the country represent a diverse range of people, communities and groups each with unique identity, cultural practices and spiritualities. We recognise that the current health status of Aboriginal and Torres Strait Islander people has been significantly impacted by past and present practices and policies.

We acknowledge and pay our deepest respects to Elders past and present and emerging throughout the country (<https://healthinfonet.ecu.edu.au/acknowledging-country>). In particular, we pay our respects to the Whadjuk Nyoongar people of Western Australia on whose country our offices are located.

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Preface

The main purpose of the *Overview of Aboriginal and Torres Strait Islander health status (Overview)* is to provide a comprehensive summary of the most recent indicators of the health and current health status of Australia's Aboriginal and Torres Strait Islander people. The *Overview* has been prepared by Australian Indigenous HealthInfoNet staff as part of our contribution to supporting those who work in the Aboriginal and Torres Strait Islander health sector. The *Overview* is a key element of the HealthInfoNet's commitment to authentic and engaged knowledge development and exchange.

The initial sections of this *Overview* provide information about the context of Aboriginal and Torres Strait Islander health, population, and various measures of population health status. Most of the subsequent sections about specific health conditions comprise an introduction about the condition and evidence of the current burden of the condition among Aboriginal and Torres Strait Islander people. Information is provided for state and territories and for demographics such as sex and age when it is available and appropriate.

While it provides a comprehensive review of key indicators across a range of health topics, it is beyond the scope of this *Overview* to provide detailed information on other aspects, such as the availability and use of services (including barriers to their use) and strategies and policies related to specific health topics. Interested readers should refer to the topic-specific reviews that are available on the HealthInfoNet's website (<https://healthinonet.ecu.edu.au/learn/health-facts/reviews-knowledge-exchange-products>). Additional, more in depth, information about the topics summarised in this *Overview* is included in the corresponding sections of the HealthInfoNet's website (<https://healthinonet.ecu.edu.au>). For more information on accessing and using the HealthInfoNet resource, please view our instructional videos accessible from the web resource and also located on You Tube at http://www.youtube.com/channel/UCftVbk_1fVQz2i_9TyQ1E2Q.

The key to successful knowledge exchange and transfer is authentic partnership in the development of materials so we welcome your comments and feedback about the *Overview of Aboriginal and Torres Strait Islander health status 2019*.



Neil Drew, Director, on behalf of the HealthInfoNet team

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- staff of the HealthInfoNet for their assistance, support and encouragement in the preparation of this *Overview*.
- previous staff members of the HealthInfoNet who have contributed to earlier versions of the *Overview*.
- the Australian and New Zealand Dialysis and Transplant Registry (ANZDATA) for the provision of the notification data on end-stage renal disease (ESRD).
- the Department of Health and other funding partners for their ongoing support of the work of the HealthInfoNet.
- members of the HealthInfoNet Advisory Board and HealthInfoNet Consultants.
- users of the HealthInfoNet resource for their ongoing support and feedback.

Tell us what you think

We value your opinion, please let us know if you have any suggestions for improving this *Overview* or future editions. (See <https://healthinonet.ecu.edu.au/contact-us>)

Artwork



Bibdjool

Donna Lei Rioli - a Western Australian Indigenous artist - was commissioned by the HealthInfoNet to create a logo incorporating a gecko, chosen as it is one of a few animals that are found across the great diversity of Australia.

Donna is a Tiwi/Nyoongar woman who is dedicated to the heritage and culture of the Tiwi people on her father's side, Maurice Rioli, and the Nyoongar people on her mother's side, Robyn Collard. Donna enjoys painting because it enables her to express her Tiwi and Nyoongar heritage and she combines the two in a unique way.

Donna interpreted the brief with great awareness and conveyed an integrated work that focuses symbolically on the pathway through life. This is very relevant to the work and focus of the Australian Indigenous HealthInfoNet in contributing to improving the health and wellbeing of Aboriginal and Torres Strait Islander Australians.

Introduction

This *Overview of Aboriginal and Torres Strait Islander health status (Overview)* provides a comprehensive summary of the most recent indicators of the health of Aboriginal and Torres Strait Islander people¹ in Australia. Where possible, information is detailed for individual states and territories: New South Wales (NSW), Victoria (Vic), Queensland (Qld), Western Australia (WA), South Australia (SA), Tasmania (Tas), the Australian Capital Territory (ACT) and the Northern Territory (NT). The *Overview* draws largely on previously published information.

In this version of the *Overview* we continue to take steps to address the feedback received from our Aboriginal and Torres Strait Islander colleagues, consultants and wider community in relation to the way data are presented. In the past, the *Overview* has relied on the comparisons between the Aboriginal and Torres Strait Islander and non-Indigenous populations to report on the health and health indicators for the Aboriginal and Torres Strait Islander population. This year, the focus will be mainly on the Aboriginal and Torres Strait Islander data and presentation is within the framework of the strength based approach and data sovereignty (where information is available). As a data driven organisation, the HealthInfoNet has a publicly declared commitment to working with Aboriginal and Torres Strait Islander leaders to advance our understanding of data sovereignty and governance consistent with the principles and aspirations of the Maïam nayri Wingara Data Sovereignty Collective (<https://www.maïamnayriwingara.org>). As we have done in previous years, we continue our strong commitment to developing strengths based approaches to assessing and reporting the health of Aboriginal and Torres Strait Islander people and communities.

It is difficult to make comparisons between Aboriginal and Torres Strait Islander people and non-Indigenous Australian populations without consideration of the cultural and social contexts within which people live their lives. As in past versions, we still provide information on the cultural context and social determinants for the Aboriginal and Torres Strait Islander population. However, for the selected health topics and risk/protective factors we have removed many of the comparisons between the two populations and focused on the analysis of the Aboriginal and Torres Strait Islander data only. In an attempt to respond to the challenge issued by Professor Craig Ritchie at the 2019 AIATSIS conference to say more about the ‘how’ and the ‘why’ not just the ‘what’ where comparisons are made and if there is evidence available, we have provided a brief explanation for the differences observed.

¹ Very little information is available separately for Aboriginal people and Torres Strait Islander people.

Sources of information

Research for the *Overview* involves the collection, collation, and analysis of a wide range of relevant information, including both published and unpublished material. Sources include government reports, particularly those produced by the Australian Bureau of Statistics (ABS), the Australian Institute of Health and Welfare (AIHW), the Australian Health Ministers' Advisory Council (AHMAC), and the Steering Committee for the Review of Government Service Provision (SCRGSP). Important additions to the regular ABS and AIHW publications are a series of special reports that bring together key information about Aboriginal and Torres Strait Islander health and related areas:

- The *Overcoming Indigenous disadvantage* reports, produced by the SCRGSP and published by the Productivity Commission; the report has been published biennially since 2003.
- Reports in the *Aboriginal and Torres Strait Islander health performance framework* series with substantial detailed analyses, prepared by AHMAC since 2006.
- *Reports on government services*, produced by the SCRGSP and published annually by the Productivity Commission since 2003.

This *Overview* also draws on information from the main administrative data collections (such as the birth and death registration systems and the hospital inpatient collections) and national surveys, for example, the Australian Aboriginal and Torres Strait Islander health surveys. Information from these sources has been published mainly in government reports, particularly those produced by the ABS, the AIHW, and the SCRGSP. It also relies on a wide variety of other information sources including: registers for specific diseases and other conditions; regional and local surveys; and epidemiological and other studies examining particular diseases, conditions, and health determinants. Information from these sources is disseminated mainly through journals and similar periodicals, or in special reports (such as the annual reports of the Kirby Institute and the ANZDATA).

A number of sections include the results of our own analyses of data obtained from a variety of sources. For example, estimates of the age-adjusted incidence of end-stage renal disease were made using notification data provided by ANZDATA.

Key facts

Population

- In 2019, the estimated Australian Aboriginal and Torres Strait Islander population was 847,190.
- In 2019, NSW had the highest number of Aboriginal and Torres Strait Islander people (the estimated population was 281,107 people, 33% of the total Aboriginal and Torres Strait Islander population).
- In 2019, NT had the highest proportion of Aboriginal and Torres Strait Islander people in its population, with 32% of the NT population identifying as Aboriginal and/or Torres Strait Islander.
- In 2016, around 37% of Aboriginal and Torres Strait Islander people lived in major cities.
- The Aboriginal and Torres Strait Islander population is much younger than the non-Indigenous population.

Births and pregnancy outcomes

- In 2018, there were 21,928 births registered in Australia with one or both parents identified as Aboriginal and/or Torres Strait Islander (7% of all births registered).
- In 2018, the median age for Aboriginal and Torres Strait Islander mothers was 26.0 years.
- In 2018, total fertility rates were 2,371 births per 1,000 for Aboriginal and Torres Strait Islander women.
- In 2017, the average birthweight of babies born to Aboriginal and Torres Strait Islander mothers was 3,202 grams.
- The proportion of low birthweight babies born to Aboriginal and Torres Strait Islander mothers between 2007 and 2017 remained steady at around 13%.

Mortality

- For 2018, the age-standardised death rate for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT was 9.1 per 1,000.
- Between 1998 and 2015, there was a 15% reduction in the death rates for Aboriginal and Torres Strait Islander people in NSW, Qld, WA, SA and the NT.
- For Aboriginal and Torres Strait Islander people born 2015-2017, life expectancy was estimated to be 71.6 years for males and 75.6 years for females, around 8-9 years less than the estimates for non-Indigenous males and females.
- In 2018, the median age at death for Aboriginal and Torres Strait Islander people in NSW, Qld, WA, SA and the NT was 60.2 years; this was an increase from 55.8 years in 2008.
- Between 1998 and 2015, the Aboriginal and Torres Strait Islander infant mortality rate has more than halved (from 13.5 to 6.3 per 1,000).
- In 2018, the leading causes of death among Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT were ischaemic heart disease (IHD), diabetes, chronic lower respiratory diseases and lung and related cancers.
- For 2012-2017 the maternal mortality ratio for Aboriginal and Torres Strait Islander women was 27 deaths per 100,000 women who gave birth.
- For 1998-2015, in NSW, Qld, WA, SA and the NT there was a 32% decline in the death rate from avoidable causes for Aboriginal and Torres Strait Islander people aged 0-74 years.

Hospitalisation

- In 2017-18, 4.9% of all hospital separations were for Aboriginal and Torres Strait Islander people.
- In 2017-18, the age-adjusted separation rate for Aboriginal and Torres Strait Islander people was 2.6 times higher than for non-Indigenous people.
- In 2017-18, the main cause of hospitalisation for Aboriginal and Torres Strait Islander people was for 'factors influencing health status and contact with health services' (mostly for care involving dialysis), responsible for 49% of all Aboriginal and Torres Strait Islander separations.
- In 2017-18, the age-standardised rate of overall potentially preventable hospitalisations for Aboriginal and Torres Strait Islander people was 80 per 1,000 (38 per 1,000 for chronic conditions and 13 per 1,000 for vaccine-preventable conditions).

Selected health conditions

Cardiovascular health

- In 2018-19, around 15% of Aboriginal and Torres Strait Islander people reported having cardiovascular disease (CVD).
- In 2018-19, nearly one quarter (23%) of Aboriginal and Torres Strait Islander adults were found to have high blood pressure.
- For 2013-2017, in Qld, WA, SA and the NT combined, there were 1,043 new rheumatic heart disease diagnoses among Aboriginal and Torres Strait Islander people, a crude rate of 50 per 100,000.
- In 2017-18, there 14,945 hospital separations for CVD among Aboriginal and Torres Strait Islander people, representing 5.4% of all Aboriginal and Torres Strait Islander hospital separations (excluding dialysis).
- In 2018, ischaemic heart disease (IHD) was the leading specific cause of death of Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT.

Cancer

- In 2018-19, 1.1% of Aboriginal and Torres Strait Islander people reported having cancer (males 1.2%, females 1.1%).
- For 2010-2014, the most common cancers diagnosed among Aboriginal and Torres Strait Islander people living in NSW, Vic, Qld, WA and the NT were lung cancer and breast (females) cancer.
- Survival rates indicate that of the Aboriginal and Torres Strait Islander people living in NSW, Vic, Qld, WA, and the NT who were diagnosed with cancer between 2007 and 2014, 50% had a chance of surviving five years after diagnosis.
- In 2016-17, there 8,447 hospital separations for neoplasms² among Aboriginal and Torres Strait Islander people.
- For 2013-2017, the age-standardised mortality rate due to cancer of any type was 238 per 100,000, an increase of 5% when compared with a rate of 227 per 100,000 in 2010-2014.

Diabetes

- In 2018-19, 7.8% of Aboriginal people and 7.9% of Torres Strait Islander people reported having diabetes.
- In 2015-16, there were around 2,300 hospitalisations with a principal diagnosis of type 2 diabetes among Aboriginal and Torres Strait Islander people.
- In 2018, diabetes was the second leading cause of death for Aboriginal and Torres Strait Islander people.
- The death rate for diabetes decreased by 7.0% between 2009-2013 and 2014-2018.

² Some data sources use term 'neoplasm' to describe conditions associated with abnormal growth of new tissue, commonly referred to as a tumour. Neoplasms can be benign (not cancerous) or malignant (cancerous) [1].

Social and emotional wellbeing

- In 2018-19, 31% of Aboriginal and 23% of Torres Strait Islander respondents aged 18 years and over reported high or very high levels of psychological distress.
- In 2014-15, 68% of Aboriginal and Torres Strait Islander people aged 15 years and over and 67% of children aged 4-14 years experienced at least one significant stressor in the previous 12 months.
- In 2012-13, 91% of Aboriginal and Torres Strait Islander people reported on feelings of calmness and peacefulness, happiness, fullness of life and energy either some, most, or all of the time.
- In 2014-15, more than half of Aboriginal and Torres Strait Islander people aged 15 years and over reported an overall life satisfaction rating of at least 8 out of 10.
- In 2018-19, 25% of Aboriginal and 17% of Torres Strait Islander people, aged two years and over, reported having a mental and/or behavioural condition.
- In 2018-19, anxiety was the most common mental or behavioural condition reported (17%), followed by depression (13%).
- In 2017-18, there were 21,940 hospital separations with a principal diagnosis of International Classification of Diseases (ICD) 'mental and behavioural disorders' identified as Aboriginal and/or Torres Strait Islander.
- In 2018, 169 (129 males and 40 females) Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA, and the NT died from intentional self-harm (suicide).
- Between 2009-2013 and 2014-2018, the NT was the only jurisdiction to record a decrease in intentional self-harm (suicide) death rates.

Kidney health

- In 2018-19, 1.8% of Aboriginal and Torres Strait Islander people (Aboriginal people 1.9%; Torres Strait Islander people 0.4%) reported kidney disease as a long-term health condition.
- For 2014-2018, after age-adjustment, the notification rate of end-stage renal disease was 6.3 times higher for Aboriginal and Torres Strait Islander people than for non-Indigenous people.
- In 2017-18, 'care involving dialysis' was the most common reason for hospitalisation among Aboriginal and Torres Strait Islander people.
- In 2018, 310 Aboriginal and Torres Strait Islander people commenced dialysis and 49 were the recipients of new kidneys.
- For 2013-2017, the age-adjusted death rate from kidney disease was 21 per 100,000 (NT: 47 per 100,000; WA: 38 per 100,000) for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and NT.
- In 2018, the most common causes of death among the 217 Aboriginal and Torres Strait Islander people who were receiving dialysis was CVD (64 deaths) and withdrawal from treatment (51 deaths).

Injury, including family violence

- In 2012-13, 2.5% of Aboriginal and Torres Strait Islander people reported having a long-term condition caused by injury.
- In 2018-19, 16% of Aboriginal and Torres Strait Islander people aged 15 years and over had experienced physical harm or threatened physical harm at least once in the last 12 months.
- In 2016-17, the rate of Aboriginal and Torres Strait Islander hospitalised injury was higher for males (44 per 1,000) than females (39 per 1,000).
- In 2017-18, 20% of injury-related hospitalisations among Aboriginal and Torres Strait Islander people were for assault.
- In 2018, intentional self-harm was the leading specific cause of injury deaths for NSW, Qld, SA, WA, and NT (5.3% of all Aboriginal and Torres Strait Islander deaths).

Respiratory health

- In 2018-19, 29% of Aboriginal and Torres Strait Islander people reported having a long-term respiratory condition.
- In 2018-19, 16% of Aboriginal and Torres Strait Islander people reported having asthma.
- In 2014-15, crude hospitalisation rates were highest for Aboriginal and Torres Strait Islander people presenting with influenza and pneumonia (7.4 per 1,000), followed by COPD (5.3 per 1,000), acute upper respiratory infections (3.8 per 1,000) and asthma (2.9 per 1,000).
- In 2018, chronic lower respiratory disease was the third highest cause of death overall for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT.

Eye health

- In 2018-19, eye and sight problems were reported by 38% of Aboriginal people and 40% of Torres Strait Islander people.
- In 2018-19, eye and sight problems were reported by 32% of Aboriginal and Torres Strait Islander males and by 43% of females.
- In 2018-19, the most common eye conditions reported by Aboriginal and Torres Strait Islanders were hyperopia (long sightedness: 22%), myopia (short sightedness: 16%), other diseases of the eye and adnexa (8.7%), cataract (1.4%), blindness (0.9%) and glaucoma (0.5%).
- In 2014-15, 13% of Aboriginal and Torres Strait Islander children, aged 4-14 years, were reported to have eye or sight problems.
- In 2018, 144 cases of trachoma were detected among Aboriginal and Torres Strait Islander children living in at-risk communities in Qld, WA, SA and the NT.
- For 2015-17, 62% of hospitalisations for diseases of the eye (8,274) among Aboriginal and Torres Strait Islander people were for disorders of the lens (5,092) (mainly cataracts).

Ear health and hearing

- In 2018-19, 14% of Aboriginal and Torres Strait Islander people reported having a long-term ear and/or hearing problem.
- In 2018-19, among Aboriginal and Torres Strait Islander children aged 0-14 years, the prevalence of otitis media (OM) was 2.6% and of partial or complete deafness was 3.8%.
- In 2017-18, the age-adjusted hospitalisation rate for ear conditions for Aboriginal and Torres Strait Islander people was 4.1 per 1,000 population.

Oral health

- In 2014-15, the proportion of Aboriginal and Torres Strait Islander children aged 4-14 years with reported tooth or gum problems was 34%, a decrease from 39% in 2008.
- In 2012-2014, 61% of Aboriginal and Torres Strait Islander children aged 5-10 years had experienced tooth decay in their baby teeth, and 36% of Aboriginal and Torres Strait Islander children aged 6-14 years had experienced tooth decay in their permanent teeth.
- In 2016-17, there were 3,418 potentially preventable hospitalisations for dental conditions for Aboriginal and Torres Strait Islander people. The age-standardised rate of hospitalisation was 4.6 per 1,000.

Disability

- In 2018-19, 27% of Aboriginal and 24% of Torres Strait Islander people reported having a disability or restrictive long-term health condition.
- In 2018-19, 8.2% of Aboriginal and 8.3% of Torres Strait Islander people reported a profound or severe core activity limitation.
- In 2016, 6.7% of Aboriginal and Torres Strait Islander people with a profound or severe disability reported a need for assistance.

- In 2017-18, 5.9% of disability service users were Aboriginal and Torres Strait Islander people, with most aged under 50 years (82%).
- In 2017-18, the primary disability groups accessing services were Aboriginal and Torres Strait Islander people with a psychiatric condition (24%), intellectual disability (23%) and physical disability (20%).
- In 2017-18, 2,524 Aboriginal and Torres Strait Islander National Disability Agreement service users transitioned to the National Disability Insurance Scheme.

Communicable diseases

- In 2017, there were 7,015 notifications for chlamydia for Aboriginal and Torres Strait Islander people, accounting for 7% of the notifications in Australia.
- During 2013-2017, there was a 7.9% and 9.8% decline in chlamydia notification rates among males and females (respectively).
- In 2017, there were 4,119 gonorrhoea notifications for Aboriginal and Torres Strait Islander people, accounting for 15% of the notifications in Australia.
- In 2017, there were 779 syphilis notifications for Aboriginal and Torres Strait Islander people accounting for 18% of the notifications in Australia.
- In 2017, Qld (45%) and the NT (35%) accounted for 80% of the syphilis notifications from all jurisdictions.
- In 2018, there were 34 cases of newly diagnosed human immunodeficiency virus (HIV) infection among Aboriginal and Torres Strait Islander people in Australia.
- In 2017, there were 1,201 Aboriginal and Torres Strait Islander people diagnosed with hepatitis C (HCV) in Australia.
- In 2017, there were 151 Aboriginal and Torres Strait Islander people diagnosed with hepatitis B (HBV) in Australia.
- For 2013-2017 there was a 37% decline in the HBV notification rates for Aboriginal and Torres Strait Islander people.
- For 2011-2015, 1,152 (14%) of the 8,316 cases of invasive pneumococcal disease (IPD) were identified as Aboriginal and Torres Strait Islander.
- For 2011-2015, there were 26 deaths attributed to IPD with 11 of the 26 deaths (42%) in the 50 years and over age-group.
- For 2011-2015, 101 (10%) of the 966 notified cases of meningococcal disease were identified as Aboriginal and Torres Strait Islander.
- For 2006-2015, the incidence rate of meningococcal serogroup B was 2.8 per 100,000, with the age-specific rate highest in infants less than 12 months of age (33 per 100,000).
- In 2015, of the 1,255 notifications of TB in Australia, 27 (2.2%) were identified as Aboriginal and seven (0.6%) as Torres Strait Islander
- For 2011-2015, there were 16 Aboriginal and Torres Strait Islander people diagnosed with invasive Haemophilus influenzae type b (Hib) in Australia.
- Between 2007-2010 and 2011-2015 notification rates for Hib decreased by around 67%.
- In 2018-19, the proportion of Aboriginal and Torres Strait Islander people reporting a disease of the skin and subcutaneous tissue was 3.2% (males 2.4% and females 4.0%).

Factors contributing to Aboriginal and Torres Strait Islander health

Nutrition and breastfeeding

- In 2018-19, 39% of Aboriginal and Torres Strait Islander people reported eating an adequate amount of fruit per day but only 4.2% reported eating an adequate amount of vegetables per day.
- In 2018-19, 92% of Aboriginal and Torres Strait Islander children aged 2-3 years old were reported to eat an adequate amount of fruit per day and 23% were reported to eat an adequate amount of vegetables per day.
- In 2018-19, 24% of Aboriginal and Torres Strait Islander people reported that they usually consumed sugar sweetened drinks every day and 5.5% consumed diet drinks; 71% usually consumed sugar sweetened drinks or diet drinks at least once per week.
- In 2018-19, 20% of children aged 2-14 years usually consumed sugar sweetened drinks daily and 1.5% consumed diet drinks daily; 63% usually consumed sugar sweetened drinks or diet drinks at least once a week.
- In 2012-13, on average, Aboriginal and Torres Strait Islander people reported consuming 111 grams of sugar daily.
- In 2012-13, the average daily sodium intake for Aboriginal and Torres Strait Islander people was approximately one teaspoon of salt.
- In 2012-13, 22% of Aboriginal and Torres Strait Islander people reported running out of food or unable to buy food.
- In 2014-15, 80% of Aboriginal and Torres Strait Islander children aged 0-3 years had been breastfed.

Physical activity

- In 2018-19, 89% of Aboriginal and Torres Strait Islander people aged 15 years and over had not met the physical activity guidelines, and 22% had not participated in any physical activity in the week prior to being surveyed.
- The highest proportion of Aboriginal and Torres Strait Islander people who met the guidelines lived in the ACT (21%) compared with the lowest proportion living in the NT (7.2%).

Bodyweight

- In 2018-19, 71% of Aboriginal and Torres Strait Islander people aged 15 years and over were either overweight or obese (Aboriginal people: 71% and Torres Strait Islander people: 75%), 25% were in the normal weight range and 3.9% were underweight.
- In 2018-19, of Aboriginal and Torres Strait Islander children aged 2-17 years, 38% were overweight or obese; 53% were normal weight and 8.8% were underweight.

Tobacco use

- In 2018-19, 37% of Aboriginal and Torres Strait Islander people aged 15 years and over reported they were current daily smokers, a reduction from levels reported in 2012-13 (41%).
- Since 2009, the proportion of Aboriginal and Torres Strait Islander mothers who reported smoking during pregnancy has decreased from 52% in 2009 to 44% in 2017.
- In 2018-19, Aboriginal and Torres Strait Islander people living in remote areas reported a higher proportion of current daily smokers (49%) than those living in non-remote areas (35%).
- Between 2004-05 and 2018-19, the highest reductions in daily smoking have been found in the younger age-groups (18-34 years).

Alcohol use

- In 2018-19, 26% of Aboriginal and Torres Strait Islander adults reported abstaining from alcohol.
- In 2018-19, 19% of Aboriginal and Torres Strait Islander adults did not exceed the guideline for drinking at risk on a single occasion, and 26% did not exceed the guideline for lifetime risk.
- In 2018-19, Aboriginal and Torres Strait Islander males were more likely to exceed the guideline for lifetime risk (30%) than females (10%).

- For 2010 to 2016, there was a decline (32% to 20%) in the proportion of Aboriginal and Torres Strait Islander people aged 12 years and over who exceeded the 2009 guidelines for lifetime risk (two standard drinks/day).
- There was a reported 50% reduction of mothers of Aboriginal and Torres Strait Islander children who drank through pregnancy, from 20% in 2008 to 9.8% in 2014-15.
- For 2013-2017, the main cause of alcohol-related deaths for Aboriginal and Torres Strait Islander people was from alcoholic liver disease.

Illicit drug use

- In 2018-19, 70% of Aboriginal and Torres Strait Islander people aged 15 years and older and in 2016, 73% aged 14 years and over reported they had never used illicit substances in the last 12 months.
- In 2018-19, 28% of Aboriginal and Torres Strait Islander people aged 15 years and over and in 2016, 27% aged 14 years and older reported that they had used an illicit substance in the previous 12 months.
- In 2014-15, hospitalisation for mental/behavioural disorders due to drug use was highest for amphetamines (1.5 per 1,000) for Aboriginal and Torres Strait Islander people.
- For 2010-2014, SA recorded the highest rate of drug-induced deaths for Aboriginal and Torres Strait Islander people (24 per 100,000), followed by NSW (17 per 100,000), and WA (9 per 100,000).
- For 2010-2014, rates of drug induced deaths were higher for Aboriginal and Torres Strait Islander males (14 per 100,000) than for females (10 per 100,000).

Volatile substance use

- In 2012-13, 6.6% of Aboriginal and Torres Strait Islander males and 4.2% of females had ever used petrol or other inhalants.
- In 2014-15, the rate of hospital separations for Aboriginal and Torres Strait Islander people from poisoning and accidental poisoning due to the toxic effect of organic solvents (e.g. petrol) was 0.05 per 1,000.

Immunisation

- In September 2019, 97% of Aboriginal and Torres Strait Islander 5 year old children were fully immunised against the recommended vaccine-preventable diseases.

Environmental health

- In 2016, 18% of Aboriginal and Torres Strait Islander people were reported living in overcrowded households.
- In 2016, 72% of Aboriginal and Torres Strait Islander households reported living in houses of an acceptable standard.
- In 2014-15, 26% of Aboriginal and Torres Strait Islander households reported structural issues within their dwelling.
- In 2014-15, over 90% of Aboriginal and Torres Strait Islander households reported that they had access to working facilities for: washing people, clothes and bedding; preparing food; and sewerage facilities.
- In 2014-15, Aboriginal and Torres Strait Islander crude hospitalisation rates for selected diseases related to environmental health were 7.6 per 1,000 for intestinal infectious diseases, 7.4 per 1,000 for influenza and immunisation, 5.1 per 1,000 for bacterial disease and 2.3 per 1,000 for scabies.
- For 2010-2014, in NSW, Qld, WA, SA and the NT, after age-adjustment, Aboriginal and Torres Strait Islander males died as a result of disease associated with poor environmental health at 46 per 100,000 and females 41 per 100,000.

Social and cultural concepts

In Australia, Aboriginal people have occupied their traditional lands for the past 50,000 to 120,000 years and their continuity, history and cultural traditions are unrivalled in the world [2]. Torres Strait Islander people have occupied 270 islands in the Torres Strait for at least 9,000 years. The Torres Strait is between the tip of Cape York in Queensland and Papua New Guinea. Torres Strait Islanders now live permanently in 20 communities across mainland Australia and the Torres Strait; including mainland communities in Far North Queensland.

Aboriginal people enjoyed a semi-nomadic lifestyle in family and community groups, moving across a defined area following seasonal changes [2]. Torres Strait Islander people had a communal village lifestyle revolving around fishing, trading and gardening. Land was, and still is today a central part of Aboriginal and Torres Strait Islander customs, culture and law [3]. Country and connection to country is intricately linked to caring for country, the maintenance of cultural life, identity, individual autonomy and Aboriginal and Torres Strait Islander sovereignty. These each have their own implications for the social and emotional wellbeing of Aboriginal and Torres Strait Islander people [4].

There are distinctive ethnic and cultural differences between Aboriginal societies, and between Aboriginal and Torres Strait Islander societies, each having their own languages and traditions [5]. Despite their differences, Aboriginal and Torres Strait Islander people have had many similar experiences relating to colonisation that have led to negative outcomes on their quality of life and their health [2, 6]. Racism, discrimination, the forced removal of children and loss of identity, language, culture and land, are some of the negative impacts that Aboriginal and Torres Strait Islander people have faced and continue to face.

There have been a number of positive changes towards Aboriginal and Torres Strait Islander self-determination and sovereignty. With representation in Parliament, Aboriginal and/or Torres Strait Islander people now have a political voice [7]. In addition, there has been the development of a shift away from the deficit narratives that have infused (and confused) much of the debate about the health and wellbeing of Aboriginal and Torres Strait Islander people towards a strengths based approach [8]. This has come about after decades of leadership from Aboriginal and Torres Strait Islander Community Controlled Health Organisations (ACCHOs). Megan Davis, Professor of Law, University of NSW, said of ACCHOs, 'It is apparent when we look to the Aboriginal community health services sector, we can see that for decades and decades they have been leading the way already in the realisation of the most fundamental aspect of the right to self-determination: making decisions about one's health. Community control is intuitive to communities' [9].

There is now clear evidence to show that the social and cultural determinants of health influence an individual's health [10]. This includes such factors as their early life experiences, social and economic position in society, exposure to stress, educational attainment and exclusion from participation in society, which all have a powerful influence on health throughout life. Aboriginal and Torres Strait Islanders view health as a whole-of-life view that contributes to the total wellbeing of their community and not just the individual. This view also includes the concept of life-death-life.

The National Aboriginal and Torres Strait Islander Community Controlled Health Organisation (NACCHO) has adopted the World Health Organization's (WHO) view to '... put people at the centre of health care and that comprehensive primary health care is central to achieving real outcomes and health benefits for Aboriginal and Torres Strait Islander people rather than a disease focused approach' [10, 11].

Social indicators

Key national measures linked to the social determinants of health for Aboriginal and Torres Strait Islander people include education, employment and income.

Education

The 2016 Australian Census [12] indicated that the number of Aboriginal and Torres Strait Islander people completing year 12 or its equivalent had increased with 47% of those aged 20 to 24 years reporting the completion of year 12, compared with 32% in 2006.

In addition, for 20-24 year-olds in the 2016 Census:

- Aboriginal and Torres Strait females were more likely to have completed year 12 or equivalent than males (51% compared with 43%).
- Aboriginal and Torres Strait Islander people living in urban areas were more likely to have completed year 12 or equivalent compared with those living in rural areas (50% compared with 34%).
- The highest proportions of Aboriginal and Torres Strait Islander people completing year 12 or equivalent were in the ACT (66%) and Qld (55%).

For Aboriginal and Torres Strait Islander people aged 25-64 years, the 2016 Census [12] indicated that:

- 30% reported the completion of year 12 or its equivalent.
- Females were more likely to have completed year 12 or equivalent than males (32% compared with 27%).
- Aboriginal and Torres Strait Islander people living in urban areas were more likely to have completed year 12 or equivalent compared with those living in rural areas (32% compared with 22%).
- The highest proportions of Aboriginal and Torres Strait Islander people completing year 12 or equivalent were in the ACT (52%) and Qld and Vic (both 36%).

In 2016, 37% of Aboriginal and Torres Strait Islander people aged 15 years and over had completed vocational or tertiary studies (a non-school qualification) [12]. The highest proportions of Aboriginal and Torres Strait Islander people with vocational or tertiary qualifications were in the ACT (52%), Vic (45%), NSW (40%) and Tas (40%).

The number of Aboriginal and Torres Strait Islander people studying at university increased [12]. A total of 15,395 Aboriginal and Torres Strait Islander students were attending university in 2016 compared with approximately 7,000 students in 2006.

An ABS school report [13] showed that in 2018:

- There were 221,982 school students who identified as Aboriginal and/or Torres Strait Islander, an increase of around 3.0% from 2017.
- The retention rate for Aboriginal and Torres Strait Islander students who started secondary school in year 7/8³ and continued through to year 12, decreased from 62% in 2017 to 61% in 2018. The retention rate for Aboriginal and Torres Strait Islander secondary students increased from 49% in 2011 to 61% in 2018.
- In 2018, the highest proportions of Aboriginal and Torres Strait Islander students who started secondary school in year 7/8 and continued through to year 12 were in the ACT (96%), SA (86%) and Qld (74%).

A national report on schooling in Australia [14] showed that in 2018:

- 82% of year 3, 77% of year 5, 76% of year 7 and 74% of year 9 Aboriginal and Torres Strait Islander students were at, or above the national minimum standard for reading.
- 78% of year 3, 65% of year 5, 58% of year 7 and 46% of year 9 Aboriginal and Torres Strait Islander students were at, or above the national minimum standard for writing.
- 78% of year 3, 80% of year 5, 76% of year 7 and 71% of year 9 Aboriginal and Torres Strait Islander students were at, or above the national minimum standard for spelling.
- 79% of year 3, 76% of year 5, 73% of year 7 and 73% of year 9 Aboriginal and Torres Strait Islander students were at, or above the national minimum standard for grammar and punctuation.
- 83% of year 3, 81% of year 5, 82% of year 7 and 83% of year 9 Aboriginal and Torres Strait Islander students were at, or above the national minimum standard for numeracy.

³ Commencement year for secondary schooling varies [13].

Employment

According to the 2016 Australian Census [12]:

- Almost half (47%) of Aboriginal and Torres Strait Islander people between the ages of 15 years and 64 years were employed.
- 70% of Aboriginal and Torres Strait Islander people aged 15 to 24 years were either fully or partly engaged in employment, education and training.
- The top three industries in which Aboriginal and Torres Strait Islander people aged 15 to 64 years worked were; health care and social assistance (15%), followed by public administration and safety (12%) and education and training (10%).
- Aboriginal and Torres Strait Islander males were most likely to be employed in construction (17%) and females were most likely to be employed in health care and social assistance (24%).

Income

In the 2016 Census [12]:

- 20% of Aboriginal and Torres Strait Islander people reported an equivalised⁴ weekly income of \$1,000 or more compared with 13% in 2011 [12, 15].
- Over half (53%) of Aboriginal and Torres Strait Islander people reported an equivalised weekly household income of between \$150 and \$799 [12].

Aboriginal and Torres Strait Islander population

The ABS estimated⁵ that the Aboriginal and Torres Strait Islander population at 847,190 people in 2019 (Table 1) [17]. The Aboriginal and Torres Strait Islander population accounted for 3.3% of Australia's total population of nearly twenty five and a half million (Derived from [16, 17]). The Aboriginal and Torres Strait Islander population was highest in NSW (281,107 people), followed by Qld (235,962). The NT had the highest proportion of Aboriginal and Torres Strait Islander people among its population (32%) and Vic the lowest (0.9%).

Table 1. Estimated Aboriginal and Torres Strait Islander (Indigenous) population, by jurisdiction, Australia, 2019

Jurisdiction	Indigenous population (number)	Proportion of Australian Indigenous population (%)	Proportion of total jurisdiction population (%)
NSW	281,107	33	3.5
Vic	62,074	7.3	0.9
Qld	235,962	28	4.6
WA	106,939	13	4.1
SA	44,981	5.3	2.6
Tas	30,070	3.5	5.6
ACT	8,178	1.0	1.9
NT	77,605	9.2	32
Australia	847,190	100	3.3

Note: The Australian population includes Jervis Bay Territory, the Cocos (Keeling) Islands, Christmas Island and Norfolk Island.

Source: Derived from ABS, 2019 [17], ABS, 2019 [16]

4 Equivalised household income adjusts the actual incomes of households to make households of different sizes and compositions comparable [12].

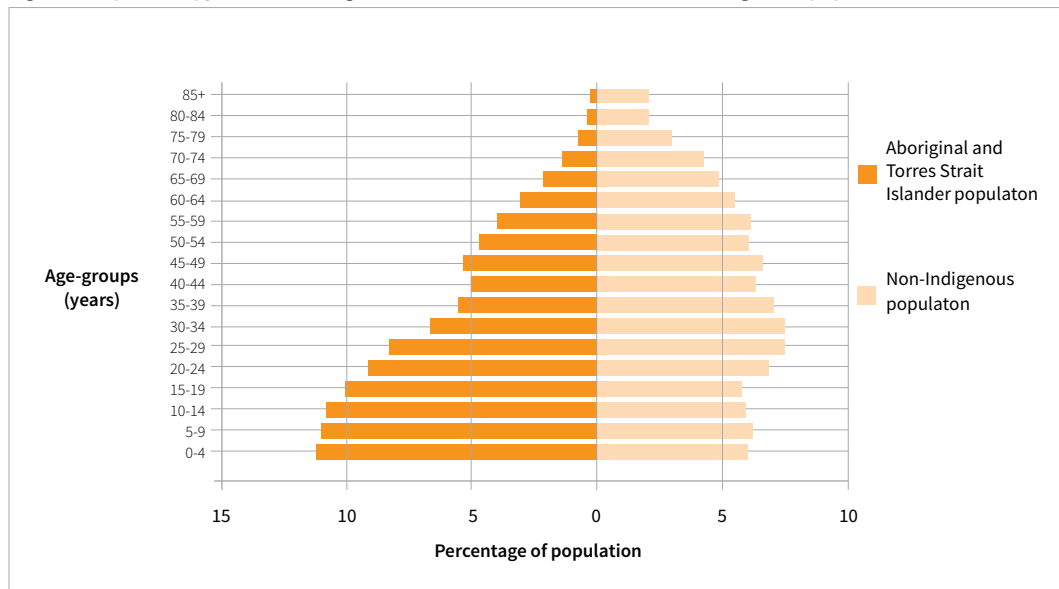
5 Population estimates are released regularly by the ABS and provide a more accurate measure of the actual size of a population. They are assessments of what would happen to the population if components of population change (births, deaths and migration) were to hold in the future) [16].

In 2016, more than one-third (37%) of Aboriginal and Torres Strait Islander people lived in major cities; 19% lived in remote or very remote areas [18]. In terms of specific geographical areas, more than one-half (59%) of all Aboriginal and Torres Strait Islander people counted in the 2016 Census lived in 10 of the 58 Indigenous regions⁶ [19]. The largest populations were in three regions in eastern Australia (Brisbane, NSW Central and North Coast, and Sydney-Wollongong), which accounted for 32% of the total Aboriginal and Torres Strait Islander population.

According to estimates from the 2016 Census, 91% of Indigenous people were identified as Aboriginal, 5% as Torres Strait Islander and 4% as of both Aboriginal and Torres Strait Islander descent [18]. Around 64% of Torres Strait Islander people lived in Qld; NSW had the second largest number of Torres Strait Islander people.

The Aboriginal and Torres Strait Islander population is much younger overall than the non-Indigenous population (Figure 1) (Derived from [16, 17]). According to ABS estimates, about one third (33%) of Aboriginal and Torres Strait Islander people were aged less than 15 years, compared with 18% of non-Indigenous people. About 4.9% of Aboriginal and Torres Strait Islander people were aged 65 years or over, compared with 16% of non-Indigenous people.

Figure 1. Population pyramid of Aboriginal and Torres Strait Islander and non-Indigenous populations, 30 June 2019



Sources: Derived from ABS, 2019 [17], ABS, 2019 [16]

Births and pregnancy outcomes

There have been some improvements in birth and pregnancy outcomes for Aboriginal and Torres Strait Islander mothers and babies in recent years, with an increase in the proportion of mothers attending antenatal care in the first trimester, a decrease in the rate of mothers smoking during pregnancy, and a slight decrease in the proportion of babies born small for gestational age [20].

In 2018, there were 21,928 births registered in Australia with one or both parents identified as Aboriginal and/or Torres Strait Islander (7% of all births registered) [21]. This probably underestimates the true number as Indigenous status is not always identified, and there may be a lag in birth registrations. See Appendix 1 for a discussion of data limitations. For births registered as Indigenous: 25% recorded both parents as Aboriginal and/or Torres Strait Islander; 45% recorded only the mother as Aboriginal and/or Torres Strait Islander (including births where paternity was not acknowledged and those where the father's Indigenous status was unknown); and in 30% of registrations only the father was recorded as Aboriginal and/or Torres Strait Islander (including births where the mother's Indigenous status was unknown) [21].

⁶ Indigenous regions are large geographical units loosely based on the former Aboriginal and Torres Strait Islander Commission boundaries.

About births and fertility

In Australia, all births are required by law to be registered with the Registrar of Births, Deaths and Marriages in the jurisdiction in which the birth occurred. The registration information is limited from a health perspective, so health authorities have established parallel maternal/perinatal collections. These collections are based on data recorded by staff attending births and include information about the nature, duration, and complications of the pregnancy, labour, and postnatal periods, and details about the baby (including weight, length, condition at birth, and complications). Information is collated and reported nationally by the ABS (for registration information) and the AIHW’s National Perinatal Statistics Unit (for maternal/perinatal information).

The actual numbers of births are of limited use for public health purposes. To be useful, the actual numbers of births must be related to the population in which they occur. There are a number of general measures of births and fertility, but detailed analysis involves the use of age-specific rates.⁷ These rates are the annual number of live births per 1,000 women in five-year age-groups from 15 to 49 years (the relatively small numbers of births to women aged less than 15 years are included in the 15-19 years age-group, similarly births to women aged over 49 are included in the 45 to 49 years age-group). The summary measure of fertility is the total fertility rate, which is the sum of age-specific fertility rates multiplied by five (since five-year age-groups are involved). It estimates the number of children that would be born to 1,000 women if each woman experienced current age-specific fertility rates at each age of her reproductive life.

Age of mothers

In 2018, for babies born to Aboriginal and Torres Strait Islander women, 59% of babies were born to those aged 20-29 years, and 11% of babies were born to teenagers (15-19 years) [21].

The median age of Aboriginal and Torres Strait Islander mothers was 26.0 years. The highest fertility rates among Aboriginal and Torres Strait Islander women were among the 20-24 and 25-29 years age-groups (Table 2). The fertility rate of teenage Aboriginal and Torres Strait Islander women was 48 babies per 1,000 women [21].

Table 2. Age-specific fertility rates, Aboriginal and Torres Strait Islander mothers, selected jurisdictions, Australia, 2018

Age-group of mother (years)	Jurisdiction						Australia
	NSW	Vic	Qld	WA	SA	NT	
Aboriginal and Torres Strait Islander mothers							
15-19	44	33	50	60	40	73	48
20-24	119	108	144	144	126	151	129
25-29	137	125	138	133	135	120	132
30-34	106	107	103	100	93	84	100
35-39	53	67	57	53	53	41	53
40-44	12	8.3	12	12	15	7.1	11

Notes:

- 1 Rates per 1,000 women in each age-group; the 15-19 years age-group includes births by girls aged 14 years or younger. Figures are not provided for the 45-49 years age-group because of the small numbers involved.
- 2 Figures are not provided for Tas and the ACT because of the small numbers involved and doubts about the level of identification of Indigenous births, but numbers for these jurisdictions are included in figures for Australia.

Source: ABS, 2019 [21]

⁷ The study of birth information is known as fertility analysis, where ‘fertility’ refers to the number of babies born alive. This meaning is different to the lay use of the word, which means the capacity to bear children.

Total fertility rates

In 2018, total fertility rates were 2,371 births per 1,000 Aboriginal and Torres Strait Islander women (Table 3) [21]. The highest total fertility rate for Aboriginal and Torres Strait Islander women was in Qld (2,527 babies per 1,000 women), followed by WA (2,507 per 1,000) and NT (2,379 per 1,000).

Table 3. Total fertility rates for Aboriginal and Torres Strait Islander mothers, selected jurisdictions, Australia, 2018

	Jurisdiction						
	NSW	Vic	Qld	WA	SA	NT	Australia
Aboriginal and Torres Strait Islander mothers	2,354	2,238	2,527	2,507	2,322	2,379	2,371

Notes:

- 1 Total fertility rate is the number of children born to 1,000 women at the current level and age pattern of fertility.
- 2 Figures are not provided for Tas and the ACT because of the small numbers involved and doubts about the level of identification of Indigenous births. Numbers for those jurisdictions are included in figures for Australia.

Source: ABS, 2019 [21]

Antenatal care

Antenatal care from health professionals helps pregnant women by monitoring their health, screening and providing information and support [22]. It can help with the early identification of potentially preventable risk factors that adversely affect maternal and child health outcomes, especially when care is provided during the first trimester of pregnancy [23, 24].

In 2017, pregnant Aboriginal and Torres Strait Islander women attended an average of nine antenatal visits [20].⁸ (The Department of Health recommends 10 visits for first-time pregnancy without complications and seven visits for subsequent uncomplicated pregnancies [25]). Of these women, 63% attended the first antenatal visit during the first trimester of pregnancy [20]. The proportion of expectant Aboriginal and Torres Strait Islander mothers attending antenatal care in the first trimester has increased from 50% in 2012 to 63% in 2017.

Birthweight

In 2017, the average birthweight of babies born to Aboriginal and Torres Strait Islander mothers was 3,202 grams [20]. Low birthweight (LBW), defined as a birthweight of less than 2,500 grams, increases the risk of health problems and death in infancy [26]. In 2017, 13% of babies born to Aboriginal and Torres Strait Islander mothers were of LBW, of which 2% combined were very LBW (less than 1,500 grams) and extremely LBW (less than 1,000 grams). The proportion of LBW babies born to Aboriginal and Torres Strait Islander mothers between 2007 and 2017 remained steady around 13% [20]. There has been a slight decrease in the proportion of babies born small for gestational age⁹ between 2013 and 2017 (14.4% to 13.7%). In 2017, LBW for babies of Aboriginal and Torres Strait Islander mothers varied little by remoteness with 12% of babies born in major cities and 14% in very remote areas [20].

Factors impacting on LBW include preterm birth, socioeconomic disadvantage, the age of the mother and antenatal care [26]. A mother's nutritional status and use of tobacco during pregnancy also impact on the birthweight of her baby.

Tobacco, in particular, has a major impact on birthweight. In 2017, 44% of Aboriginal and Torres Strait Islander mothers reported smoking during pregnancy; a decrease from 52% in 2009 [20]. In 2017, rates of smoking for Aboriginal and Torres Strait Islander women were highest in remote and very remote areas (48% and 55% respectively), and lowest in major cities (38%). The impact of tobacco smoking during pregnancy can be seen in the proportions of LBW babies [27]. For 2012-2014, excluding preterm and multiple births, 51% of LBW births to Aboriginal and Torres Strait Islander mothers were attributable to smoking during pregnancy. It has been estimated that if the smoking rate for Aboriginal and Torres Strait Islander pregnant women was the same as it was for other mothers (16%), the proportion of LBW babies could be reduced by up to 40%.

⁸ This excludes very preterm births.

⁹ Birthweight is below the 10th percentile for their gestational age and sex.

A population-based cohort study using linked data from 2010 to 2014 examined the association between not smoking in pregnancy and pregnancy outcomes among Aboriginal women in NSW [28]. It showed improved perinatal outcomes for babies including a lower risk of perinatal death, preterm birth and small for gestational age. The study concluded that the rates of adverse outcomes for babies of non-smoking Aboriginal women were similar to those among the general population.

Mortality

Mortality measures for Aboriginal and Torres Strait Islander people are a key part of the *Closing the gap* initiative led by the Council of Australian Governments (COAG) in collaboration with the National Coalition of Aboriginal and Torres Strait Islander Peak Organisations [29]. There are a number of targets set by COAG to reduce the differences in health and socioeconomic outcomes between Aboriginal and Torres Strait Islander people and non-Indigenous Australians [30]. This section of the *Overview* covers two of these measures - life expectancy and child mortality. The difference in health outcomes (health gap) between Aboriginal and Torres Strait Islander people and non-Indigenous Australians (including life expectancy and child mortality) can be attributed to a number of factors including:

- differences in the social determinants of health
- differences in health risk factors
- differences in access to appropriate health services - not covered in this report.

There were 3,518 deaths in Australia in 2018 where the deceased person was identified as Aboriginal and/or Torres Strait Islander (Table 4) [31]. See Appendix 1 for discussion of data limitations.

Table 4. Numbers and proportions (%) of Aboriginal and Torres Strait Islander deaths, Australia, 2018

Jurisdiction	Number of deaths	Proportion of deaths in jurisdiction %
NSW	960	1.8
Vic	211	0.6
Qld	963	3.1
WA	563	3.8
SA	223	1.6
Tas	66	1.5
NT	509	46
ACT	22	1.0
Australia	3,518	2.2

Source: ABS,2019 [31]

In 2018, there were 1,062 deaths for which no Indigenous status was reported, representing 0.7% of registered deaths; it is very likely that some of these deaths were among Aboriginal and Torres Strait Islander people [31]. The proportion of deaths reported with no Indigenous status has decreased over time, from 4.4% in 2001 [32].

Age-standardised death rates, median age at death, age-specific death rates and infant mortality rates (see glossary for further information) for Aboriginal and Torres Strait Islander people are only available for NSW, Qld, WA, SA and the NT as they are the jurisdictions with adequate levels of identification and sufficient numbers of deaths for mortality analysis to be undertaken [31]. The Aboriginal and Torres Strait Islander data for these measures are based on three-year averages, calculated for each calendar year and then averaged. The reported rate for 2018 is based on the three year averages for the 2016-2018 period.

Age-standardised death rates

In 2018, the age-standardised death rate for Aboriginal and Torres Strait Islander people was 9.1 per 1,000 population (Table 5). Rates for Aboriginal and Torres Strait Islander people varied by jurisdiction, with the highest rate occurring in the NT (13 per 1,000) and the lowest in NSW (6.8 per 1,000).

Table 5. Age-standardised death rates, Aboriginal and Torres Strait Islanders, NSW, Qld, WA, SA and the NT, 2018

Jurisdiction	Aboriginal and Torres Strait Islanders
NSW	6.8
Qld	9.6
WA	11
SA	9.9
NT	13
Total for the selected jurisdictions	9.1

Notes:

1 Rates are per 1,000 population.

2 Rates are based on three year averages; for Aboriginal and Torres Strait Islander data, rates are calculated for each calendar year and then averaged to reduce variability in annual rates.

Source: ABS, 2019 (Derived from [31])

The 2018 age-standardised death rate in selected jurisdictions of 9.1 per 1,000 was lower than the rate of 10 per 1,000 in 2008 [31]. For males, the 2018 rate of 10 per 1,000 was lower than the 2008 rate of 11 per 1,000; and for females, the 2018 rate of 8.1 per 1,000 was lower than the 2008 rate of 8.8 per 1,000.

Between 1998 and 2015, there was a 15% reduction in the age-standardised death rates for Aboriginal and Torres Strait Islander people in NSW, Qld, WA, SA and the NT [27]. However, as non-Indigenous death rates also declined over the same period there was no significant reduction in the gap between the two populations.

Adjusting for age-structures of populations

Comparison of Aboriginal and Torres Strait Islander and non-Indigenous mortality needs to take account of differences in the age structures of the populations using a process known as standardisation. The process is also referred to as age-adjustment or age-standardise.

Direct standardisation, the preferred method, applies detailed information about Aboriginal and Torres Strait Islander deaths, including sex and age, to a 'standard' population. Direct standardisation enables accurate comparisons of Indigenous and non-Indigenous rates, and time-series analyses.

If detailed information is not available, it is still possible to use indirect standardisation to estimate standardised mortality ratios (SMRs) [33]. The SMR is the ratio of the numbers of deaths (or of other health measures) registered/observed to the number expected. SMRs allow for the comparison of numbers of registered Indigenous deaths with the numbers expected from the corresponding age-sex-specific death rates for the total population or the non-Indigenous population.

Expectation of life

In 2018, the ABS published revised estimates for expectation of life at birth for Aboriginal and Torres Strait Islander people [32]. According to these estimates, Aboriginal and Torres Strait Islander males born in Australia in 2015-2017 could expect to live to 71.6 years, 8.6 years less than the 80.2 years expected for non-Indigenous males. The expectation of life at birth of 75.6 years for Aboriginal and Torres Strait Islander females was 7.8 years less than the expectation of 83.4 years for non-Indigenous females. Revised estimates were also published for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA and the NT (Table 6).

Table 6. Expectation of life at birth in years, by Indigenous status and sex, selected jurisdictions, Australia, 2015-2017

Jurisdiction	Aboriginal and Torres Strait Islander	Non-Indigenous	Difference
Males			
NSW	70.9	80.2	9.4
Qld	72.0	79.8	7.8
WA	66.9	80.3	13.4
NT	66.6	78.1	11.5
Australia (headline)	71.6	80.2	8.6
Australia (unadjusted)	70.0	80.2	10.3
Females			
NSW	75.9	83.5	7.6
Qld	76.4	83.2	6.7
WA	71.8	83.8	12.0
NT	69.9	82.7	12.8
Australia (headline)	75.6	83.4	7.8
Australia (unadjusted)	74.4	83.5	9.0

Notes:

- 1 These estimates are based on the average number of Aboriginal and Torres Strait Islander deaths registered in 2015-2017 adjusted for under-identification and over-identification of Indigenous status in registrations. Final Aboriginal and Torres Strait Islander population estimates are based on the 2016 Census.
- 2 Australian estimates are based on deaths in all states and territories.
- 3 Differences are based on unrounded estimates.
- 4 Headline estimates for Australia are calculated taking age-specific identification rates into account.
- 5 Unadjusted estimates are not the headline estimates for Australia, because they are calculated without an age-adjustment, but are provided to enable effective comparisons with the state and territory estimates.

Source: ABS, 2018 [32]

Life expectancy for Aboriginal and Torres Strait Islander people varied considerably by remoteness of residence [32]. Aboriginal and Torres Strait Islander males living in major cities had a life expectancy of 72.1 years in 2015-2017, compared with 65.9 years for those living in remote and very remote areas. For females, the figures were 76.5 years for major cities and 69.6 years for remote and very remote areas (Table 7).

Table 7. Expectation of life at birth in years, by Indigenous status and remoteness, Australia, 2015-2017

Remoteness	Aboriginal and Torres Strait Islander		Non-Indigenous		Difference	
	Males	Females	Males	Females	Males	Females
Major cities	72.1	76.5	80.7	83.7	8.6	7.2
Inner and outer regional	70.0	74.8	79.1	82.8	9.1	8.0
Remote and very remote	65.9	69.6	79.7	83.6	13.8	14.0

Notes:

- 1 These estimates are based on the average number of Aboriginal and Torres Strait Islander deaths registered in 2015-2017 adjusted for under-identification and over-identification of Indigenous status in registrations. Aboriginal and Torres Strait Islander population estimates are based on the 2016 Census.
- 2 Differences are based on unrounded estimates.

Source: ABS, 2018 [32]

Between 2010-2012 and 2015-2017, the life expectancy¹⁰ for Aboriginal and Torres Strait Islander people has increased (2.5 years for males and 1.9 years for females) [32]. There was also a slight narrowing in the life expectancy gap between Aboriginal and Torres Strait Islander and non-Indigenous people (2.0 years for males and 1.7 years for females) over the same period.

¹⁰ Life expectancy at birth 2010-2012 based on 2011 Census and for 2015-2017 based on the 2016 Census [32].

Age at death

In 2018, the median age at death¹¹ for Aboriginal and Torres Strait Islander people in NSW, Qld, WA, SA and the NT was 60.2 years; this was an increase from 55.8 years in 2008 [31]. Since 2008, the median age at death has increased for Aboriginal and Torres Strait Islander males (from 52.7 to 57.7 years in 2018) and females (59.2 years to 63 years in 2018) (Table 8). The median age of death varied across the selected jurisdictions with NSW having the highest median age of death for both males and females. The lowest median age of death for males was reported for the NT, and for females was in WA.

Table 8. Median age at death, Aboriginal and Torres Strait Islanders, by sex, NSW, Qld, WA, SA and the NT, 2018

Jurisdiction	Aboriginal and Torres Strait Islanders		
	Males	Females	Persons
NSW	60.5	66.5	62.7
Qld	59	65	61.6
WA	55.1	58.3	56.8
SA	55.1	62.5	58.3
NT	54.8	60.4	57.9
Total for the selected jurisdictions	57.7	63	60.2

Notes:

1 Information is not available for the other jurisdictions because of the relatively small numbers of deaths recorded.

2 Median age of death is the age below which 50% of deaths occur.

Source: ABS, 2019 [31]

Age-specific death rates

In 2018, in NSW, Qld, WA, SA, and the NT, age-specific death rates for Aboriginal and Torres Strait Islander people increased with age with the highest rate reported in the 75 years and over age-group (7,342 per 100,000 estimated resident population (ERP)), followed by the 65-74 years age-group (2,506 per 100,000) and 55-64 years age-group (1,250 per 100,000) [31]. The lowest rate of 15 per 100,000 was in the 5-14 years age-group. Compared with 2008, age-specific death rates have declined across all age-groups for Aboriginal and Torres Strait Islander people except for the 75 years and over age-group which had an increase of 0.5%. The highest decline of 31% was in the 1-4 years age-group.

Infant mortality

The infant mortality rate (IMR) is the number of deaths of children aged less than one year in a calendar year per 1,000 live births in the same calendar year. In NSW, Qld, WA, SA and the NT in 2018, the Aboriginal and Torres Strait Islander IMR was 5.8 per 1,000 live births; this was 1.9 times the rate for the non-Indigenous IMR (3.0 per 1,000) [31]. In 2018, the IMR for Aboriginal and Torres Strait Islander infants was highest in the NT (13 per 1,000) (Table 9).

¹¹ The median age at death is the age below which 50% of people die. Because the measure partly reflects the age structures of the respective populations, it is a less precise measure than age-specific death rates, which are summarised below.

Table 9. Infant mortality rates, by Indigenous status and sex, and Indigenous: non-Indigenous rate ratios, NSW, Qld, WA, SA and the NT, 2018

Jurisdiction	Indigenous			Non-Indigenous			Rate ratio		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
NSW	4.4	3.9	4.2	2.8	2.5	2.7	1.6	1.6	1.6
Qld	5.9	5.3	5.6	4.1	3.3	3.7	1.4	1.6	1.5
WA	8.6	5	6.9	2.9	1.7	2.3	3	3	3
SA	3.7	2	3.8	3.3	2.6	3	1.1	0.8	1.3
NT	11	15	13	4.5	5.5	5.1	2.5	2.7	2.5
Total for the selected jurisdictions	6.2	5.4	5.8	3.3	2.6	3	1.9	2.1	1.9

Notes:

- 1 Infant mortality rate is the number of infant deaths per 1,000 live births.
- 2 Rates are based on three year averages; for Aboriginal and Torres Strait Islander data, rates are calculated for each calendar year and then averaged to reduce variability in annual rates.
- 3 Rate ratio is the Indigenous rate divided by the non-Indigenous rate.
- 4 The Indigenous rates are likely to be underestimated, due to the incomplete identification of Indigenous status on births and deaths records.
- 5 Due to the small number of deaths registered in Vic, Tas and the ACT, these jurisdictions have been excluded.

Source: ABS, 2019 [31]

Between 1998 and 2015, the Aboriginal and Torres Strait Islander IMR has more than halved (from 13.5 to 6.3 per 1,000) [27]. The gap between Aboriginal and Torres Strait Islander and non-Indigenous IMR has narrowed significantly (by 84%).

In the five-year period 2011-2015, Aboriginal and Torres Strait Islander infants most commonly died from the International Classification of Diseases (ICD) 'Certain conditions originating in the perinatal period', including birth trauma, disorders relating to fetal growth, and complications from pregnancy, labour and delivery, and respiratory and cardiovascular disorders specific to the perinatal period [27]. This accounted for half (51%) of all Aboriginal and Torres Strait Islander infant deaths. The second major cause was ICD 'Symptoms, signs and ill-defined conditions, which included sudden infant death syndrome (SIDS), and accounted for 21% of Aboriginal and Torres Strait Islander infant deaths.

Causes of death

Ischaemic heart disease (IHD) was the leading cause of death of Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT in 2018 [29]. IHD accounted for 390 deaths, representing 12% of all deaths for Aboriginal and Torres Strait Islander people (total 3,218 for selected jurisdictions). The other leading specific causes of death were diabetes: 232 deaths (7.2%); chronic lower respiratory diseases: 225 deaths (7%) and cancer of trachea, bronchus and lung: 204 deaths (6.3%).

In 2018, the leading cause of death for both Aboriginal and Torres Strait Islander males and females living in NSW, Qld, WA, SA and the NT was IHD [29]. The next leading causes of death for males were intentional self-harm and diabetes; for females, chronic lower respiratory diseases and diabetes.

Five-year aggregated death rates (leading causes of deaths) for the periods 2009-2013 and 2014-2018 for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT show that deaths from IHD decreased by 11%. (Table 10). Diabetes also decreased between these periods (7%). The highest increase was for chronic lower respiratory diseases (24%) [29].

Table 10. Top five leading causes of death, Aboriginal and Torres Strait Islander people, NSW, Qld, WA, SA and NT, 2009-2013 – 2014-2018

Cause of death	Rates	Rates	Percentage (%) change
	2009-2013	2014-2018	
Ischaemic heart disease	133	118	11↓
Diabetes	83	77	7.0 ↓
Chronic lower respiratory diseases	60	75	24 ↑
Cancer traches, bronchus and lungs	54	56	4.4 ↑
Intentional self-harm	20	24	15 ↑

Notes:

1 Rates are deaths per 100,000.

Source: ABS, 2019 [29]

Maternal mortality

Maternal deaths refer to deaths of women during pregnancy or up to 42 days after delivery [34]. Direct maternal deaths refer to those resulting from obstetric complications (including in pregnancy, labour, and in the first few weeks after delivery) from interventions, omissions, and incorrect treatment. Indirect maternal deaths refer to those resulting from a previously existing disease, or a disease that developed during pregnancy, that were not a direct result of obstetrics but aggravated by pregnancy.

Maternal mortality ratios (MMRs) are calculated by dividing the number of maternal deaths (direct and indirect) by the number of women who gave birth to babies weighing at least 400 grams or who reached at least 20 weeks gestation; this result is then multiplied by 100,000 [34].

In Australia between 2012-2017, 14 of the 113 maternal deaths reported were of Aboriginal and Torres Strait Islander women (Indigenous status was not reported in 11 of the deaths) [34]. Of these 14 Aboriginal and Torres Strait Islander maternal deaths, seven were direct and seven were indirect. The MMR for Aboriginal and Torres Strait Islander women was 27 deaths per 100,000 women who gave birth.

Between 2000-2014, the leading causes of Aboriginal and Torres Strait Islander women MMRs were cardiovascular conditions (MMR of 3.9 per 100,000), suicide (3.2 per 100,000), hypertensive disorders and sepsis (both 2.6 per 100,000) [35].

Avoidable mortality

Avoidable mortality refers to deaths that could have been prevented with timely and effective health care, including early detection and effective treatment, as well as appropriate modifications of lifestyle behaviours (such as quitting smoking) [27].

In the five-year period 2011-2015, there were 6,427 deaths from avoidable causes among Aboriginal and Torres Strait Islander people aged 0-74 years living in NSW, Qld, WA, SA and the NT [27]. Age-adjusted rates for avoidable deaths were highest in the NT (629 per 100,000) and lowest in NSW (244 per 100,000).

In 2011-2015, the most common conditions contributing to avoidable deaths among Aboriginal and Torres Strait Islander people aged 0-74 years living in NSW, Qld, WA, SA and the NT were coronary heart disease (22%), diabetes (12%), suicide (11%), and chronic obstructive pulmonary disease (COPD) (7.3%) [27].

Between 1998 and 2015, there was a 32% decline in the death rate from avoidable causes for Aboriginal and Torres Strait Islander people aged 0-74 years living in NSW, Qld, WA, SA and the NT [27].

Hospitalisation

Statistics on hospitalisation provide some indication of the burden of disease in the population [36]. They are, however, a poor reflection of the extent and patterns of treatable illness in the community because they only represent illness serious enough for hospitalisation [37], and are influenced to some extent by the geographic accessibility of hospitals and variations in admission policies and practices [30, 36, 38]. As is the case with other major health-related data collections (such as births and deaths), the identification of Indigenous status in hospital data collections is incomplete (See Appendix 1).

Another limitation of the available hospital statistics as an indicator of the health of the population, is that they relate to episodes of hospitalisation rather than to individual patients [30, 38]. Also, it is difficult to analyse patterns of care for patients hospitalised multiple times (for example for kidney dialysis) from the current national hospitalisation data [30].

Hospitalisation rates will be affected by advancements in the health system, improvements in self-identification by Aboriginal and Torres Strait Islander people, and reforms that tackle the social determinants of health [27].

Separation rates

Of the more than 11 million hospital separations in Australia¹² during 2017-18, there were 551,200 (4.9%) identified as Aboriginal and Torres Strait Islander (Table 11) [39]. Around 92% of these hospital separations were for Aboriginal people, 4.0% were for Torres Strait Islander people, and 4.0% were for people who identified as being of both Aboriginal and Torres Strait Islander descent. Of the 551,200 separations; 57% were for females and 43% for males.

In 2017-18, the overall age-standardised separation rate of 1,071 separations per 1,000 population (Table 11) for Aboriginal and Torres Strait Islander people was 2.6 times that for non-Indigenous people (407 per 1,000 population) [39]. The vast majority (80%) of the difference in hospitalisation rates between these two populations is due to the markedly higher separation rates for dialysis among Aboriginal and Torres Strait Islander people. The highest age-standardised separation rate was for Aboriginal and Torres Strait Islander people living in the NT (2,241 per 1,000) and the lowest in NSW (639 per 1,000).

Table 11. Numbers of hospital separations and age-standardised separation rates Aboriginal and Torres Strait Islanders and jurisdictions, 2017-18

Jurisdiction	Number	Rate
NSW	106,483	639
Vic	29,673	778
Qld	141,633	974
WA	116,509	1,820
SA	28,624	1,001
NT	116,834	2,241
Australia	551,200	1,071

Notes:

1 Rates per 1,000 population.

2 Numbers and rates for the NT are for public hospitals only; separate numbers and rates are not included separately for public hospitals in Tas or the ACT but included in totals where applicable.

Source: AIHW, 2019 [39]

¹² All hospitalisation data for Tas, ACT and the NT includes only public hospitals [39].

Age-specific separation rates

In 2013-15, after age-adjustment, hospital separation rates (excluding dialysis) for Aboriginal and Torres Strait Islander people increased with age (except for 5-14 year-olds), with the highest rate in the 65 years and over age-group (Table 12) [27]. For Aboriginal and Torres Strait Islander females the rates, compared with males, were higher across all age-groups from 15 to 64 years of age.

Table 12. Age-specific hospital separation rates (excluding dialysis), by sex, Aboriginal and Torres Strait Islanders, 2013-15

Age-group (years)	Males	Females	Persons
0-4	343	269	307
5-14	105	95	100
15-24	140	356	245
25-34	222	486	354
35-44	357	460	410
45-54	478	492	485
55-64	578	599	589
65+	852	832	841
All ages	379	457	417

Note: Rates per 1,000 population.

Source: Australian Health Ministers' Advisory Council, 2017 [27]

COAG has set targets to improve wellbeing and reduce disadvantage among Aboriginal and Torres Strait Islander people; one strategic area for action is early childhood development, which uses early childhood hospitalisations as an indicator [8]. In 2014-15, Aboriginal and Torres Strait Islander children aged 0-4 years were hospitalised at a rate of 310 per 1,000. Hospitalisation rates for Aboriginal and Torres Strait children 0-4 years were similar in major cities and regional areas (271 and 276 per 1,000 respectively) but were almost twice as high in remote areas (468 per 1,000).

Causes of hospitalisation

In 2017-18, the most common reason for the hospitalisation of Aboriginal and Torres Strait Islander people in Australia was for ICD 'Factors influencing health status and contact with health services' (mostly for care involving dialysis), being responsible for 49% of Aboriginal and Torres Strait Islander separations (272,492 separations) [39]. Many of these separations involved repeat admissions for the same people. ICD 'Injury, poisoning and certain other consequences of external causes' (including motor vehicle accidents, assaults, self-inflicted harm and falls) was the next most common cause of hospitalisation for Aboriginal and Torres Strait Islander people, responsible for 36,185 separations (6.6% of all separations). After ICD 'Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified', the next leading cause of hospitalisation for Aboriginal and Torres Strait Islander people was 'Diseases of the respiratory system' responsible for 29,042 separations (5.3% of all separations) (Table 13).

Table 13. Numbers, proportions (%), and age-standardised hospitalisation rates for leading causes of hospital separations among Aboriginal and Torres Strait Islander people, Australia, 2017-18

Principal diagnosis (ICD)	Number of separations	Proportion of separations (%)	Age-standardised separation rate
Injury, poisoning and certain other consequences of external causes	36,185	6.6	55
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	29,508	5.4	52
Diseases of the respiratory system	29,042	5.3	47
Pregnancy, childbirth and the puerperium	27,941	5.1	33
Diseases of the digestive system	26,071	4.7	44
Mental and behavioural disorders	21,940	4.0	34
Diseases of the circulatory system	14,945	2.7	34
Diseases of the genitourinary system	14,210	2.6	25
Diseases of the musculoskeletal system and connective tissue	12,428	2.3	24
Diseases of the skin and subcutaneous tissue	11,283	2.0	17
Certain infectious and parasitic diseases	9,825	1.8	15
Endocrine, nutritional and metabolic diseases	9,632	1.7	18
Neoplasms	8,447	1.5	19
Diseases of the nervous system	7,864	1.4	13
Factors influencing health status and contact with health services	272,492	49	609
All causes	551,200	100	1,071

Notes:

1 Hospitalisation data for the Tas, ACT and the NT include only public hospitals.

2 Some principal diagnoses have been excluded.

Source: AIHW, 2019 [39]

Potentially preventable hospitalisations

Potentially preventable hospitalisations are admissions which ‘could have potentially been prevented through the provision of appropriate individualised preventative health interventions and early disease management usually delivered in primary care and community-based care settings’ [40]. Rates for potentially preventable hospitalisations, including those for chronic conditions and vaccine-preventable conditions, may be used as an indirect measure of problems with access to care and effective primary care [39].

In 2017-18, the age-standardised rate of overall potentially preventable hospitalisations for Aboriginal and Torres Strait Islander people was 80 per 1,000 [39]. The highest rates for potentially preventable hospitalisations of Aboriginal and Torres Strait Islander people were for chronic conditions (38 per 1,000 (including 7.2 per 1,000 for diabetes)) and acute conditions (32 per 1,000). The rate for vaccine-preventable conditions was 13 per 1,000.

In 2014-15, the national rate of hospitalisations of Aboriginal and Torres Strait Islander children aged 0-4 years for potentially preventable diseases and injuries was 161 per 1,000 [8]. The rate of hospitalisations of Aboriginal and Torres Strait Islander children was 2.5 times as high in remote areas (306 per 1,000) as it was in major cities (124 per 1,000).

Selected health conditions

Cardiovascular health

Cardiovascular disease (CVD) is the term for all diseases and conditions that affect the heart and blood vessels [41]. Specific types of CVD include IHD, cerebrovascular disease (including stroke), hypertension (high blood pressure), and rheumatic heart disease (RHD) [42]. CVD presents a significant burden for Aboriginal and Torres Strait Islander people in terms of prevalence, hospitalisation and mortality [43].

Most types of CVD (excluding RHD) are subject to the same set of modifiable or non-modifiable risk factors [44]. Modifiable behavioural factors for CVD include tobacco use, physical inactivity, poor dietary behaviour and excessive alcohol consumption [44, 45]. Modifiable biomedical factors include hypertension, high blood cholesterol, overweight and obesity. Certain related health conditions, particularly diabetes and chronic kidney disease, can also increase the risk of developing CVD [45]. Non-modifiable risk factors that can influence the risk of CVD include, age, sex, family history of CVD and ethnicity [44]. Researchers are currently considering additional risk factors for CVD for Aboriginal and Torres Strait Islander people, including sleep quality and the presence of particular types of blood fats (lipids) [46].

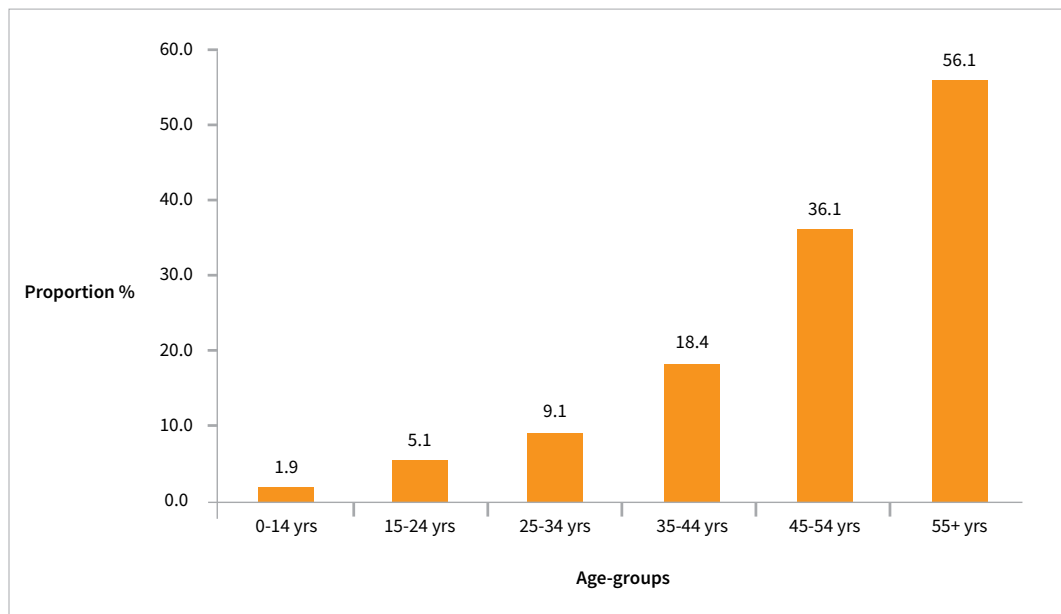
Unlike other types of CVD, RHD occurs when acute rheumatic fever (ARF), an illness that affects the heart, joints, brain and skin, leads to permanent damage to the heart valves [47, 48]. ARF, which is rare among non-Indigenous Australians, is caused by an untreated bacterial (group A streptococci or GAS) infection of the throat, and possibly of the skin. Reducing ARF and RHD in Aboriginal and Torres Strait Islander communities requires initiatives that address poverty, overcrowded housing and poor sanitation, all of which contribute to the spread of GAS infection [47-49].

Extent of cardiovascular disease among Aboriginal and Torres Strait Islander people

Prevalence of cardiovascular disease

Around 15% of participants in the 2018-19 NATSIHS reported having CVD¹³ [50]. CVD was reported more frequently by females (17%) than by males (14%). The prevalence of CVD increased with age, from 1.9% among those aged 0-14 years to 56% among those aged 55 years and over (Figure 2).

Figure 2. Proportion (%) of Aboriginal and Torres Strait Islander people with self-reported CVD, by age-group (years), Australia, 2018-19



Note: Proportions expressed as percentages.

Source: ABS, 2019 [50]

¹³ CVD includes any of the conditions defined by ICD-10 codes I00-I99.

‘Heart, stroke and vascular disease’¹⁴ was self-reported as a long-term condition by 5.2% of 2018-19 NATSIHS participants (5.3% of Aboriginal people and 3.0% of Torres Strait Islander people) [50]. The prevalence of ‘heart, stroke and vascular disease’ was slightly higher among males (5.5%) than females (4.9%). Prevalence increased with age, from 0.3% among those aged 0-14 years to 26% among those aged 55 years and over. Prevalence was slightly higher in non-remote areas (5.4%) than remote areas (4.9%). Of Australia’s states and territories, Tas and the ACT had the highest prevalence of self-reported ‘heart, stroke and vascular disease’ (6.7% and 6.5% respectively), while NSW and Vic had the lowest (both 5.0%).

Hypertension¹⁵ was self-reported by 8.3% of NATSIHS participants (8.3% of Aboriginal people and 6.6% of Torres Strait Islander people) [50]. The prevalence of hypertension was similar for males and females (8.4% and 8.2% respectively). Prevalence increased with age, from none among those aged 0-14 years to 38% among those aged 55 years and over. Prevalence was higher in remote areas (10%) than non-remote areas (7.9%). Of Australia’s states and territories, Tas and the NT had the highest prevalence of self-reported hypertension (9.4% and 8.8% respectively), while Vic had the lowest (5.5%).

As well as being asked to report whether they had hypertension, participants in the 2018-19 NATSIHS aged 18 years and over were invited to voluntarily provide a blood pressure reading at the time of the interview. Nearly one quarter (23%) of adult participants in the NATSIHS, when measured¹⁶, had high blood pressure¹⁷ [50]. Twenty-three per cent (23%) of Aboriginal adults and 26% of Torres Strait Islander adults had measured high blood pressure. Prevalence was higher among males than females (25% versus 21%). For males, prevalence was highest in the 45-54 years age-group and for females it was highest at ages 55 years and over (Table 14). Prevalence of measured high blood pressure was 22% in remote areas and 23% in non-remote areas across jurisdictions combined. Prevalence was highest in SA (30%) and lowest in Vic (18%).

Table 14: Proportion (%) of Aboriginal and Torres Strait Islander people with measured high blood pressure, by age-group and sex, persons aged 18 years and over, 2018–19

Age-group (years)	Males	Females	Persons
18–24	9.5	7.3	8.8
25–34	19	12	16
35–44	24	22	23
45–54	40	32	36
55 years and over	39	35	37
Total 18 years and over	25	21	23

Note: Proportion expressed as percentages.

Source: ABS, 2019 [50]

High cholesterol was reported by 4.5% of NATSIHS participants, with the prevalence being identical for males and females [50]. The prevalence of high cholesterol increased with age, from none among those aged 0-14 years to 23% among those aged 55 years and over.

The crude prevalence of self-reported stroke among Aboriginal and Torres Strait Islander people aged 40 years and over who participated in the 2016 National Eye Health Survey (NEHS)¹⁸ was 8.8% [51].

14 A group of long-term health conditions which includes: IHD (including heart attack and angina), cerebrovascular disease (including stroke), heart failure, oedema (fluid retention), and diseases of arteries, arterioles and capillaries.

15 Self-reported hypertension only; excludes clinically measured high blood pressure results.

16 Forty percent of adult participants in the NATSIHS did not have a blood pressure reading taken; for these participants, imputation was used to obtain blood pressure.

17 Measured high blood pressure is defined as a blood pressure reading of $\geq 140/90$ mmHg. Measured high blood pressure does not necessarily mean a person has hypertension.

18 The NEHS was a cross-sectional population-based study that included a representative sample of Aboriginal and Torres Strait Islander people aged 40 years and older (n = 1,738 Indigenous people).

Prevalence of RHD and incidence of ARF

In Qld, WA, SA and the NT, ARF and/or RHD are notifiable diseases and federally-funded clinical registers are in operation. The information in the ARF/RHD section of this *Overview* comes from a national collation¹⁹ of data from these four registers [52].

In 2013-2017, in Qld, WA, SA and the NT combined, there were 1,776 diagnoses for ARF among Aboriginal and Torres Strait Islander people, a total crude rate of 85 per 100,000 [52]. The rate for Aboriginal and Torres Strait Islander females (1,006 diagnoses, 96 per 100,000) was higher than for males (770 diagnoses, 74 per 100,000), however for children ARF rates were higher in males (see Table 15). Rates were highest for the age-group 5-14 years (602 diagnoses, 195 per 100,000). Over half (53%, 954 diagnoses) of all ARF diagnoses were from the NT. The health services regions with the highest rate of ARF management were rural Darwin (249 diagnoses, 387 per 100,000) and East Arnhem (212 diagnoses, 366 per 100,000). The Kimberley in WA also had high rates of management (180 diagnoses, 200 per 100,000). The rate of ARF has generally increased over time in each jurisdiction, apart from in WA where there was no clear pattern. In 2017, for the NT, there were 268 diagnoses, more than twice the number in 2013 (127) and in Qld, the number of diagnoses almost tripled from 43 to 124 in the same period.

Table 15. Acute rheumatic fever diagnoses, number and crude rates per 100,000, among Aboriginal and Torres Strait Islanders by sex and age-group, 2013-2017

Age-group (years)	Male number	Male rate	Female number	Female rate	Total number	Total rate
0-4	32	26	30	25	62	25
5-14	478	203	424	186	902	195
15-24	151	71	274	134	425	102
25-44	104	38	256	91	360	65
45+	5	2.6	22	10	27	6.7
Total	770	74	1,006	96	1,776	85

Note:

1 ARF diagnoses include all episode types and confirmation statuses.

Source: AIHW, 2019 [52]

For 2013-2017, in Qld, WA, SA and the NT combined, there were 1,043 new RHD diagnoses among Aboriginal and Torres Strait Islander people, a crude rate of 50 per 100,000 [52]. The rate for females was about twice the rate for males generally and females had higher rates compared with males in all age-groups apart from those aged 0-4 years. Nearly 60% of new RHD cases were for those aged less than 25 years old at diagnosis. For 2013-2017, the NT had the highest rate and greatest number of new RHD diagnoses (432 diagnoses, 118 per 100,000). Among health services regions, East Arnhem had the highest rate of management of new RHD cases (104 diagnoses, 179 per 100,000) followed by northwest Qld (64 diagnoses, 145 per 100,000). As at 31 December 2017, for Aboriginal and Torres Strait Islander people, there were 3,687 living RHD cases in Qld, WA, SA and the NT combined, with the NT having the highest number (1,844 cases).

A 2008-2010 population-based survey that aimed to compare regional differences in the prevalence of RHD detected by echocardiographic screening in high-risk Aboriginal and Torres Strait Islander children (n=3,946) was conducted in four regions of northern and central Australia [53]. It found that the crude rate of definite RHD among Aboriginal and Torres Strait Islander children aged 5-15 years differed between regions, from 4.7 per 1,000 in Far North Qld to 15 per 1,000 in the Top End of the NT. The study uncovered a substantial level of previously undetected disease.

¹⁹ Caution should be used when comparing jurisdictional ARF/RHD data, as each register has been in operation for a different length of time, and each state and territory has different disease notification and data collection practices.

Hospitalisation

There were 14,945 hospital separations for CVD²⁰ among Aboriginal and Torres Strait Islander people in 2017-18 [39], representing 5.4% of all Aboriginal and Torres Strait Islander hospital separations (excluding dialysis) (Derived from [39]). In 2014-15, the crude hospitalisation rate for CVD for Aboriginal and Torres Strait Islander people was 17 per 1,000 (18 per 1,000 for males and 16 per 1,000 for females) [8].

In 2013-15, age-specific hospitalisation rates for CVD rose with age, from 1.4 per 1,000 for those aged 0-4 years to 107 per 1,000 for those aged over 65 years. Although rates were highest for those aged over 65 years, CVD is recognised as having a substantial impact on younger Aboriginal and Torres Strait Islander people, with the age-specific rate for those aged 35-44 years being 21 per 1,000 in 2013-15 [54]. Hospitalisation rates for CVD also increased with remoteness; in 2014-15, crude rates ranged from 12 per 1,000 in major cities to 27 per 1,000 in remote and very remote areas [8].

Rates of hospitalisation for heart-related conditions for Aboriginal and Torres Strait Islander people vary between regions. In 2012-2016, age-standardised rates of hospitalisation for heart attack, angina and heart failure combined²¹ were highest in the SA4 region²² of 'Perth – North East' (WA) (20 per 1,000) and 'Darwin' (NT) (18 per 1,000), and lowest in 'Sydney – Outer West and Blue Mountains' (NSW) (5.4 per 1,000) and 'Central Coast' (NSW) (6.6 per 1,000) [55].

In 2013-15, of specific CVDs, IHD was responsible for the highest number of hospitalisations of Aboriginal and Torres Strait Islander people (39% of CVD hospitalisations), followed by pulmonary and other forms of heart disease (33%), cerebrovascular disease (7.7%), ARF and RHD (4.4%), and hypertension (2.9%)²³ [54].

Mortality

Of all specific causes of death, IHD was the leading cause of Aboriginal and Torres Strait Islander deaths in NSW, Qld, WA, SA and the NT combined in 2018 (390 deaths) [29]. The age-standardised death rate due to IHD was 117 per 100,000. The age-standardised IHD death rate for males (157 per 100,000) was much higher than the rate for females (84 per 100,000). Age-standardised IHD death rates in 2014-2018 were highest in the NT (179 per 100,000) and lowest in NSW (87 per 100,000).

Age-specific IHD death rates in 2014-2018 increased with age, with rates being highest for those aged 75 years and over (865 per 100,000) [29]. Although rates were highest among older people, IHD is recognised as having a substantial impact on younger Aboriginal and Torres Strait Islander adults; in 2014-2018, IHD was the leading cause of death for those aged 35-44 years (age-specific rate of 49 per 100,000 deaths) and the fourth-leading cause of death for those aged 25-34 years (age-specific rate of 12 per 100,000 deaths).

In 2018, cerebrovascular disease was the eighth-leading specific cause of deaths of Aboriginal and Torres Strait Islander people in NSW, Qld, WA, SA and the NT combined (105 deaths) [29]. The age-standardised death rate due to cerebrovascular disease was 44 per 100,000. Age-standardised death rates for cerebrovascular disease for males and females were similar (43 per 100,000 and 45 per 100,000 respectively). Age-standardised cerebrovascular death rates for Aboriginal and Torres Strait Islander people in 2014-2018 were highest in WA (59 per 100,000) and lowest in NSW (32 per 100,000).

In 2015-2017, in NSW, Qld, WA, SA and the NT combined, there were 1,614 deaths of Aboriginal and Torres Strait Islander people caused by cardiac conditions²⁴ [56]. The crude rate of cardiac deaths was 82 per 100,000. Between 1998 and 2017, there was a 49% decrease in the age-standardised cardiac mortality rate for Aboriginal and Torres Strait Islander people, from 305 to 156 per 100,000 people.

²⁰ ICD-10 codes I00-I99

²¹ Hospitalisations for the combined diagnostic groups ST-Elevation Myocardial Infarction (STEMI), Non-ST-elevation myocardial infarction (NSTEMI), Unstable Angina and Heart Failure.

²² 'SA4 Regions' are statistical regions based on the Australian Statistical Geography Standard (ASGS) according to Statistical Area Level 4. Note that data was not available for some regions for this indicator, including all Tasmanian and most Victorian regions.

²³ 'Other diseases of the circulatory system' accounted for the remainder of CVD hospitalisations (around 12%).

²⁴ 'Cardiac conditions' are here defined as those relating to ICD-10 codes I00 to I52 (includes ARF, chronic RHDs, hypertensive diseases, ischaemic heart diseases, pulmonary heart disease, diseases of pulmonary circulation, and other forms of heart disease; does not include cerebrovascular disease).

In 2011-2015, about one quarter (24%) of all deaths of Aboriginal and Torres Strait Islander people in NSW, Qld, WA, SA and the NT combined were caused by CVD [54]. The age-standardised death rate due to CVD for Aboriginal and Torres Strait Islander people was 271 per 100,000. Of specific CVD types, IHD caused the greatest number of deaths (55% of CVD deaths), followed by cerebrovascular disease (17%), other heart disease²⁵ (17%), hypertensive diseases (4.6%), RHD (3.4%), and other diseases of the circulatory system²⁶ (3.3%).

Cancer

Cancer is the term used for a number of related diseases that cause damage to healthy body cells causing them to grow abnormally [57]. Cancer is a genetic disease, arising from changes to the genes (DNA) that control the way cells behave. In all cancers, some of the cells of the body divide in an uncontrolled manner (cells normally grow and divide as the body needs them).

Cancer can start almost anywhere in the body [57] and there are more than 200 types of cancer [58]. The location in the body where the cancer cells begin forming is known as the primary site, and cancer is usually classified by this, for example lung cancer. When cancer cells travel and spread to other parts of the body it is described as metastasis.

Some data sources use term 'neoplasm' to describe conditions associated with abnormal growth of new tissue, commonly referred to as a tumour. Neoplasms can be benign (not cancerous) or malignant (cancerous) [1].

There is limited evidence or data available on cancer to inform initiatives to improve outcomes for Aboriginal and Torres Strait Islander people diagnosed with cancer [59]. Inconsistent Indigenous identification in cancer notifications in several jurisdictions has been a problem [60], however nationally there is indication that accuracy in Indigenous identification is improving [1]. It is also worth noting that as at 30 June 2016, 88% of Aboriginal and Torres Strait Islander Australians were reported to be living in NSW, Qld, WA, SA and the NT [18] and (in most data collections referred to in this section) the data from these jurisdictions are considered sufficient quality for reporting [1].

The National Aboriginal and Torres Strait Islander Cancer Framework highlights the need for improved Indigenous identification, including on pathology requests and reports [59]. It also expresses a need for routine national data collection, access and linkage to allow national monitoring and reporting, and inform strategies to improve cancer care and outcomes.

Extent of cancer among Aboriginal and Torres Strait Islander people

Incidence and prevalence

The 2018-19 NATSIHS reported a steady increase in the proportion of Aboriginal and Torres Strait Islander people with cancer over the past 18 years, with the percentage of persons rising from 0.7% in 2001 to 1.1% in 2018-19 [50]. The proportion of males with cancer in 2017-18 and 2018-19 was slightly higher than that of females, with non-age standardised percentages of 1.2% and 1.1% respectively. When comparing across jurisdictions, the highest proportion of cancer for 2018-19 was reported in WA with 1.3%, and when comparing by remoteness, non-remote areas had a higher proportion of cancer (1.3%) than remote areas (0.7%).

For 2010-2014, there were 8,481 new cases of cancer diagnosed in Aboriginal and Torres Strait Islander people living in NSW, Vic, Qld, WA and the NT (an average of 1,696 new cases per year) (Table 16) [1]. The figures were similar across both sexes, with 4,262 new cases of cancer in males and 4,219 new cases in females.

Incidence figures for the most common cancers in the 2010-2014 period include: lung cancer, 1,211 new cases; colorectal cancer, 840 new cases; head and neck cancers, 536 new cases; melanoma of the skin, 329 new cases; liver cancer, 263 new cases; non-Hodgkin lymphoma, 259 new cases; cancer of unknown primary site, 252 new cases; pancreatic cancer, 243 new cases; kidney cancer, 175 new cases; and bladder cancer, 139 new cases [1]. There are data available for some gender-specific cancers including: breast cancer, 984 new

²⁵ ICD-10 codes I26-I52

²⁶ ICD-10 codes I70-I99

cases in females; prostate cancer, 771 new cases in males; uterine cancer, 259 new cases in females; cervical cancer 177 new cases in females.

Table 16. Incidence of all cancers combined and selected cancers for Aboriginal and Torres Strait Islander people, by sex, NSW, Vic, Qld, WA and the NT, 2010-2014

Primary site	Males		Female		Persons	
	Number of new cases	Average number of new cases (per year)	Number of new cases	Average number of new cases (per year)	Number of new cases	Average number of new cases (per year)
Lung	640	128	571	114	1,211	242
Breast	n/a	n/a	984	197	n/a	n/a
Colorectal (bowel)	451	90	389	78	840	168
Prostate	771	154	n/a	n/a	n/a	n/a
Head and neck	402	80	134	27	536	107
Melanoma (skin)	190	38	139	28	329	66
Liver	190	38	73	15	263	53
Non-Hodgkin lymphoma	148	30	111	22	259	52
Uterine	n/a	n/a	259	52	n/a	n/a
Unknown primary site	130	26	122	24	252	50
Pancreatic cancer	119	24	124	25	243	49
Cervical	n/a	n/a	177	35	n/a	n/a
Kidney	100	20	75	15	175	35
Bladder	95	19	44	9	139	28
All cancers	4,262	852	4,219	844	8,481	1,696

Notes:

- 1 Number of cases for cancers of the breast, uterus and cervix are for females only, and prostate cancer is for males only.
- 2 This table lists the 14 most common cancer types for Aboriginal and Torres Strait Islander population group. Totals indicated for 'All cancers' include cases of cancer which are not included among the types listed above.
- 3 n/a – non-applicable.

Source: AIHW, 2019 [1]

Age-adjusted incidence rates for Aboriginal and Torres Strait Islander people are available for some cancer types through monitoring mechanisms for some national screening programs. Information about the incidence of bowel cancer amongst Indigenous people in NSW, Vic, Qld, WA and the NT was presented in the *National Bowel Cancer Screening Program monitoring report 2019* [61]. For the period 2010-2014, the age-standardised rate of bowel cancer for Aboriginal and Torres Strait Islander people, aged 50-74 years, was 162 per 100,000.

Incidence data for cervical cancer in the period 2010-2014 was presented in the *National Cervical Screening Program monitoring report 2019* [62]. The crude incidence rate for cervical cancer among Aboriginal and Torres Strait Islander females, aged 25-74 years, living in NSW, Vic, Qld, WA and the NT was 24 per 100,000.

In *BreastScreen Australia's monitoring report 2018* [63], detailed information was provided about the incidence of breast cancer across several jurisdictions: NSW, Vic, Qld, WA and the NT. The age-adjusted incidence rate for Aboriginal and Torres Strait Islander females, aged 50-74 years, for the period 2009-2013, was 251 per 100,000. This was 12% lower than for non-Indigenous females of the same age-group in the same jurisdictions (285 per 100,000).

Survival

Information on survival from cancer for Aboriginal and Torres Strait Islander people is based on crude survival rates (observed survival) and is provided for states and territories where the data are considered of sufficient completeness for reporting [64]. Survival rates indicate that of the Aboriginal and Torres Strait Islander people living in NSW, Vic, Qld, WA, and the NT who were diagnosed with cancer between 2007

and 2014, 50% had a chance of surviving five years after diagnosis. The five year relative survival rates for Aboriginal and Torres Strait Islander males was lower than for females (46% and 54% respectively). The five-year survival for all cancers combined was highest for Aboriginal and Torres Strait Islander people aged 0-14 years and decreased with age (Table 17).

Table 17. Five year relative survival for all cancers combined for Aboriginal and Torres Strait Islander people, by age, NSW, Vic, Qld, WA and the NT, 2007-2014

Age-group (years)	Aboriginal and Torres Strait Islander relative survival (%)
0-14	82
15-24	78
25-44	66
45-64	50
65+	40

Source: AIHW, 2018 [64]

Further information on cancer survival in Australia is provided for the period 2010-2014 [1]. In this period, the five year observed survival for all cancers combined for Aboriginal and Torres Strait Islander people in NSW, Vic, Qld, WA and the NT was 48%.

Additional survival data was available for some selected cancer types, breast cancer (in females) had the highest observed survival (77%) while lung cancer had the lowest (9.9%). Five year observed survival for other selected cancers include: prostate cancer (in males) 75%; melanoma of the skin, 74%; uterine cancer (in females), 70%; kidney cancer, 63%; non-Hodgkin lymphoma, 63%; colorectal cancer, 55%; cervical cancer (in females), 54%; head and neck cancers, 41%; bladder cancer, 38% and cancer of unknown primary site, 7.9%.

Hospitalisation

In 2017-18, there were 8,447 hospital separations for neoplasms (including all types of cancer), representing 3.0% of all separations (excluding dialysis) among Aboriginal and Torres Strait Islander people (Derived from [39]). After age-adjustment, Aboriginal and Torres Strait Islander people were hospitalised for neoplasms at a rate of 19 per 1,000.

For some specific cancers, hospitalisation data are available for 2014-15. In this period, the crude hospitalisation rates for Aboriginal and Torres Strait Islander people with lung cancer was 0.6 per 1,000 [8]. The rate for hospitalisations due to cervical cancer for Aboriginal and Torres Strait Islander females was 0.1 per 1,000.

Mortality

Over the past decade, there has been sufficient data collected with Indigenous identification from NSW, Qld, WA, SA and the NT to support mortality analysis for the Aboriginal and Torres Strait Islander population [65]. For the period 2013-2017, the age-standardised mortality rate due to cancer of any type was 238 per 100,000. This rate has increased by 5% when compared with the period 2010-2014 where the rate was 227 per 100,000 [65].

Numbers of deaths relating to cancer among Aboriginal and Torres Strait Islander people are available for the period 2012-2016 [1]. The combined total number of deaths for all cancers was 2,917, comprising 1,518 males and 1,399 females. Table 18 shows numbers of deaths for males and females for selected cancers.

Table 18. Number of deaths for Aboriginal and Torres Strait Islander people by sex, for selected cancers, NSW, Qld, WA, SA and the NT, 2012-2016

Cancer site/type	Number of deaths - Males	Number of deaths - Females	Total number of deaths
Lung	417	363	780
Breast	3	176	n/a
Colorectal	112	101	213
Prostate	81	n/a	n/a
Head and neck	155	49	204
Melanoma (skin)	16	8	24
Liver	119	83	202
Non-Hodgkin lymphoma	32	20	52
Uterine	n/a	34	n/a
Unknown primary site	98	97	195
Cervical	n/a	61	n/a
Kidney	26	14	40
Bladder	32	15	47
Pancreatic	81	77	158
All cancers combined	1,518	1,399	2,917

Notes:

- 1 Numbers of cases for cancers of uterus and cervix are for females only, and prostate cancer is for males only.
- 2 This table includes number of deaths for the 14 most common cancer types for Aboriginal and Torres Strait Islander population group. Total number of deaths indicated for 'All cancers' include deaths caused by other less common cancers in addition to the types listed above.
- 3 n/a - non applicable.

Source: AIHW, 2019 [1]

Further information is available regarding mortality for some of the more common types of cancer. In 2018, cancers of the trachea, bronchus and lung combined were the fourth leading cause of death for Aboriginal and Torres Strait Islander people (204 deaths: 115 males and 89 females) living in NSW, Qld, WA, SA and the NT [29]. The age-adjusted mortality rate for both males and females combined in 2018 was 59 per 100,000. Other types of cancer that are listed in the top 20 leading causes of death for Aboriginal and Torres Strait Islander people in 2018 include; cancers of the colon (bowel), sigmoid, rectum and anus (23 per 100,000); cancers of the liver and intrahepatic bile ducts (15 per 100,000); pancreatic cancer (15 per 100,000); breast cancer (13 per 100,000); and cancers of the lymphoid, haematopoietic and related tissues (9.3 per 100,000) [29].

Indigenous identification data for mortality due to bowel cancer was collected by the National Mortality Database for the period 2013-2017, and presented in the *National Bowel Cancer Screening Program monitoring report 2019* [61]. The age-standardised rate for Aboriginal and Torres Strait Islander people aged 50-74 years, living in NSW, Qld, SA, WA and the NT, was 36 per 100,000.

For 2013-2017, the crude mortality rate for cervical cancer in Aboriginal and Torres Strait Islander females aged 25-74 years in NSW, Qld, WA, SA and NT was 6.7 per 100,000 [62]. The age-standardised mortality rate was 7.6 per 100,000 people (much higher than the non-Indigenous rate of 2.2). Later stage at diagnosis and availability of treatment, especially for females in remote areas, are suggested to be factors accounting for the higher cervical cancer mortality rates found for Aboriginal and Torres Strait Islander females [66].

While Aboriginal and Torres Strait Islander females are less likely to be diagnosed with breast cancer, they are more likely to die of breast cancer than other Australians [67]. For the period 2011-2015, the age-standardised mortality rate for breast cancer among Aboriginal and Torres Strait Islander females was 24 per 100,000 [64]. Aboriginal and Torres Strait Islander females are less likely to participate in breast screening and highly likely to feel culturally isolated in hospitals and clinics [68].

The patterns of Aboriginal and Torres Strait Islander cancer incidence and mortality can be partly explained by the higher level of risk factors, most notably tobacco use [69]. The rate of daily smokers among Aboriginal

and Torres Strait Islander adults (18 years and over) across all jurisdictions between 2017-18 and 2018-19 was 40% [50]. This is the main contributing factor to the high incidence of lung cancer. High incidence rates of liver cancer are consistent with risky levels of alcohol consumption and a higher prevalence of hepatitis B infection. In the period 2017-18 and 2018-19, 20% of Aboriginal and Torres Strait Islander adults (18 years and over) were considered to have exceeded the lifetime risk guidelines for alcohol consumption [50]. Other contributing factors include:

- Aboriginal and Torres Strait Islander people being more likely to have cancers that have a poor prognosis
- being diagnosed with cancer at a later stage
- being more likely to present with co-morbidities (that may lead to poorer outcomes)
- being less likely to receive any treatment, or adequate treatment [70-72].

Diabetes

Diabetes is a chronic disease marked by high levels of glucose in the blood and is caused by the pancreas not producing enough insulin²⁷ or not being able to use the insulin effectively, or both [73].

There are several types of diabetes, of which the most frequently occurring are type 1, type 2 and gestational diabetes mellitus (GDM) [73]. Type 1 diabetes is usually diagnosed in children and young people but can occur at any age. Type 2 diabetes is the most common form [74] and is largely preventable by maintaining a healthy lifestyle. GDM develops in some women during pregnancy [74].

Diabetes is recognised as one of the most important health problems currently facing Aboriginal and Torres Strait Islander people and can lead to life-threatening health complications [75]. The most common form is type 2 diabetes which occurs at earlier ages for Aboriginal and Torres Strait Islander people and is often undetected and untreated. Complications from diabetes may occur within months of diagnosis while others may develop over several years [76]. Aboriginal and Torres Strait Islander people with diabetes tend to have higher levels of risk factors such as smoking [73] and may show signs of other chronic conditions, including chronic kidney disease, cardiovascular disease, liver disease and anaemia [77].

Extent of diabetes among Aboriginal and Torres Strait Islander people

Incidence and prevalence

Results from the 2018-19 NATSIHS indicated that 7.9% of Aboriginal and Torres Strait Islanders reported they had diabetes [50]. The proportion of people in remote areas who had diabetes (12%) was greater than that in non-remote areas (7.0%). The proportion of people with diabetes generally increased with age, in the 55 years and over age-group 35% had diabetes, this was more than 11 times higher than in the 25-34 age-group where 2.5% had diabetes.

In 2018-19, the reported prevalence of diabetes was similar for Torres Strait Islander people (7.9%) and Aboriginal people (7.8%) [50]. The proportion of Aboriginal and Torres Strait Islander males and females with diabetes was similar (7.6% and 8.2% respectively). The proportion of people with diabetes in WA and the NT was the same (11%). For the remaining states and territories, Qld was the highest at 8.7%, followed by SA (8.6%), NSW (6.3%), Vic (5.5%), the ACT (5.2%) and Tas (4.7%).

For type 2 diabetes, in the initial stages, known as pre-diabetes, blood glucose levels are higher than normal but not high enough to be diagnosed as diabetes [75]. Impaired glucose regulation can be measured by impaired fasting glycemia (IFG) testing. In 2011-2013, an estimated 5.3% of Aboriginal and Torres Strait Islander adults had IFG.

In 2017, according to the National (insulin treated) Diabetes Register (NDR), crude incidence rate of type 1 diabetes was for both Aboriginal and Torres Strait Islander males and females the same (16 per 100,000) [78]. In 2016, for insulin treated type 2 diabetes, after age-adjustment, the incidence rate was 103 cases per 100,000 for Aboriginal and Torres Strait Islander people [79].

In 2016-17, the prevalence of GDM among Aboriginal and Torres Strait Islander women, aged 15-49 years, was 12% [78].

²⁷ Insulin is necessary to convert glucose to energy [73].

Hospitalisation

Hospital services are typically required to treat the advanced stages of complications of diabetes or acute episodes of poor glycaemic control [75]. In 2015-16, the rates of hospitalisation (where the principal or additional diagnosis was diabetes) among Aboriginal and Torres Strait Islander people increased with age, from 0.2 per 1,000 in the 0-4 years age-group through to 17 per 1,000 in the 65 years and over age-group [80].

In 2015-16, there were around 2,300 hospitalisations with a principal diagnosis of type 2 diabetes among Aboriginal and Torres Strait Islander people [80]. The hospitalisation rate was similar among males and females (5.8 and 5.1 per 1,000 population respectively).

In 2015-16, rates of hospitalisations for type 2 diabetes as a principal diagnosis increased with age for Aboriginal and Torres Strait Islander people ranging from 0.2 per 1,000 population in the 0-25 years age-group to 16 per 1,000 in the 65 and older age-group [80]. Hospitalisation rates for type 2 diabetes among Aboriginal and Torres Strait Islander people living in remote and very remote areas were 2.1 times higher than for those living in major cities (8.6 per 1,000 and 4.2 per 1,000 respectively).

In 2015-16 there were around 860 hospitalisations with a principal diagnosis of type 1 diabetes among Aboriginal and Torres Strait Islander people [80]. The hospitalisation rate was higher among females than males (1.0 and 1.3 hospitalisations per 1,000 population respectively). Rates of hospitalisations for type 1 diabetes as a principal diagnosis were highest in the 15-54 years age-groups and lowest in the 0-4 years age-group. Hospitalisation rates for type 1 diabetes among Aboriginal and Torres Strait Islander people living in major cities were 1.9 times higher than for those living in remote and very remote areas (1.2 per 1,000 and 0.6 per 1,000 respectively).

In 2015-16, there were almost 500 hospitalisations with a principal diagnosis of diabetes during pregnancy among Aboriginal and Torres Strait Islander women, including pre-existing and gestational diabetes [80]. The hospitalisation rates were highest among women aged 25-34 years. Hospitalisation rates increased with remoteness; the rate was more than 12 times higher for those living in remote or very remote areas than for those living in major cities (7.4 and 0.6 per 1,000 population respectively).

Mortality

According to the 2018-19 NATSIHS, diabetes was the second leading cause of death among Aboriginal and Torres Strait Islander people in 2018 [29]. Diabetes accounted for 232 deaths (72 deaths per 100,000). The death rate decreased by 7.0% between 2009-2013 and 2014-2018. Diabetes is the third leading cause of death for both males and females (males 120 deaths: females 112 deaths).

For Aboriginal and Torres Strait Islander people living in NSW, Qld, WA and the NT, Qld recorded the highest number of deaths for diabetes (as an underlying cause), accounting for 70 deaths in 2018 [29].

For 2014-2018, the age-specific death rates for diabetes as an underlying cause of death for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA and the NT was 48 per 100,000 for the 45-54 years age-group, 126 per 100,000 for the 55-64 years age-group, 266 per 100,000 for the 65-74 years age-group and 618 per 100,000 for the 75 years and over age-group [29].

Social and emotional wellbeing (including mental health)

Social and emotional wellbeing (SEWB) is a complex and multifaceted concept that has particular resonance and meaning for Aboriginal and Torres Strait Islander people [81-83]. While the term SEWB has been used interchangeably with 'mental health' and 'mental illness', it has been proposed that these latter terms be positioned 'within' a broader understanding of SEWB rather than 'equated with SEWB' [6]. SEWB for Aboriginal and Torres Strait Islander people then, may be defined as 'a multidimensional concept of health that includes mental health, but which also encompasses domains of health and wellbeing such as connection to land or 'country', culture, spirituality, ancestry, family and community' [6]. Colonisation has had a systematically profound impact on Aboriginal and Torres Strait Islander peoples' traditional cultural practices and by implication on their SEWB [84, 85]. A number of factors have been linked to SEWB concerns for Aboriginal and Torres Strait Islander people such as discrimination and racism, grief and loss, child removals and unresolved trauma, life stress, social exclusion, economic and social disadvantage,

incarceration, child removal by care and protection orders, violence, family violence, substance use and physical health problems [3, 83]. Factors that enhance SEWB have also been identified including: connection to country; spirituality; ancestry; kinship; self-determination; community governance and cultural continuity [3].

The WHO Mental health action plan defines mental health as a state of wellbeing in which individuals can cope with the normal stresses of life, realise their potential, work productively and contribute to their community [86]. Like SEWB, mental health is influenced by an individual's character traits, the social circumstances in which they find themselves and the environment they live in [87].

Some individuals experience compromised mental health due to mental health problems or mental illness. Mental health problems are characterised by reduced cognitive, emotional, or social functioning, but not to the extent that the criteria for a mental illness are met [88]. Mental illness is a psychological disorder that significantly interferes with an individual's cognitive, emotional or social abilities [88], and is generally determined according to the classification system of the *Diagnostic and statistical manual of mental disorders* or the ICD [89]. Severe mental illness, while evident in the anthropological or ethnographic records, was relatively rare in traditional Aboriginal societies [90].

For Aboriginal people broadly speaking, the structure and cultural practices of traditional society buffered the impacts experienced since colonisation. Similarly, for Torres Strait Islander people, traditional cultural practices enhanced the likelihood of better health outcomes, including SEWB (as cited in [90]).

Extent of social and emotional wellbeing, mental illness and mental health problems among Aboriginal and Torres Strait Islander people

Prevalence

The 2018-19 NATSIHS found that 31% of Aboriginal and Torres Strait Islander respondents aged 18 years and over reported high or very high levels of psychological distress in the four weeks prior to the interview (Aboriginal people 31% and Torres Strait Islander people 23%) [50]. In 2018-19, females reported high or very high levels of psychological distress compared with males (35% and 26% respectively). Vic and SA were the jurisdictions reporting the highest levels of distress (both 36%) and the NT the lowest (26%). Across age-groups, from 18-55 years and over, high or very high levels were similar with the highest levels reported in the 45-54 year age-group (33%) and the lowest level shared by the 18-24 and 55 years and over age-groups (30%). The proportion of Aboriginal and Torres Strait Islander people who experienced high to very high levels of psychological distress was higher in non-remote areas (31%) than remote areas (28%).

The National Aboriginal and Torres Strait Islander Social Survey, 2014-15 (NATSISS) found a relationship between education level and employment status and the level of psychological distress [27]. For Aboriginal and Torres Strait Islander people who were educated to year 10 level, 37% experienced high/very high levels of psychological distress compared with 26% of those who were educated to year 12. Similarly, 40% of unemployed Aboriginal and Torres Strait Islander people experienced high/very high levels of psychological distress, compared with 24% of those employed.

The higher overall levels of psychological distress reported by Aboriginal and Torres Strait Islander people are consistent with the relative frequencies with which the population experienced specific life stressors in the previous 12 months [91]. According to the 2014-15 NATSISS, 68% of Aboriginal and Torres Strait Islander people aged 15 years and over experienced one or more selected personal stressors in the 12 months prior to the survey. The most prevalent stressors were death of a family member or close friend (28% of people surveyed), followed by; unable to get a job (19%); serious illness (12%); other work-related stressors (11%) and mental illness (10%). Commonly reported personal stressors were fairly consistent for males and females; however, a greater proportion of females than males reported experiencing one or more specific stressors (70% and 66% respectively). Aboriginal and Torres Strait Islander people with a mental health condition were more likely to experience personal stressors (84%) than those with no long-term health condition (60%) [92].

Another indicator of a person's state of SEWB is the degree to which they experience positive feelings. In the 2014-15 NATSISS, respondents reported on feelings of calmness and peacefulness, happiness, fullness of life, and energy and 90% of Aboriginal and Torres Strait Islander people reported feeling happy either

some, most, or all of the time [8]. This was at similar levels to that reported in the 2012-13 Australian Aboriginal and Torres Strait Islander Health Survey (2012-13 AATSIHS) of 91% [93].

The 2014-15 NATSISS found that more than half of Aboriginal and Torres Strait Islander people aged 15 years and over reported an overall life satisfaction rating of at least 8 out of 10 (54% of males and 53% of females), where 0 is completely unsatisfied and 10 is completely satisfied (Derived from [94]). Of those that experienced low range (0-4 out of 10) satisfaction ratings, a clear association was found with relative disadvantage, in particular unemployment and not finishing year 12.

In the 2018-19 NATSIHS, 25% of Aboriginal and 17% of Torres Strait Islander people, aged two years and over, reported having a mental and/or behavioural condition (Aboriginal and Torres Strait Islander people combined 24%: 23% of males and 25% of females) [95]. Across the jurisdictions, the conditions were reported more often in the ACT (40%), followed by Tas (34%) and Vic (33%) with the lowest reporting in the NT (10%). When considering prevalence by age, respondents 25-54 years were more likely to have a mental/behavioural condition (around 30%), with the lowest proportion in the 0-14 years age-group (15%). Mental/behavioural conditions were more likely to be reported by Aboriginal and Torres Strait Islander people living in non-remote areas (28%) than remote areas (9.8%).

Further information from the 2018-19 NATSIHS indicated that anxiety was the most common mental or behavioural condition reported by Aboriginal and Torres Strait Islander people aged two years and over (17%) [50]. The proportion was higher for females (21%) than males (12%) and people aged 25-44 years of age (around 25%). Depression was the second most common condition reported under mental and behavioural conditions (13%), with females reporting higher levels (16%) compared with males (10%). The reporting of depression increased with age from 2.5% (0-14 years) to 23% (45-54 years) before dropping off to 20% (55 years and over).

In 2014-15, 23% of Aboriginal and Torres Strait Islander people with a mental health condition reported excellent or very good self-assessed health, this compared with 58% of those with no long-term health condition. Those with a mental health condition were 2.7 times more likely to have experienced high or very high levels of psychological distress (60%) as those with no long-term health condition (22%) [92, 95].

SEWB is influenced by the support a person receives from their social networks, either in the form of emotional, physical or financial assistance [95]. Information collected in the 2014-15 NATSISS showed that 92% of Aboriginal and Torres Strait Islander people aged 15 years and over were able to obtain help from someone else, not in their household, during a time of crisis [92, 95].

Removal from one's natural family also has implications for a person's mental health. The 2014-15 NATSISS found that Aboriginal and Torres Strait Islander people with a mental health condition were more likely to have been removed, or had relatives removed, from their natural family (50%) than those with no long-term health condition (34%) [92].

According to the 2014-15 NATSISS, 67% of Aboriginal and Torres Strait Islander children aged 4-14 years experienced one or more selected personal stressors in the 12 months prior to the survey. The most prevalent stressors were death of a family member or close friend (25% of children surveyed), followed by; problems keeping up at school and being scared or upset by an argument or someone's behaviour (23%) [95].

Hospitalisation

Reflecting the continuing high levels of distress experienced by many Aboriginal and Torres Strait Islander people, 21,940 of the hospital separations in 2017-18 with a principal diagnosis of ICD 'Mental and behavioural disorders' were identified as Aboriginal and Torres Strait Islander [39].²⁸ These separations accounted for 7.9% of all hospital separations (excluding dialysis) for Aboriginal and Torres Strait Islander people (Derived from [39]).

²⁸ The ICD chapter 'Mental and behavioural disorders', used for the classification of both hospitalisation and mortality, is very broad. As well as mental illness and mental health problems, it includes mental retardation and a broad sub-category for disorders relating to the use of psychoactive substances (including alcohol, tobacco, other drugs and volatile substances). The chapter doesn't include, however, the results of intentional self-harm, which are classified within the ICD chapter 'External causes of morbidity and mortality'.

For 2013-15, the age-adjusted separation rates for mental and behavioural disorders due to ICD ‘Psychoactive substance use disorders’ and ‘Schizophrenia, schizotypal, and delusional disorders’ were higher among Aboriginal and Torres Strait Islander males (13 and 7.0 per 1,000) compared with females (8.7 and 4.9 per 1,000) [54]. For the same period, the age-adjusted separation rates for mental and behavioural disorders due to ICD ‘Mood disorders’ and ‘Neurotic, stress-related disorders’ were higher among females (5.7 and 4.5 per 1,000) compared with males (3.1 and 3.4 per 1,000).

Intentional self-harm categorised as a principal diagnosis²⁹, was responsible for 2,849 (0.5%) of all hospital separations for Aboriginal and Torres Strait Islander people in 2017-18 (Derived from [39]). For the period 2013-15, there were 4,365 hospitalisations for Aboriginal and Torres Strait Islander people for intentional self-harm [54]. Rates were higher for females (3.8 per 1,000) compared with males (2.5 per 1,000) and higher in remote areas (3.9 per 1,000) followed by major cities (3.3 per 1,000), with the lowest rate being for very remote areas (2.8 per 1,000).

Mortality

The most recent detailed information indicates that mental health conditions accounted for 385 deaths among Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT in 2011-2015 [54]. Of these 385 deaths, 167 were among males and 218 among females (Table 19) [54]³⁰.

Table 19. Numbers and rates of deaths from mental health related conditions (excluding intentional self-harm) for Aboriginal and Torres Strait Islanders, by sex and cause of death, NSW, Qld, WA, SA, and the NT, 2011-2015

Cause of death	Males		Females	
	Number	Rate	Number	Rate
Mental disorders due to substance use	70	9.4	19	n.p.
Organic mental disorders	86	32	160	44
Other mental disorders	11	n.p.	39	10
All mental disorders	167	44	218	56

Notes:

- 1 Rates are deaths per 100,000, rounded to the nearest whole number, standardised using the 2001 Australian standard population.
- 2 Details of death from intentional self-harm (suicide) are not included in this table; see Tables 20, 21 and 22.
- 3 ‘Mental disorders due to substance use’ comprises ICD codes F10-F19, ‘Organic mental disorders’ ICD codes F00-F09, and ‘Other mental disorders’ ICD codes F20-F99, G30, G47.0, G47.1, G47.2, G47.8, G47.9, O99.3, R44, R45.0, R45.1, R45.4, R48.
- 4 n.p.: not published.

Source: AIHW, 2017 [54]

In 2018, 169 (129 males and 40 females) Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA, and the NT died from intentional self-harm (suicide) at an age-standardised death rate of 24 per 100,000 people (males: 38 per 100,000 and females 10 per 100,000) [29]. It was the fifth leading specific cause of death among Aboriginal and Torres Strait Islander people (2nd for males and equal 7th for females). In 2018, the median age for suicide deaths was 31.8 years of age for males and 26.0 years of age for females. Between 2009-2013 and 2014-2018, the age-standardised death rate for suicides among Aboriginal and Torres Strait Islander people increased by 17% (males 20%: 30 per 100,000 to 36 per 100,000; females 8.4% 10.7 per 100,000 to 11.6 per 100,000).

For 2014-2018, age-standardised death rates from intentional self-harm (suicide), for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT ranged from 17 per 100,000 in NSW to 38 per 100,000 in WA (Table 20) [29]. Death rates were higher for Aboriginal and Torres Strait Islander males than females (in those jurisdictions for which details were available).

²⁹ Intentional self-harm as a principal diagnosis for external causes of injury or poisoning for Aboriginal and Torres Strait Islander people [39].

³⁰ Under the ICD, intentional self-harm is classified under ‘External causes of morbidity and mortality’ (codes X60-X84); details are provided separately.

Table 20. Age-standardised death rates for intentional self-harm (suicide) among Aboriginal and Torres Strait Islander people, by sex and jurisdiction, NSW, Qld, WA, SA and the NT, 2014-2018

Jurisdiction	Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate
NSW	151	29	n.p.	n.p.	193	17
Qld	200	39	59	9.7	259	24
WA	142	55	56	21	198	38
SA	19	22	18	20	37	21
NT	74	36	35	16	109	26

Notes:

1 Rate per 100,000 population, rounded to the nearest whole number, have been calculated using Aboriginal and Torres Strait Islander population estimates and projections based on the 2016 Census.

2 n.p.: not published.

Source: ABS, 2019 [29]

Between 2009-2013 and 2014-2018, age-standardised death rates for intentional self-harm (suicide), for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT saw a 17% increase in rates (20 to 24 per 100,000 population) (Table 21) [29]. The NT was the only jurisdiction to record a decrease in death rates from 29 to 26 per 100,000. NSW recorded the lowest rates; however, it saw a 55% increase in death rates from 11 to 17 per 100,000 over the two periods. WA consistently records the highest death rates: 34 per 100,000 in 2009-2013 and 38 per 100,000 in 2014-2018.

Table 21. Age-standardised death rates for intentional self-harm (suicide) for Aboriginal and Torres Strait Islander people, NSW, Qld, WA, SA and the NT, 2009-2013 and 2014-2018

Jurisdiction	2009-2013	2014-2018
NSW	11	17
Qld	21	24
WA	34	38
SA	20	21
NT	29	26
Total for selected jurisdictions	20	24

Notes:

1 Age-standardised death rates are per 100,000 ERP as at 30 June (mid-year).

2 Rates calculated using Aboriginal and Torres Strait Islander population estimates and projections based on 2016 Census.

Source: ABS, 2019 [29]

It is important to understand the factors that underlie the differences in the suicide rates among Aboriginal and Torres Strait Islander people compared with the general Australian population as this enables targeted strategies for prevention [29]. These factors may include differences in demographic variables and associated causes of deaths (e.g. mental health conditions, drugs and alcohol use) which could highlight issues specific to Aboriginal and Torres Strait Islander people and the impact on self-harm (suicide) for this population.

Aboriginal and Torres Strait Islander people die from suicide at much younger ages than non-Indigenous people [29]. Combined data for NSW, Qld, WA, SA and the NT in 2014-2018 show that for Aboriginal and Torres Strait Islander people in the 15-24 years, 25-34 years and 35-44 years age-groups, intentional self-harm (suicide) was the leading cause of death; with death rates as high as 41 per 100,000, 47 per 100,000 and 40 per 100,000 respectively (Table 22). The burden of death by intentional self-harm (suicide) was highest among Aboriginal and Torres Strait Islander males aged 25-34 years and 35-44 years (rates of 73 per 100,000 and 65 per 100,000 respectively) but was also very high among young Aboriginal and Torres Strait Islander females in the 15-24 year age-group at a rate of 27 per 100,000.

Table 22. Age-standardised death rates for intentional self-harm among Aboriginal and Torres Strait Islander people, by sex and age-group, and Aboriginal and Torres Strait Islander: non-Indigenous rate ratios, NSW, Qld, WA, SA and the NT, 2014-2018

Age-group (years)	Aboriginal and Torres Strait Islander people			Rate ratios		
	Persons	Males	Females	Persons	Males	Females
1-14	1.8	1.6	2.0	4.3	3.6	5.1
15-24	41	54	27	3.5	3.1	4.5
25-34	47	73	21	3.2	3.1	3.2
35-44	40	65	16	2.2	2.3	1.9
45+	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
All ages	23	33	n.p.	1.8	1.7	n.p.

Notes:

- 1 Rate per 100,000 population, rounded to the nearest whole number, standardised to the 2016 Census based population estimates and 2016 ERP.
- 2 The rate ratio is the Aboriginal and Torres Strait Islander rate divided by the non-Indigenous rate.
- 3 n.p.: not published.
- 4 Due to the incomplete identification of Aboriginal and Torres Strait Islander status, these figures probably underestimate the true differences between Aboriginal and Torres Strait Islander and non-Indigenous people.
- 5 Rounding may result in inconsistencies in calculated ratios.

Source: ABS, 2019 [29]

In 2018, suicide was the leading cause of death for both Aboriginal and Torres Strait Islander and non-Indigenous children aged 5-17 years, living in NSW, Qld, WA, SA and the NT, accounting for 27% of deaths among Aboriginal and Torres Strait Islander children and young people [29]. For 2014-2018, of all suicide deaths in this age-group (357), almost one-quarter (85: 24%) were of Aboriginal and Torres Strait Islander children and young people. The age-standardised death rate for suicide was highest in the NT (21 per 100,000) and lowest in NSW (4.4 per 100,000)³¹.

Kidney health (renal disease)

Kidney disease, renal and urologic disease, and renal disorder are terms that refer to a variety of different disease processes involving damage to the filtering units (nephrons) of the kidneys which affect the kidneys' ability to eliminate wastes and excess fluids [96]. Of particular importance to Aboriginal and Torres Strait Islander people is chronic kidney disease (CKD), which is defined as kidney damage or reduced kidney function that lasts for three months or more. CKD is inclusive of different conditions, including diabetic nephropathy, hypertensive renal disease, glomerular disease, chronic renal failure, and end-stage renal disease (ESRD) [97]. If CKD is left untreated, kidney function can decrease to the point where kidney replacement therapy, in the form of dialysis (mechanical filtering of the blood to help maintain functions normally performed by the kidneys) or transplantation (implantation of a kidney from either a living or recently deceased donor) is necessary to survive [30]. ESRD is where the kidneys are operating at less than 15% of capacity and dialysis or transplant are required [98]. It is expensive to treat [99] and has a marked impact on the quality of life of those who suffer from the disease as well as those who care for them [100, 101].

Risk factors associated with kidney disease, include obesity, hypertension, diabetes mellitus, tobacco use, established cardiovascular disease, age, family history, socioeconomic disadvantage [102] and LBW [103, 104]. These factors are particularly common among Aboriginal and Torres Strait Islander people and contribute to high rates of CKD [43, 105].

Extent of kidney disease among Aboriginal and Torres Strait Islander people

Prevalence/incidence

Around 1.8% of Aboriginal and Torres Strait Islander people (Aboriginal 1.9%; Torres Strait Islander (0.4%) reported kidney disease as a long-term health condition in the 2018-19 NATSIHS [50]. The proportions of Aboriginal and Torres Strait Islander people reporting kidney disease was higher for females (2.3%) than males (1.2%). The reported prevalence of kidney disease among Aboriginal and Torres Strait Islander people

³¹ No information was available for Aboriginal and Torres Strait Islanders living in SA [29].

was less than 2% for all age-groups under 35 years, increasing to 2.3% for people aged 35-44, 2.7% for people aged 45-54 years and 7.6% for people aged 55 years and over. By jurisdiction, the highest proportions were reported for the NT (3.7%) and WA (2.9%), with the other states and territories (excluding Tas) less than 2% each. Proportions were higher for people living in remote area (3.4%) than non-remote areas (1.4%).

With most information on CKD limited to self-reported data, the primary focus in the literature has been on ESRD. The overall incidence rate of ESRD for Aboriginal and Torres Strait Islander people is consistently reported as being considerably higher than for non-Indigenous people [97]. The difference is complicated by the age-distributions of each population. Rates fluctuate from year to year but in recent years Aboriginal and Torres Strait Islander rates have been increasing.

Data from the ANZDATA for the five-year period 2014-2018 reveal that the age-standardised notification rate of ESRD for Aboriginal and Torres Strait Islander people was 603 per 1,000,000 population, 6.3 times the rate for non-Indigenous people (Derived from [17, 106-108]).

Notification rates of ESRD were higher for Aboriginal and Torres Strait Islander people than for non-Indigenous people in all states and territories, with the highest rates recorded for Aboriginal and Torres Strait Islander people living in the NT (1,819 per 1,000,000), WA (1,100 per 1,000,000), and SA (627 per 1,000,000) (Table 23) (Derived from [17, 106-108]).

Table 23. Numbers of notifications and age-standardised notification rates for ESRD, by Indigenous status, and Aboriginal and Torres Strait Islander:non-Indigenous rate ratios, selected jurisdictions, Australia, 2014-2018

Jurisdiction	Aboriginal and Torres Strait Islander		Non-Indigenous		Rate ratio
	Number	Rate	Number	Rate	
NSW	179	207	3,996	93	2.2
Vic	49	288	3,451	103	2.8
Qld	392	585	2,432	94	6.2
WA	371	1,100	1,206	89	12.4
SA	81	627	905	90	7.0
NT	479	1,819	77	99	18.4
Australia	1,570	603	12,589	95	6.3

Notes:

- 1 Rates per 1,000,000 population have been standardised using the ERP from 30 June 2001.
- 2 Rate ratio is the Aboriginal and Torres Strait Islander rate divided by the non-Indigenous rate.
- 3 Notification rates for Tas and the ACT have not been shown separately because of the small numbers of notifications but are included in the figures for Australia.
- 4 Rounding may result in inconsistencies in calculated ratios.

Source: Derived from ANZDATA, 2019 [106], ABS, 2016 [107], ABS, 2019 [17], ABS, 2019 [108]

Of people newly registered with the ANZDATA in 2014-2018, 56% of Aboriginal and Torres Strait Islander people were aged less than 55 years, compared with 30% of non-Indigenous people (Derived from [17, 106-108]). Notification rates were higher for Aboriginal and Torres Strait Islander people than for non-Indigenous people across all age-groups (except for the 0-14 years age-group) and the rate ratio was particularly high for the 45-54 age-group (10.2) (Table 24)

Table 24. Numbers of notifications and notification rates of ESRD, by Indigenous status and age-group, and Aboriginal and Torres Strait Islander:non-Indigenous rate ratios, Australia, 2014-2018

Age-group (years)	Aboriginal and Torres Strait Islander		Non-Indigenous		Rate ratio
	Number	Rate	Number	Rate	
0-14	9	6.6	154	7.2	0.9
15-24	30	39	270	18	2.2
25-34	118	207	560	33	6.4
35-44	247	563	1,006	64	8.8
45-54	482	1,199	1,799	117	10.2
55-64	445	1,687	2,704	197	8.5
65-74	204	1,681	3,456	336	5.0
75+	35	721	2,640	332	2.2
All ages	1,570	603	12,589	95	6.3

Notes:

1 Rates per 1,000,000 population.

2 The rate ratio is the Aboriginal and Torres Strait Islander rate divided by the non-Indigenous rate.

3 Rates for 'All ages' are age-standardised.

4 Rounding may result in inconsistencies in calculated ratios.

Source: Derived from ANZDATA, 2019 [106], ABS, 2016 [107], ABS, 2019 [17], ABS, 2019 [108]

Hospitalisation, dialysis and transplantation

In 2017-18, there were 1,071 per 1,000 hospital separations for Aboriginal and Torres Strait Islander people, 2.6 times the rate for non-Indigenous people (407 per 1,000) [39]. However, around 80% of the difference between these rates was due to higher separations for Aboriginal and Torres Strait Islander people admitted for dialysis.

Detailed information from ANZDATA is available for 2018 when a total of 310 Aboriginal and Torres Strait Islander people commenced dialysis, a decrease from 2017 (357 people) [109]. The NT accounted for the highest proportion of patients commencing dialysis (32%), followed by Qld (28%) and WA (23%). In 2018, there were 49 transplant operations for Aboriginal and Torres Strait Islander recipients. At 31 December 2018, 43 (4.5%) of the 966³² patients on the waiting list for a transplantation were Aboriginal and/or Torres Strait Islander.

Haemodialysis (HD), conducted in clinics and hospitals (including satellite centres), is the most common form of dialysis treatment for Aboriginal and Torres Strait Islander people with ESRD [97, 105, 110]. In 2018, HD accounted for the majority of treatment; 92%, with only 7.6% of Aboriginal and Torres Strait Islander dialysis patients receiving peritoneal dialysis (PD) (Derived from [109]). In 2018, there were 1,934 prevalent dialysis patients in Australia (PD and HD treatments) identified as Aboriginal and Torres Strait Islander. The highest proportion of patients on dialysis were from the NT (34%), followed by Qld (24%) and WA (23%) (Table 25). By modality; the NT has the highest proportion of patients on HD (36%) and Qld on PD (44%).

³² Included 39 (4.0%) patients with an unreported Indigenous status.

Table 25. Prevalence of Aboriginal and Torres Strait Islanders on dialysis, by modality, Australia, 2018

Jurisdiction	Total		HD		PD	
	Number	Percentage	Number	Percentage	Number	Percentage
NSW	191	9.9	167	9.3	24	16
Vic	55	2.8	50	2.8	5	3.4
Qld	472	24	407	23	65	44
WA	439	23	415	23	24	16
SA	103	5.3	97	5.4	6	4.1
Tas	5	0.3	4	0.2	1	0.7
ACT	11	0.6	10	0.6	1	0.7
NT	658	34	637	36	21	14
Total	1,934	100	1,787	100	147	100

Note:

1 Rounding may result in inconsistencies in calculated percentages.

Source: Derived from ANZDATA, 2019 [109].

For 2016-17, there were approximately 25,200 hospitalisations for CKD³³ (excluding dialysis) among Aboriginal and Torres Strait Islander people, with an age-adjusted rate of 61 per 1,000 population [111]. Rates were highest among Aboriginal and Torres Strait Islander females (68 per 1,000) than males (53 per 1,000).

In 2014-15 (the latest data available), there were 207,605 hospital separations for ESRD among Aboriginal and Torres Strait Islander people [8]. The crude hospitalisation rate for ESRD for Aboriginal and Torres Strait Islander people was 288 per 1,000 and the age-standardised rate was 491 per 1,000. Aboriginal and Torres Strait Islander females had the highest age-standardised rate of hospitalisation for ESRD at 551 per 1,000 population and males were hospitalised for ESRD at a rate of 425 per 1,000.³⁴

In 2014-15, crude hospitalisation rates for ESRD for Aboriginal and Torres Strait Islander people increased with remoteness from 169 per 1,000 in major cities, 240 per 1,000 in regional areas and 596 per 1,000 in remote and very remote areas [8]. For Aboriginal and Torres Strait Islander people living in remote and very remote areas, the crude hospitalisation rate was 3.5 times the rate of Aboriginal and Torres Strait Islander people living in major cities.

For 2016-17, there were 237,191 hospitalisations for regular dialysis as the principal diagnosis for Aboriginal and Torres Strait Islander people. The crude hospitalisations rate was 315 per 1,000 (females: 363 per 1,000; males 267 per 1,000) [111].

Mortality

There were 66 deaths (males: 26; females: 40) from disease of the urinary system among Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT in 2018 [29].³⁵ After age-adjustment, the death rate for Aboriginal and Torres Strait Islander people was 25 per 100,000 (males: 22 per 100,000; females: 27 per 100,000). For females, disease of the urinary system as an underlying cause of death was ranked 7th compared with males at 15th.

For 2013-2017, the age-adjusted death rate for kidney disease (as a major cause of death) for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and NT was 21 per 100,000 [112]. The highest rate was reported for the NT; 47 per 100,000 with WA the next highest, with a rate of 38 per 100,000.

More detailed information is available for people living in NSW, Qld, WA, SA and the NT for 2015-2017. After age-adjustment, the death rate for CKD as an underlying or associated cause of death for Aboriginal and

³³ CKD as a principal and/or additional diagnosis.

³⁴ Data presented in this report refer to episodes of admitted care, meaning the same patient can potentially have multiple hospitalisations within the same period. Consequently, data represent health service usage by those with CKD rather than representing the number or proportion of people in Australia with CKD admitted to hospital.

³⁵ Disease of the urinary system includes disorders of the bladder and urethra, as well as those specifically of the kidneys and ureters.

Torres Strait Islander people was 197 deaths per 100,000 population (males: 192 per 100,000; females 202 per 100,000) [111].

In 2018, 217 Aboriginal and Torres Strait Islander people who were receiving dialysis died [109]. The most common causes of death for the dialysis patients were CVD (64 deaths) and withdrawal from treatment (51 deaths). Most deaths were among Aboriginal and Torres Strait Islander people on HD treatment (94%).

Injury, including family violence

Injury includes both physical harm to a person's body and non-physical harm, including grief, loss and suffering [113], but in public health practice attention is almost entirely confined to physical harm [114]. Even restricted to physical harm, assessing the total impact of injury is difficult because many injuries do not result in hospitalisation or death and there are few systematic data [115].

The classification of injury has generally followed the WHO ICD, which includes particular attention to the external cause of the injury [42].³⁶ When looking at injury in the Aboriginal and Torres Strait Islander context, there are a number of factors which must be taken into consideration. These include low socioeconomic contexts [115, 117], alcohol and other drug use, intimate partner violence [118], disruption to culture [113] as well as less access to prevention efforts and high-quality treatment and rehabilitation services.

Extent of injury and family violence among Aboriginal and Torres Strait Islander people

Prevalence

The 2012-13 AATSIHS reported that 2.5% of Aboriginal and Torres Strait Islander people had a long-term condition caused by injury with the highest reported levels in the 35-44 years and 45-54 years age-groups [119]. Males reported a slightly higher level of injury (2.8%) than females (2.3%).

In relation to violence, in the 2018-19 NATSIHS, 16% of Aboriginal and Torres Strait Islander people aged 15 years and over had experienced physical harm or threatened physical harm at least once in the last 12 months [50]. More detailed information in the 2014-15 NATSISS found that 22% of Aboriginal and Torres Strait Islander people aged 15 years and over had experienced physical or threatened violence in the last 12 months [95]. For males, victimisation was highest in the 15-24 years age-group (27%), while for females, it was highest in the 25-34 years age-group (27%). Males experienced physical or threatened violence at a slightly higher rate than females (23% and 22% respectively). In terms of remoteness, victimisation levels were slightly higher in remote areas (23%) than they were in non-remote areas (22%).

According to the 2014-15 NATSISS, 69% of Aboriginal and Torres Strait Islander people aged 15 years or over reported awareness of problems in their neighbourhood or community, with 25% reporting awareness of family violence and 21% reporting awareness of assault [95]. For remote areas, 47% of Aboriginal and Torres Strait Islander people reported awareness of family violence, compared with 19% for non-remote areas. The figures are similar for assault, with 45% of Aboriginal and Torres Strait Islander people in remote areas reporting awareness of assault, compared with 14% in non-remote areas.

Hospitalisation

There were 36,185 hospital separations for injuries for Aboriginal and Torres Strait Islander people in 2017-18, representing 6.6% of all Aboriginal and Torres Strait Islander separations [39]. The leading external causes of injury-related hospitalisations were falls (20%), assault (20%), exposure to mechanical forces (17%) and complications of medical and surgical care (14%).

In 2016-17 the age-standardised rate of Aboriginal and Torres Strait Islander hospitalised injury was higher for males (44 per 1,000) than females (39 per 1,000) [120]. More detailed information in 2013-15 shows the rate of Aboriginal and Torres Strait Islander males hospitalised for injury was highest in the 35-44 years age-group (64 per 1,000), however the rate of Aboriginal and Torres Strait Islander females hospitalised for injury was the highest in the 65 and older age-group (58 per 1,000).

In terms of remoteness, age-standardised hospitalisation rates for injury for Aboriginal and Torres Strait

³⁶ This system is followed in this section, but it has its limitations (for more details, see [116]).

Islander people increased with remoteness in 2014-15 [8]. The rate increased from 38 per 1,000 in major cities to 74 per 1,000 in remote and very remote areas.

In 2017-18, 20% of injury-related hospitalisations among Aboriginal and Torres Strait Islander people were for assaults [39]. More detailed information about rates of hospitalisations due to family violence-related assaults among Aboriginal and Torres Strait Islander people is available for 2014-15 [8]. The age-specific hospitalisation rates for family violence-related assaults for Aboriginal and Torres Strait Islander females were highest for those aged 25-34 years (13 per 1,000). For Aboriginal and Torres Strait Islander males, rates were highest for those aged 35-44 years (4.3 per 1,000). The crude hospitalisation rates from family violence-related assaults for Aboriginal and Torres Strait Islander people increased with remoteness, from 1.6 per 1,000 in major cities to 10 per 1,000 in remote and very remote areas.

Mortality

Important specific causes of injury deaths for NSW, Qld, SA, WA and the NT in 2018 were [29]:

- intentional self-harm (169 deaths, 5.3% of all Aboriginal and Torres Strait Islander deaths)
- land transport accidents (84 deaths, 2.6% of all Aboriginal and Torres Strait Islander deaths)
- accidental poisoning (78 deaths, 2.4% of all Aboriginal and Torres Strait Islander deaths).

More detailed information for death from injury is available for 2011-2015. In this period, there were 1,995 Aboriginal and Torres Strait Islander deaths from injury in NSW, Qld, WA, SA and the NT, representing 15% of all Aboriginal and Torres Strait Islander deaths [54]. Age-specific death rates for injury were particularly high among Aboriginal and Torres Strait Islander people aged 25-34 years (104 per 100,000), 35-44 years (111 per 100,000) and 75 years and above (205 per 100,000).

Leading causes of injury-related death of Aboriginal and Torres Strait Islander people for 2011-2015 in NSW, Qld, WA, SA and the NT, as a percentage of total deaths were intentional self-harm (6.8% for males and 3.4% for females), land transport accidents (4.1% for males and 2.4% for females), accidental poisoning by and exposure to noxious substances (2.3% for males and 1.8% for females) and assault (1.6% for males and 1.4% for females) [54].

Respiratory health

Respiratory health can be compromised by a number of conditions that affect the airways and other structures of the lung [121] and impair the process of breathing and oxygen delivery [122]. These conditions range from acute respiratory infections to chronic respiratory conditions [43].

Respiratory disease is associated with a number of contributing factors, including: risky behaviours (particularly tobacco use); environmental conditions; occupational exposures and hazards [43, 123]; family history and other health conditions (obesity, infectious diseases) [123]. Infants and children are particularly susceptible to developing respiratory diseases due to risk factors including: exposure to tobacco smoke; poor living conditions; poor nutrition and limited access to medical care [124, 125].

Extent of respiratory disease among Aboriginal and Torres Strait Islander people

Prevalence

Long-term diseases of the respiratory system³⁷ were reported by 29% of Aboriginal and Torres Strait Islander people who participated in the 2018-19 NATSIHS (Table 26) [50]. The proportion of Aboriginal and Torres Strait Islander people reporting respiratory diseases increased with age, from 19% in the 0-14 years age-group to 47% in the 55 years and over age-group. For COPD³⁸, the proportion reported increased across all age-groups, apart from 0-14 years.

Asthma was reported by 16% of Aboriginal and Torres Strait Islander people in the 2018-19 NATSIHS; it was the most commonly reported long-term respiratory disease and the second most commonly reported long-term disease overall [50]. Asthma was reported more commonly by females (18%) than by males (13%),

³⁷ Individuals who reported a current respiratory condition that had lasted, or was expected to last, for six months or more [50].

³⁸ Chronic obstructive pulmonary disease (COPD) relates to a progressive lung disease for which the symptoms are not fully reversible, and includes chronic bronchitis and emphysema [126].

and by people living in non-remote areas (17%) than those in remote areas (9%). As shown in table 26, the prevalence of asthma increased with age from 12% in the 0-14 years age-group to 26% in the 55 and over age-group.

Table 26. Long-term respiratory diseases among Aboriginal and Torres Strait Islander people, by age-group, all jurisdictions, 2018-19, proportion (%)

	Age-group (years)						Total
	0-14	15-24	25-34	35-44	45-54	55+	
COPD	1.7	0.8	1.3	3.6	6.4	13	3.4
Asthma	12	14	15	17	21	26	16
Chronic sinusitis	2.6	4.7	8.9	13	14	13	7.4
Other diseases of the respiratory system	8.6	16	20	19	19	20	15
Total respiratory system diseases	19	28	32	35	37	47	29

Note:

1 'Other diseases of the respiratory system' includes hay fever and allergic rhinitis, chronic sinusitis, all other diseases of respiratory system, symptoms/signs involving respiratory systems.

Source: ABS, 2019 [50]

The level of respiratory disease among Aboriginal and Torres Strait Islander females was approximately 1.2 times higher than for males, 32% and 26% respectively (Table 27). Other specific long-term respiratory diseases reported by Aboriginal and Torres Strait Islander people in the 2018-19 NATSIHS were chronic sinusitis (7.4%) and COPD (3.4%), with proportions for both diseases being almost twice as high in females than males [50].

Table 27. Long-term respiratory diseases among Aboriginal and Torres Strait Islander people, by sex, 2017-18 and 2018-19

	Males (%)	Females (%)	Persons (%)
COPD	2.5	4.3	3.4
Asthma	13	18	16
Chronic sinusitis	5.3	9.3	7.4
Other diseases of the respiratory system	13	17	15
Total respiratory system diseases	26	32	29

Notes:

1 Rates are non-age standardised.

2 'Other diseases of the respiratory system' includes hayfever and allergic rhinitis, chronic sinusitis, all other diseases of respiratory system, symptoms/signs involving respiratory systems.

Source: ABS, 2019 [50]

Hospitalisation

For 2017-18 there were 29,042 hospital separations with a principal diagnosis of respiratory disease among Aboriginal and Torres Strait Islander people [39], representing more than 10% of all separations (excluding dialysis) identified as Aboriginal and Torres Strait Islander (Derived from [39]). After age-adjustment, the hospitalisation rate for respiratory disease was 47 per 1,000 people.

For 2014-15, more detailed information is available regarding hospitalisation rates for specific respiratory conditions including COPD, acute upper respiratory infections, influenza and pneumonia, and asthma [8]. Crude hospitalisation rates were highest for Aboriginal and Torres Strait Islander people presenting with influenza and pneumonia (7.4 per 1,000), followed by COPD (5.3 per 1,000), acute upper respiratory infections (3.8 per 1,000) and asthma (2.9 per 1,000).

In this period, the crude rates of hospitalisation for Aboriginal and Torres Strait Islander people with COPD, influenza and pneumonia, acute upper respiratory infections, and asthma all increased with remoteness [8]. The rate for influenza and pneumonia was particularly high for Aboriginal and Torres Strait Islander people living in remote/very remote areas (16 per 1,000) compared with the rate for those living in major cities areas (4.1 per 1,000).

Mortality

In 2018, chronic lower respiratory disease (which includes asthma, bronchitis, bronchiectasis, emphysema, and other COPD)³⁹ was the third highest cause of death overall for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT (responsible for 225 deaths) [29]. There was a marked increase in the mortality rates for chronic lower respiratory diseases in Aboriginal and Torres Strait Islander people between the period 2009-2013 and 2014-2018 (60 per 100,000 for 2009-2013 to 75 per 100,000 for 2014-2018).

Of the top five causes of death in 2018, by sex, chronic lower respiratory disease ranked as the second most common cause of death for Aboriginal and Torres Strait Islander females (122 deaths), while for Aboriginal and Torres Strait Islander males it was ranked as the fifth (103 deaths) [29]. After age-adjustment, the death rate for chronic lower respiratory disease among Aboriginal and Torres Strait Islander people was 77 per 100,000 people (females: 73 per 100,000; males: 84 per 100,000).

Age-specific information is available for some age-groups of Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT for the period 2014-2018 [29]. The rate for deaths from chronic lower respiratory diseases (as an underlying cause of death) increased with age from 35 per 100,000 in the 45-54 years age-group, 97 per 100,000 for the 55-64 years age-group, 271 per 100,000 for the 65-74 years age-group and 688 per 100,000 for 75 years and over age-group.

In 2018, influenza and pneumonia were responsible for 47 Aboriginal and Torres Strait Islander deaths, with an age-adjusted death rate of 15 per 100,000 [29]. For 2014-2018, ‘pneumonia and influenza’ was a leading cause of respiratory related deaths for Aboriginal and Torres Strait Islander infants under one year of age (0.1 per 100,000). While this rate may appear very low, it is 4.6 times higher than for non-Indigenous infants. Age-standardised death rates for respiratory disease among Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT significantly declined over the 1998-2015 period [27]. However, in the 2010-2017 period, slight increases in deaths caused by respiratory diseases were reported in all jurisdictions (where sufficient information is available) with the exception of the NT (Table 28) [65]. This may be attributed to the long-term effects of smoking (the biggest risk factor for respiratory disease [43]), which is high among the Aboriginal and Torres Strait Islander population as reported in the 2018-19 NATSIHS (40% of participants aged 18 years and over) [50].

Table 28. Age-standardised death rates for Aboriginal and Torres Strait Islander people with respiratory diseases as the major cause of death, by state and territory, 2010-2017

	NSW	Qld	WA	SA	NT	Total
2010-2014	90	92	111	91	164	102
2011-2015	90	92	111	86	160	101
2012-2016	94	99	113	90	159	105
2013-2017	102	104	113	96	151	109

Notes:

- 1 Rates are per 100,000 people.
- 2 Respiratory diseases include diseases J00-J99 in the WHO’s International statistical classification of diseases and related health problems (ICD) 10th revision [42].
- 3 There is no evidence of a sufficient level of Indigenous identification and sufficient numbers of Indigenous deaths to support mortality analysis in Vic, Tas and ACT, therefore data for these jurisdictions is not reported in this table.

Source: Steering Committee for the Review on Government Services, 2019 [65]

Eye health

Eye health can be affected by a number of factors, including genetics, ageing, premature birth, diseases (such as diabetes), infections, injuries, ultraviolet (UV) exposure, nutrition and tobacco use [95, 127, 128]. Poor vision can limit opportunities in education, employment and social engagement; it can also increase the risk of injury and be a reason for dependence on services and other people [54, 129, 130]. Even partial loss of vision can reduce an individual’s ability to live independently and increase the risk of mortality [27, 131, 132].

³⁹ Chronic lower respiratory diseases included diseases coded J40-J47 by the WHO’s International statistical classification of diseases and related health problems (ICD) 10th revision [42].

A range of factors heighten the risk of certain eye conditions among Aboriginal and Torres Strait Islander people [133]. There is however, evidence that Aboriginal and Torres Strait Islander children, especially those living in remote areas, generally experience better vision than non-Indigenous children [8, 134]. Data reported in the NEHS 2016 suggested there has been some improvement in the eye health of Aboriginal and Torres Strait Islander adults [133]. It was estimated that 90% of vision impairment (VI) and blindness⁴⁰ among both Indigenous and non-Indigenous people is preventable or treatable.

Extent of eye health problems among Aboriginal and Torres Strait Islander people

Estimates of the prevalence of eye health problems among Aboriginal and Torres Strait Islander people have been obtained from surveys⁴¹ and surveillance activities that rely on eye examinations or self-report⁴².

Prevalence estimates of eye health problems based on data from eye examinations

The NEHS was conducted between March 2015 and April 2016 [133]. It provides the latest evidence about the prevalence, causes and treatment of VI⁴³ and blindness⁴⁴ among Indigenous adults in Australia. The NEHS examined the eyes of 1,738 Indigenous people (aged 40-92 years) and 3,098 non-Indigenous people (aged 50-98 years) living in 30 randomly, selected urban, rural and remote sites across Australia. According to the NEHS, bilateral VI (vision impairment in both eyes) and bilateral blindness occurred among 11% and 0.3% of Indigenous people aged 40 year and over respectively.

Vision impairment increased with age among Indigenous adults participating in the NEHS, ranging from 5.7% for those in the 40-49 years age-group to 46% for those aged 80 years and over [133]. There was no significant difference in the prevalence of VI or blindness between Indigenous males and females. The prevalence of VI among Indigenous adults in outer regional and very remote areas (17% and 15% respectively) was up to double that in other areas (8.2% in major cities, 8.4% in inner regional areas and 8.3% in remote areas). In 2016, it was estimated that up to 18,300 Indigenous people aged 40 years or older were living with VI or blindness.

According to the NEHS, the main causes of VI in Indigenous adults were uncorrected refractive error⁴⁵ (63%) and cataract (20%) [133]. Diabetic retinopathy (DR) was the third most common cause of VI in Indigenous adults (5.5%). Among those participants with self-reported diabetes, a high proportion of Indigenous adults had DR and vision-threatening DR (39% and 9.5% respectively) [137]. While not among the main causes of VI, the prevalence of vision loss due to ocular trauma (eye injury) among Indigenous adults was 0.8% [138]. Participants who were male or living in a very remote area were also more likely to have vision loss from ocular trauma.

The NEHS identified five Indigenous participants with bilateral blindness, the main causes of which were cataract (two people), DR (one person), optic atrophy (one person) and a combination of mechanisms (one person) [133].

Prevalence estimates of eye health problems based on self-reported data

Although self-report is considered an unreliable population-based research tool for identifying eye disease in those with vision loss [139], self-reported information is the only recent data available for some aspects of eye health.

40 This calculation is based on figures for age-related macular degeneration, cataract, diabetic retinopathy, glaucoma and uncorrected refractive error [133].

41 Survey findings may not be directly comparable due to differing ways of defining and assessing vision loss [135].

42 Self-reported survey data may underestimate the prevalence of health conditions because participants: may not have been diagnosed yet, may not be willing to disclose a diagnosis, may have forgotten the diagnosis or misinterpreted the survey question [136].

43 The NEHS defines vision impairment as 'presenting distance visual acuity <6/12 in the better eye' [133].

44 The NEHS defines blindness as 'presenting distance visual acuity <6/60 in the better eye' [133].

45 A condition in which light that passes through the front of the eye fails to focus precisely on the retina, causing long or short sightedness and difficulties changing focus.

Eye and sight problems⁴⁶ were reported in the 2018-19 NATSIHS by more than one-third (38%) of Aboriginal and Torres Strait Islander people (38% of Aboriginal people and 40% of Torres Strait Islander people), making it the most commonly reported condition among the long-term health conditions that data was collected for in the survey [50]. The proportion of people self-reporting eye or sight problems has been consistently increasing since 2001 (Table 29). In 2018-19, eye and sight problems were reported by 32% of males and by 43% of females. The proportion of Aboriginal and Torres Strait Islander people reporting eye or sight problems in non-remote areas⁴⁷ was 40% and in remote areas was 30%, with the lowest proportion reported among those living in very remote areas at 27%. Proportions of people reporting eye or sight problems across jurisdictions varied, with the highest proportion being recorded in SA (49%) and the lowest in the NT (29%). Proportions reported for the other states and territories were; WA 33%; Qld 37%; NSW 38%; Vic 43%; ACT 47% and Tas 47%.

Table 29. Prevalence (%) of eye or sight problems, Aboriginal and Torres Strait Islander people, by remoteness, 2001 to 2018-19

	2001	2004-05	2012-13	2018-19
Non-remote	33	32	35	40
Remote	20	25	28	30
Total	29	30	33	38

Source: ABS, 2019 [50]

The most common eye conditions reported by Aboriginal and Torres Strait Islander people in the 2018-19 NATSIHS were: hyperopia (long-sightedness: 22%), myopia (short-sightedness: 16%), other diseases of the eye and adnexa⁴⁸ (8.7%), cataract (1.4%), blindness (0.9%) and glaucoma (0.5%) (Table 30) [50]. Females reported higher levels of refractive error (hyperopia and myopia) while males reported slightly higher levels of blindness and glaucoma.

Table 30. Prevalence of diseases of the eye and adnexa among Aboriginal and Torres Strait Islander people, by sex, 2018-19

	Males (%)	Females (%)	Persons (%)
Hyperopia	18	25	22
Myopia	11	20	16
Cataract	1.3	1.4	1.4
Blindness	0.9	0.8	0.9
Glaucoma	0.6	0.4	0.5
Other diseases of the eye and adnexa	8.3	9.2	8.7
Total	32	43	38

Notes:

1 Proportions are non-age standardised.

2 Hyperopia is otherwise known as long-sightedness.

3 Myopia is otherwise known as short-sightedness.

4 Refer to footnote for detailed explanation of 'Other diseases of the eye and adnexa'.

Source: ABS, 2019 [50]

In 2018-19, the prevalence of all diseases of the eye and adnexa in the Aboriginal and Torres Strait Islander population generally increased with age [50]. The total eye and adnexa diseases increased incrementally from 10% in the 0-14 years age-group to 93% in the 55 years and over age-group, apart from the 15-24 years and 25-34 years age-groups in which levels were about the same.

46 Eye and sight problems include: cataract; glaucoma; disorders of the choroid and retina; disorders of the ocular muscles, binocular movement, accommodation and refraction; visual disturbances and blindness; and other diseases of the eye and adnexa [50].

47 Non-remote areas include major cities and inner and outer regional areas [50].

48 'Other diseases of the eye and adnexa' include: macular degeneration, astigmatism, presbyopia, other disorders of choroid, retina/ocular muscles binocular, colour blind, other visual disturbances or loss of vision and other diseases of the eye and adnexa [50].

The most recent self-reported information on eye health problems for children comes from the 2014-15 NATSISS [27, 95]. In 2014-15, 13% of Aboriginal and Torres Strait Islander children aged 4-14 years were reported to have eye or sight problems (including treated/corrected eye or sight problems) [95]. Eye problems were less likely to be reported for children in remote areas (6.3%) than for those in non-remote areas (14%). For Aboriginal and Torres Strait Islander children aged 0-14 years, 9.7% had a long-term eye problem, with long-sightedness (4.7%) and short-sightedness (2.8%) being among the most common problems reported [8].

Prevalence estimates of trachoma and trichiasis based on surveillance

Trachoma primarily occurs in remote and very remote Indigenous communities in Qld, WA, SA and the NT, and Australia is the only high-income country with endemic levels of trachoma [140]. The National Trachoma Surveillance and Reporting Unit provides prevalence data for trachoma which shows there have been substantial improvements in trachoma control in Indigenous communities in Australia [141]. The estimated prevalence of active trachoma among Indigenous children aged 5-9 years in selected remote communities decreased from 14% in 2009 to 3.8% in 2017 [141, 142]. However, persistently high levels of trachoma continue to be found in some regions [141] and in 2018 there was a resurgence of trachoma in some communities that had previously been thought to have eliminated it [140]. From 2017 to 2018, there was a decrease in the number of communities found to be at-risk of trachoma (from 130 in 2017 to 120 in 2018), however the overall prevalence of trachoma in Australia increased slightly from 3.8% to 3.9% in this period and the number of communities with endemic trachoma increased from 60 to 63 [140].

In 2018, screening was undertaken in at-risk communities in Qld, WA, SA and the NT. Among the 2,045 children aged 5-9 years who were screened, 144 cases were detected: 82 were in the NT, 57 in WA, 3 in SA and 2 in Qld [140]. This was an increase from levels in 2017 when the total number of cases detected was 91 [140, 141]. No trachoma was reported in children aged 5-9 years in 30% of at-risk communities, a decrease from 2017 when 39% of at-risk communities reported no trachoma [140].

If left untreated, trachoma can cause scarring of the eyelid and in-turned eyelashes that lead to blindness (trichiasis) [141]. In 2018, screening in at risk communities in Qld, WA, SA and the NT detected trichiasis in 0.1% of Indigenous adults aged 15 years and over and 0.3% of those aged 40 years and over [140]. A total of 23 cases of trichiasis were detected, this had decreased from 2017 when 50 cases were detected [140-142].

Hospitalisation

In 2017-18, there were 4,513 hospital separations for diseases of the eye and adnexa among Aboriginal and Torres Strait Islander people in Australia [39], accounting for 1.6% of separations (excluding dialysis) (Derived from [39]). After age-adjustment, the hospitalisation rate for diseases of the eye and adnexa was 12 per 1,000 people.

A more detailed analysis of hospitalisation data is available for the period July 2015 to June 2017 [143]. In this period, there were 8,274 (Table 31) hospitalisations for diseases of the eye (by principal diagnosis) among Aboriginal and Torres Strait Islander people, with the majority (5,092) being for disorders of the lens, a category which primarily refer to cataracts. There were more hospitalisations for diseases of the eye among females (55%) than males (45%). Crude hospitalisation rates for diseases of the eye among Aboriginal and Torres Strait Islander people increased with remoteness from 3.9 per 1,000 population in major cities, 5.2 per 1,000 in inner and outer regional areas through to 7.5 per 1,000 in remote and very remote areas.

Table 31. Hospitalisation rates for Aboriginal and Torres Strait Islander people for diseases of the eye, by age and sex, 2015-17

Age-group	Number of hospitalisations		Rate per 1,000 persons	
	Males	Females	Males	Females
0-24 years	461	389	1.1	1
25-34 years	147	164	1.3	1.5
35-44 years	215	214	2.7	2.6
45-54 years	474	501	6.8	6.6
55-64 years	891	1,092	19	22
65-74 years	1,000	1,387	48	59
75-84 years	464	720	74	88
85 years +	60	95	52	50

Notes:

- 1 Based on principal diagnosis only.
- 2 Includes public and private hospitals.
- 3 Data for 2015-16 and 2016-17.
- 4 Data are crude rates per 1,000 Indigenous population.

Source: AIHW, 2018 [143]

Between July 2015 and June 2017, there were also 1,944 hospitalisations for eye injury among Aboriginal and Torres Strait Islander people [143]. Crude hospitalisation rates for eye injury were highest among Aboriginal and Torres Strait Islander males in the 35-44 years age-group at a rate of 2.8 per 1,000. The highest rates for females were reported in the 25-34 and 35-44 years age-groups, both with a rate of 2.2 per 1,000.

Ear health and hearing

Otitis media (OM) is the medical term for all forms of inflammation and infection of the middle ear [144]. OM can be caused by viruses or bacteria or both, and often occurs as a result of another illness, such as a cold [145]. The main cause of hearing loss in Aboriginal and Torres Strait Islander children is OM and its complications, including otitis media with effusion (glue ear) and chronic suppurative otitis media (CSOM) (persistent discharge through a hole in the eardrum) [144, 146].

The hearing loss associated with OM can cause speech, language and psychosocial delays, and impact on education and employment outcomes [145, 147-149]. OM can affect Aboriginal and Torres Strait Islander babies within weeks of birth and a high proportion of children living in remote communities will continue to suffer from CSOM throughout their developmental years [150].

As with many other areas of Aboriginal and Torres Strait Islander health, high rates of recurring ear infections are associated with social disadvantage, crowded housing conditions, inadequate access to clean water and functional sewerage systems, nutritional problems and poor access to health care [8]. A reduced risk of OM has been found for children who were breastfed [8, 151].

Extent of ear disease among Aboriginal and Torres Strait Islander people

Prevalence

High levels of ear disease and hearing loss have been reported for many years in Aboriginal and Torres Strait Islander communities [145]. The levels of chronic OM described among children living in some remote communities in northern and central Australia have been such that they would be classified by the WHO as being 'a massive public health problem' requiring 'urgent attention' [152, p.2].

Multiple surveys undertaken between 2001 and 2013 showed that 90% of children under three years of age living in remote communities in the Top End region of Australia had some form of OM [153-155]; however, changes in vaccination schedules in the NT have been associated with a sustained improvement in the severity of OM seen in these children [155].

Ear and/or hearing problems were reported as a long-term health condition by 14% of all Aboriginal and

Torres Strait Islander people who participated in the 2018-19 NATSIHS [50]. Levels of reported ear/hearing problems were the same for males and females (14%). Prevalence differed little between remote areas (13%) and non-remote areas (14%). Of Australia's states and territories, the ACT had the highest reported prevalence of ear/hearing problems (21%) and the NT the lowest (10%). Ear/hearing problems were reported by 10% of Torres Strait Islander people and 14% of Aboriginal people.

The proportion of Aboriginal and Torres Strait Islander people with ear/hearing problems in the 2018-19 NATSIHS increased with age, from 6.9% of children aged 0-14 years, to 34% of those aged 55 years and over [50]. For children aged 0-14 years, the prevalence of OM was 2.6% and of partial or complete deafness was 3.8%. Hearing loss in adults ranged from 6.5% of adults aged 15-24 years to 30% of those aged 55 years and over.

Ear or hearing problems were reported for 8.4% of Aboriginal and Torres Strait Islander children aged 0-14 who participated in the 2014-15 NATSISS [95]. OM was reported for 2.9% of children and deafness for 3.0% [54]. Ear and hearing problems were more prevalent among children in remote areas (11.4%) than children in non-remote areas (7.5%).

Ear problems were reported for 21% of children aged 5 ½ to 7 years who participated in the Longitudinal Study of Indigenous Children (LSIC) in 2013⁴⁹ [156]. The prevalence of ear problems was highest among children in areas of moderate remoteness (25%), and lowest among children in areas of low remoteness (20%).

Information about the ear health and hearing status of young Aboriginal and Torres Strait Islander people in the NT is collected from an outreach ear program funded by the Australian Government⁵⁰ [157]. Of the 1,817 Aboriginal and Torres Strait Islander people aged 0-20 years who received a service through the program in 2018, 61% were diagnosed with at least one type of ear condition at their latest visit. The prevalence of ear conditions ranged from 52% among those aged 11-15 years to 73% among those aged 0-2 years. Among children and young people who had an ear condition, the most common diagnosis was otitis media with effusion (23%), followed by eustachian tube dysfunction⁵¹ (18%), CSOM without discharge (15%) and CSOM with discharge (13%). Of the children who received an audiology service through the program, 47% were found to have some hearing loss in one or both ears.

GP attendances and hospitalisation

In 2010-15, ear and hearing problems accounted for 8.4% of all GP encounters with Aboriginal and Torres Strait Islander children aged 0-14 years (11% of encounters with children aged 0-14 years and 5.5% of encounters with children aged 5-14 years) [54]. The majority (84%) of ear-related encounters were for ear infection, primarily acute OM (Derived from [54].)

There were 3,693 ear-related hospitalisations in 2017-18 [39], representing 1.3% of all hospitalisations (excluding dialysis) of Aboriginal and Torres Strait Islander people (Derived from [39].) Aboriginal and Torres Strait Islander people were hospitalised for ear disease at an age-adjusted rate of 4.1 per 1,000 population [39].

In 2014-15, there were 1,858 ear-related hospitalisations for Aboriginal and Torres Strait Islander children aged 0-14 years [8], of which 90% were for diseases of the middle ear and mastoid (Derived from [8]). The crude rate of ear-related hospitalisation for children aged 0-14 years was 7.5 per 1,000 (9.5 per 1,000 for children aged 0-3 years and 6.8 per 1,000 for children aged 4-14 years) [8]. The crude rate of ear-related hospitalisation for children in remote areas (14 per 1,000) was higher than the rate for children in regional areas (5.9 per 1,000) and major cities (6.3 per 1,000).

⁴⁹ Ear problems were those experienced 'in the past year', as reported by carers of children in the younger cohort of the LSIC, during Wave 6 of data collection [156].

⁵⁰ Population is not a random sample, and is not representative of all Aboriginal and Torres Strait Islander children and young people in the NT.

⁵¹ Blocking of the tubes that run between the middle ear and the upper throat.

Oral health

Oral health is defined as the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort and disease of the craniofacial complex [158]. The two most common oral diseases are dental caries (tooth decay) and periodontal disease (gum disease) [159].

Dental caries occurs when bacteria in plaque interacts with sugar in food and drink to produce acids that degrade tooth enamel [160]. The stickiness of the plaque keeps these acids in contact with teeth and, over time, the enamel can break down and a cavity forms. The main contributor to caries is the consumption of free sugars⁵². Untreated caries can lead to pain and an increased likelihood of root canal therapy or tooth extraction being needed.

Periodontal diseases are a group of inflammatory diseases that affect the gums and other parts of the mouth structure [160]. Gingivitis is an early reversible form of the disease which, if untreated, can lead to a serious condition called periodontitis. The factors associated with periodontitis include smoking, diabetes, obesity, low socioeconomic status, adverse maternal outcomes, poor oral hygiene and older age.

The importance of improving the oral health of Aboriginal and Torres Strait Islander people was recognised by the Australian Medical Association (AMA) in 2019 when it dedicated its annual report card on Indigenous health to the topic of oral health [161]. Actions identified by the AMA as crucial to the improvement of Aboriginal and Torres Strait Islander oral health included increasing fluoridation of Australia's water supplies, enhancing oral health promotion, growing the Aboriginal and Torres Strait Islander dental workforce and strengthening data collection.

Extent of oral health problems among Aboriginal and Torres Strait Islander people

Prevalence of child oral health problems

The 2012-2014 National Child Oral Health Study (NCOHS) provided estimates of clinically-measured oral health problems among Australian children [159]. The study had 24,664 participants aged 5 to 14 years and included a nationally representative sample of Aboriginal and Torres Strait Islander children.

The 2012-2014 NCOHS found that:

- The proportion of Aboriginal and Torres Strait Islander children aged 5-10 years who had experienced any tooth decay in their primary (baby) teeth was 61% [159]. The average number of decayed, missing or filled primary tooth surfaces⁵³ for Aboriginal and Torres Strait Islander children aged 5-10 years was 6.3.
- The proportion of Aboriginal and Torres Strait Islander children aged 6-14 years who had experienced any tooth decay in their permanent (adult) teeth was 36% [159]. The average number of decayed, missing or filled permanent tooth surfaces for Aboriginal and Torres Strait Islander children aged 6-14 years was 1.3 [159].
- The prevalence of visible dental plaque among Aboriginal and Torres Strait Islander children aged 5-14 years was 60% and the prevalence of gingivitis was 34% [159]. Both are indicators of oral hygiene status.

The 2014-15 NATSISS collected data about the self-reported tooth or gum problems of Aboriginal and Torres Strait Islander children. In 2014-15, the proportion of 4-14 year-old children with reported tooth or gum problems was 34%, a decrease from 39% in 2008 [95].

Dental services in the NT have been provided to Aboriginal and Torres Strait Islander children under the age of 16 years through a succession of programs funded by the Australian Government and delivered by the NT Government, most recently through the Northern Territory Remote Aboriginal Investment Oral Health Program [162]. In 2018, among the 2,719 service recipients (Derived from [162]) for whom complete data is available, tooth decay prevalence was highest among children aged 7 and 8 years (86%), and lowest among

⁵² Free sugars are added sugars plus those naturally occurring in honey, fruit juice and fruit concentrate.

⁵³ Counting the number of surfaces of a person's tooth that are decayed, missing or filled gives an indication of oral health.

children aged 1-3 years (41%)⁵⁴ [162]. Children aged 5 years old had the highest average number of decayed, missing or filled primary teeth (5.6 teeth), and children aged 15 years had the highest average number of decayed, missing or filled permanent teeth (3.4 teeth).

Prevalence of adult oral health problems

Reliable national estimates of the prevalence of caries and periodontal disease among Aboriginal and Torres Strait Islander adults, based on clinically-obtained data, do not currently exist [27, 160, 161, 163, 164].

Dentist visits and hospitalisation

In the 2018-19 NATSIHS, 44% of Aboriginal and Torres Strait Islander people aged 2 years and over reported having seen a dentist or dental professional in the 12 months prior to the survey [50]. The proportion of young people (aged 2-17 years) who had made a dental visit (57%) was higher than the proportion of adults (36%). People in remote areas were about as likely to have made a dental visit as people in non-remote areas (41% and 44% respectively). The proportion of people who had made a dental visit was highest in Vic (51%) and lowest in WA (40%). People who had a non-school qualification (such as a degree or vocational training certificate) were more likely to have made a dental visit than those who did not (41% and 34% respectively).

A number of other surveys have collected self-reported data about dental visits made by Aboriginal and Torres Strait Islander people: in the 2014-15 NATSISS, 49% of Aboriginal and Torres Strait Islander children aged less than 15 years were reported as having a dental consultation in the 12 months prior to the survey [27], and in the 2012-2014 NCOHS, 75% of Aboriginal and Torres Strait Islander children aged 5-14 years were reported as visiting a dental provider in the 12 months prior to the survey [159].

In 2016-17, there were 3,418 potentially preventable hospitalisations for dental conditions for Aboriginal and Torres Strait Islander people [165]. The age-standardised rate of hospitalisation was 4.6 per 1,000. The age-standardised rate was highest for those aged 5-9 years (13 per 1,000) and lowest for those aged over 65 years (1.6 per 1,000).

In 2016-17, after age-adjustment, the hospitalisation rate for acute dental conditions for Aboriginal and Torres Strait Islander people was 3.8 per 1,000 [65]. Rates were highest in the NT (5.4 per 1,000), WA (4.3 per 1,000) and SA (4.3 per 1,000), and lowest in NSW (3.4 per 1,000) and Tas (2.7 per 1,000).

In 2016-17, there were 3,716 dental hospitalisations requiring general anaesthesia for Aboriginal and Torres Strait Islander people⁵⁵ [165]. The age-standardised rate was 5.0 per 1,000. Rates were highest for those aged 5-9 years (13 per 1,000) and lowest for those aged over 65 years (1.0 per 1,000).

The crude rate of potentially preventable hospitalisations for dental conditions for Aboriginal and Torres Strait Islander people in 2014-15 was 4.2 per 1,000 [8]. The rate for Aboriginal and Torres Strait Islander people living in remote and very remote areas (7.2 per 1,000) was 2.5 times the rate for those in major cities (2.9 per 1,000).

Disability

Disability can be defined as a limitation, restriction or impairment which has lasted, or is likely to last, for at least six months and restricts everyday activities [166]. It can be considered in terms of the nature of the impairment in body structure or function, a limitation in activities (such as mobility and communication), a restriction in participation (involvement in life situations, such as work, education and social interaction), and the interaction between an individual and their personal and environmental context [30]. A profound or severe core-activity limitation refers to a specified condition for which the person requires help or supervision in one or more core activities (e.g. self-care, mobility or communication) [95].

Aboriginal and Torres Strait Islander people may perceive the concept of disability differently to non-Indigenous people [167]. For Aboriginal and Torres Strait Islander people, the concept of disability is often viewed within the context of their beliefs, attitudes and experiences of disability.

⁵⁴ Children who receive services through this program are not a random sample of the population and, as such, the data may not be representative of the general population of Aboriginal and Torres Strait Islander children in the NT [162].

⁵⁵ General anaesthesia is required for those hospitalisations where dental disease is severe, or a patient has additional complications.

The main source of information about the level of disability at a population level in Australia is the ABS periodic Survey of Disability, Ageing and Carers (SDAC)⁵⁶, which collects information about the prevalence of disability and also data about people's needs for assistance with core activities [166]. Information about disability, at a population level, is also collected in Australia's five-yearly censuses [168], and among Aboriginal and Torres Strait Islander people in surveys such as the NATSISS and NATSIHS [95].

The greater burden of disability experienced by Aboriginal and Torres Strait Islander people is associated with poorer physical and mental health, increased exposure to risk factors, and higher levels of socioeconomic disadvantage [73, 95].

Extent of disability among Aboriginal and Torres Strait Islander people

Prevalence

It was reported in the 2018-19 NATSIHS that 27% of Aboriginal and 24% of Torres Strait Islander people aged 15 years and over had a disability or restrictive long-term health condition [50]. The proportions for both Aboriginal and Torres Strait Islander males and females combined were the same (27%). It was reported more frequently in a non-remote setting (28%) than a remote setting (21%). Also, in the survey 8.2% of Aboriginal and 8.3% of Torres Strait Islanders reported a profound or severe core activity limitation: the proportion for Aboriginal and Torres Strait males was higher (8.6%) than females (7.6%). A profound/severe disability was reported more often in non-remote areas (8.6%) than in remote area (5.7%).

The 2016 Census provided information on assistance for Australians with a profound or severe disability. In 2016, 6.7% of Aboriginal and Torres Strait Islander people reported a need for assistance with either self-care, mobility or communication (for an additional 6.1% of respondents, a need for assistance was not stated) [168]. Of those who needed assistance, more males (53%) needed assistance than females (47%) and the need for assistance was highest among the 5-14 years and 65 years and over age-groups (both 19%) followed by the 45-54 and 55-64 year age-groups (both 15%).

In the 2015 SDAC⁵⁷, 24% of Aboriginal and Torres Strait Islander people living in households in Australia reported living with a disability, remaining unchanged from the 2012 survey [166]. Disability prevalence rates for Aboriginal and Torres Strait Islander males and females were similar, 23% and 25% respectively. Of all Aboriginal and Torres Strait Islander people, 7.3% had a profound or severe limitation with similar rates for males and females (7.1% and 7.0% respectively). The prevalence of profound or severe limitation increased with age, with people aged 55 years and over five times more likely to have a limitation compared with those aged 15-34 years. Of those with a disability, 60% needed assistance with at least one activity such as self-care, mobility and communication.

In the 2014-15 NATSISS, 45% of Aboriginal and Torres Strait Islander people aged 15 years and over reported having a disability or restrictive long-term health condition (43% males and 47% females); 7.7% of Aboriginal and Torres Strait Islander people reported having a profound or severe core activity restriction (7.1% males and 8.4% females) [95]. The most common type of disability reported was physical impairment (29%), followed by disability relating to sight, hearing or speech (21%) and psychological (8.8%) and intellectual (8.2%) impairments. Aboriginal and Torres Strait Islander females were more likely than males to have a physical disability (31% compared with 27%), or psychological disability (10% compared with 7.3%) [95].

Services

The disability services field has experienced many changes in recent years, refer to previous issues of the *Overview* for a summary of these changes.

The 2018-19 NATSIHS provides information for health service use (GPs, specialist and hospital admissions) among Aboriginal and Torres Strait Islanders with a disability or restrictive long-term health condition [50]. In the last 12 months, 94% saw a GP or specialist and 27% were admitted to hospital.

Not all people who could benefit from the use of disability support services access them. To assess the level of use of disability services by Aboriginal and Torres Strait Islander people, attention is directed to the 'potential population' of users: 'the number of people with the potential to require disability support

⁵⁶ The SDAC does not include people living in discrete Indigenous communities and very remote areas [166].

⁵⁷ The 2018 SDAC is available however to date no information is available for Aboriginal and Torres Strait Islander people.

services, including individuals who meet the service eligibility criteria but who do not demand these services' [169]. In 2016-17, the rate of the 'potential population' of Aboriginal and Torres Strait Islander people who used the National Disability Agreement (NDA) services (excluding the ACT) was 44 per 1,000 potential population for accommodation support, 52 per 1,000 for community access services, 107 per 1,000 for respite services and 205 per 1,000 for community support services [169].

For disability services provided under the NDA for 2017-18, 5.9% of service users were identified as Aboriginal and Torres Strait Islanders (Table 32) [170].

Table 32. Numbers and proportions (%) of disability services users, Aboriginal and Torres Strait Islander people, Australia, 2013-14 to 2017-18

Year	Indigenous		Not stated ³
	Number	Proportion	Number
2017-18	15,771	5.9	11,894
2016-17	19,311	6.1	13,305
2015-16	19,290	6.0	12,430
2014-15	19,031	5.9	12,028
2013-14	18,021	5.8	11,879

Notes:

- 1 Service user data are estimates to account for individuals who received services from more than one service type outlet during the 12-month period.
- 2 Service user data were not collected for all NDA service types.
- 3 Percentages are of the total excluding service users for whom Indigenous status was 'not stated/not collected'.
- 4 The ACT was not required to collect data for 2017-18.
- 5 Includes service users who only accessed recreational/holiday programs. This service type was not required to complete this data item.

Source: AIHW, 2019 [170]

In 2017-18, service use was higher among Aboriginal and Torres Strait Islander males (60%) than females (40%) [170]. The majority (82%) of Aboriginal and Torres Strait Islander service users were aged under 50 years, with the average age for users being 31.0 years. When considering the living arrangements of users, 41% lived with family, 28% lived with others and 27% lived alone.

In 2017-18, the proportion of Aboriginal and Torres Strait Islander service users who lived in major cities was 39% [170]. A further 30% lived in an inner regional area, 21% lived in an outer regional area, and 10% lived in a remote or very remote area.

Similar to 'potential population' users, in 2017-18, the service group commonly used by Aboriginal and Torres Strait Islander people (if employment services are excluded) was community support (41%) [170]. The primary disability groups accessing services were Aboriginal and Torres Strait Islander people with a psychiatric condition (24%), intellectual disability (23%) and physical disability (20%).

In 2017-18, 2,524 Aboriginal and Torres Strait Islander NDA service users transitioned to the National Disability Insurance Scheme, this included 2,304 people who identified as Aboriginal, 57 who identified as a Torres Strait Islander and 163 who identified as both an Aboriginal and Torres Strait Islander [170].

Communicable diseases

Communicable diseases (caused by infectious agents e.g. bacteria, viruses, parasites, fungi, or their toxic products) can be passed from a person or an animal to another [30]. Risk factors vary according to the type of disease. Improvements to sanitation and the increased use of vaccination and antibiotics have markedly reduced some infectious diseases in Australia [30, 171].

Sexually transmitted infections

Sexually transmissible infections (STIs) include bacterial, viral and parasitic infections that are transmitted through sexual contact [172]. Young people are particularly vulnerable to STI infections. The use of condoms is regarded as fundamental in preventing STI transmission. Most STIs are treatable and early detection is important in the management of STIs.

Chlamydia

Chlamydia is an infection caused by the bacterium *Chlamydia trachomatis* and is asymptomatic in about 80% of cases [173]. In 2017, there were 7,015 notifications of chlamydia for Aboriginal and Torres Strait Islander people accounting for 7% of the notifications in Australia (Indigenous status was not reported for 62% of notifications). For STIs, chlamydia was the most frequently diagnosed infection in Australia in 2017. The notification rate⁵⁸ for chlamydia among Aboriginal and Torres Strait Islander people living in Qld, WA, SA and the NT was 1,194 per 100,000.

In 2017, for the jurisdictions where data are reported, the highest notifications were in Qld (48% of notifications), followed by WA (24%), NT (23%) and SA (5.1%) [173].

Chlamydia is typically diagnosed among young people [173]. In 2017, people aged 15-29 years accounted for 82% of chlamydia notifications in the Aboriginal and Torres Strait Islander population. The median age of diagnosis was 21 years of age. Aboriginal and Torres Strait Islander females accounted for a greater proportion of chlamydia diagnoses than males, with a male-to-female ratio of 0.5:1. The rates of chlamydia notifications in Aboriginal and Torres Strait Islander females aged 15-19 and 20-29 years were 7,450 and 4,957 per 100,000, 3.8 and 2.7 times higher respectively than in the non-Indigenous population. Higher notification rates for Aboriginal and Torres Strait Islander females aged 15-19 years may be due to greater health care attendance and subsequent testing.

There was a 7.9% decline in chlamydia notification rates for Aboriginal and Torres Strait Islander males from 952 per 100,000 in 2013 to 877 per 100,000 in 2017, and a 9.8% decline for females from 1,688 per 100,000 in 2013 to 1,523 per 100,000 in 2017 [173].

Gonorrhoea

Gonorrhoea is an infection caused by the bacterium *Neisseria gonorrhoeae* [173]. In 2017, there were 4,119 gonorrhoea notifications for Aboriginal and Torres Strait Islander people accounting for 15% of the notifications in Australia (Indigenous status was not reported for 32% of notifications). The notification rate⁵⁹ for Aboriginal and Torres Strait Islander people living in Vic, Qld, WA, SA, Tas, ACT and the NT was 628 per 100,000. Between 2013 and 2017 the notification rate declined by 12% from 714 per 100,000 in 2013 to 628 per 100,000 in 2017.

In 2017, for the jurisdictions where data are reported, the highest notifications were in the NT (40% of notifications), followed by WA (29%) and Qld (22%) [173].

In 2017, one-third (31%) of gonorrhoea notifications for the Aboriginal and Torres Strait Islander population occurred in the 15-19 years age-group [173]. The median age of diagnosis in 2017 was 22 years of age which has remained the same over the period 2013-2017.

In 2017, Aboriginal and Torres Strait Islander females were more likely to be diagnosed with gonorrhoea than Aboriginal and Torres Strait Islander males, with a male to female ratio of 0.8:1 [173].

Syphilis

Syphilis is an infection caused by the bacterium *Treponema pallidum* [173]. In 2017, there were 779 syphilis notifications for Aboriginal and Torres Strait Islander people accounting for 18% of the notifications in Australia (Indigenous status was not reported for 7% of notifications). The syphilis age-standardised notification rate⁶⁰ for Aboriginal and Torres Strait Islander people was 103 per 100,000. Between 2013 and 2017 the notification rate increased by approximately 426% from 20 per 100,000 in 2013 to 103 per 100,000 in 2017.

58 Chlamydia notifications were based on data from Qld, WA, SA and the NT where Aboriginal and Torres Strait Islander status was $\geq 50\%$ complete per year for 2017 [173].

59 Gonorrhoea notification rates were based on data from Vic, Qld, WA, SA, Tas, the ACT and the NT where Aboriginal and Torres Strait Islander status was $\geq 50\%$ complete for 2017 [173].

60 Syphilis notification rates were based on data from all jurisdictions in Australia with Aboriginal and Torres Strait Islander status being $\geq 50\%$ complete for 2017 [173].

In 2017, Qld (45%) and the NT (35%) accounted for 80% of the syphilis notifications from all jurisdictions, with WA having the next highest reported notifications (9.2%) [173].

In 2017, the syphilis notification rates for Aboriginal and Torres Strait Islander males were highest in the 30-39 years age-group (233 per 100,000) [173]. For females, rates were highest in the 15-19 years age-group (238 per 100,000). The median age of diagnosis for males and females combined was 27 years of age.

In 2017, the proportion of infectious syphilis notifications for Aboriginal and Torres Strait Islander people was 50% for males and females [173].

The human immunodeficiency virus (HIV)

The human immunodeficiency virus (HIV) can be transmitted either by sexual or blood contact and from mother to child; if untreated, it can progress to acquired immune deficiency syndrome (AIDS) [173]. In 2018, there were 833 cases of newly diagnosed HIV infection in Australia of which 34 (4%) were among Aboriginal and Torres Strait Islander people [174]. Age-standardised rates of HIV diagnosis for Aboriginal and Torres Strait Islander people were 4.6 per 100,000 population, up from 4.4 per 100,000 in 2017 [175].

In 2018, Aboriginal and Torres Strait Islander males accounted for 91% of new HIV cases among Aboriginal and Torres Strait Islander people. HIV age-standardised notification rates among males were 8.0 per 100,000, and among females, 1.1 per 100,000 [175]. Rates were 5.3 per 100,000 for Aboriginal and Torres Strait Islanders 35 years of age and above, compared with 4.0 per 100,000 for under 35 years of age. For 2018, the highest age-standardised notification rates were found in major cities (6.2 per 100,000), followed by remote areas (5.4 per 100,000) and regional areas (2.4 per 100,000).

In terms of exposure to HIV, men who have sex with men accounted for 50% of new HIV cases among Aboriginal and Torres Strait Islander people for the period 2014-2018 [174]. Heterosexual contact was also identified as a common form of exposure to HIV among Aboriginal and Torres Strait Islander people (21%). These levels were similar to the 2009-2013 results where 51% of all new cases were attributed to 'men who have sex with men' and 21% to 'heterosexual contact'.

Hepatitis

Hepatitis is an inflammation of the liver which can be caused by viral infections [30].

Hepatitis C

Transmission of hepatitis C virus (HCV) mainly occurs via blood contact and from mother to newborn [173]. Treatment for HCV using direct-acting antiviral therapies have been found to be highly effective [176]. There is no vaccine to protect people against HCV [177].

In 2017, of the 10,537 people diagnosed with HCV in Australia, 1,201 (11%) were identified as Aboriginal and Torres Strait Islander [173]. There were 5,182 (49%) notifications in 2017 for which Indigenous status was not reported. The age-adjusted notification rate for HCV was 168 per 100,000 population for Aboriginal and Torres Strait Islander people living in Qld, WA, SA Tas and the NT⁶¹. The HCV notification rate for Aboriginal and Torres Strait Islander males was higher than for females (227 and 110 per 100,000 respectively). This pattern was evident across all age-groups from 15 years of age and above. The highest rates were in the 30-39 year age-group (males: 490 per 100,000; females 289 per 100,000) followed by the 20-29 year age-group (males: 489 per 100,000; females 205 per 100,000).

There has been a 29% increase in the HCV notification rates for Aboriginal and Torres Strait Islander males from 176 per 100,000 in 2013 to 227 per 100,000 in 2017 and a 6% decrease for females from 117 in 2013 to 110 per 100,000 in 2017 [173].

⁶¹ HCV notification rates were based on data from Qld, WA, SA, Tas and the NT where Aboriginal and Torres Strait Islander status was ≥50% complete for 2013-2017 [173].

Hepatitis B

Transmission of hepatitis B virus (HBV) may be from blood or sexual contact or from mother to child at birth [173].

In 2017, of the 6,102 people diagnosed with newly acquired HBV in Australia, 151 (2%) were identified as Aboriginal and Torres Strait Islander [173]. There were 3,141 (51%) notifications in 2017 for which Indigenous status was not reported. After age-adjustment, the HBV notification rate for Aboriginal and Torres Strait Islander people living in, WA, SA, Tas, ACT and the NT⁶² was 45 per 100,000. The HBV notification rates among Aboriginal and Torres Strait Islander males were higher than for females (64 and 27 per 100,000 respectively). The highest rates for males were in the 40-49 year age-group (88 per 100,000) followed by the 60 years and over age-group (84 per 100,000). The highest rates for females were in the 60 years and over age-group (75 per 100,000) followed by the 40-49 year age-group (28 per 100,000). While recommended [178], HBV vaccination for Aboriginal and Torres Strait Islander adults is not funded under the NIP [179].

There has been a 37% decline in the HBV notification rates for Aboriginal and Torres Strait Islander people from 72 per 100,000 in 2013 to 45 per 100,000 in 2017 [173]. It is suggested that this reduction, mainly in the 'under 20 years' age-group, is due to immunisation programs for HBV [173, 179].

Pneumococcal disease

Pneumococcal disease results from infection by the bacterium *Streptococcus pneumoniae* which may cause severe invasive disease including meningitis, pneumonia, bacteraemia and non-invasive disease, including OM [180].

Nationally-funded vaccination for pneumococcal disease is available for Aboriginal and Torres Strait Islander infants and children, adults aged 50 years and older and those aged 15-49 years at high risk [181].

For 2011-2015, 1,152 (14%) of the 8,316 cases of invasive pneumococcal disease (IPD) were identified as Aboriginal and Torres Strait Islander [179]. The highest age-specific notification rate was for Aboriginal and Torres Strait Islander people aged 50 years and over (63 per 100,000 population) followed by the 0-4 age-group (42 per 100,000), with the lowest rate in the 15-24 year age-group (13 per 100,000). Underlying medical conditions, household crowding, exposure to tobacco smoke and other non-vaccine factors may contribute to the transmission of IPD which may explain the higher levels of IPD found in adults.

For 2014-15, Aboriginal and Torres Strait Islander children aged 0-4 years living in NSW, Vic, Qld, WA, SA and the NT were hospitalised for IPD at a rate of 0.4 per 100,000 [54].

For 2011-2015, there were 26 deaths (12% of the total of 223 deaths) attributed to IPD among Aboriginal and Torres Strait Islander people with 11 of the 26 deaths (42%) in the 50 years and over age-group [179].

Meningococcal disease

Meningococcal disease is caused by the bacterium *Neisseria meningitidis* (also known as meningococcus) [180]. The most common clinical presentations of invasive meningococcal disease are septicaemia and/or meningitis. Meningococcal disease is more common in infants, young children, adolescents and adults aged over 45 years [182].

The most common serogroups⁶³ of meningococcus found in Australia are B, C, W and Y [182]. MenACWY vaccination is available for adolescents via school-based immunisation and/or primary care providers and has been added to the National Immunisation Program as a single dose at age 12 months [183]. This funding was also extended to include specific populations, including Aboriginal and Torres Strait Islander people, based on age and region in WA, the NT and Tas. A vaccine for serogroup B⁶⁴ is available by private purchase with its impact yet to be determined [182].

For the period 2011-2015, 101 (10%) of the 966 notified cases of meningococcal disease were identified as Aboriginal and Torres Strait Islander [179]. The age-specific notification rates decreased with age from 14 per

62 HBV notification rates were based on data from WA, SA, Tas, ACT and the NT where Aboriginal and Torres Strait Islander status was $\geq 50\%$ complete for 2013-2017 [173].

63 A serogroup is a group of bacteria containing a common antigen.

64 SA provides free vaccination for eligible children and young people ending on 31 December 2019 [183].

100,000 population in the 0-4 year age-group to 0.4 per 100,000 in the 50 years and over age-group. Serogroup B was responsible for most cases during this reporting period.

For 2006-2015, the incidence rate of meningococcal serogroup B (MenB) among Aboriginal and Torres Strait Islander people was 2.8 per 100,000 with the age-specific rate highest in infants less than 12 months of age (33 per 100,000) [184].

Detailed hospitalisation data for meningococcal disease are not available, however, for the 2011-2015 period, Aboriginal and Torres Strait Islander experienced high levels of admissions, with the highest admissions being in the 0-4 and 5-14 years age-groups [179].

For 2011-2015, of the 53 reported deaths from meningococcal disease, six or 11% were recorded for Aboriginal and Torres Strait Islander people [179].

Tuberculosis

Tuberculosis (TB) is primarily a lung infection caused by the inhalation of *Mycobacterium tuberculosis* bacteria [180]. With high incidence rates in the NT, Qld and SA among Aboriginal and Torres Strait Islander people [180], the National Tuberculosis Advisory Committee recommends neonates in high incidence communities receive the BCG vaccine [185].

In 2015, of the 1,255 notifications of TB in Australia, 27 (2.2%) were identified as Aboriginal and seven (0.6%) as Torres Strait Islander [186].

Further information is available for 2010-2014 when it was reported that 172 (22%) of the 789 notifications of TB among Australian-born people in Australia were identified as Indigenous [187-190]. In Australia, the notification rate for TB was 5.0 cases per 100,000 population for Indigenous people; the crude notification rate was highest for the NT (17 cases per 100,000 population) (Derived from [187-191]). The notification rate of TB for Indigenous people was highest in the 45-54 and 55-64 year age-groups (16 and 15 per 100,000 respectively) (Derived from [187-192]).

In 2014-15, Aboriginal and Torres Strait Islander people were hospitalised for TB at a rate of 0.2 per 1,000, after age-adjustment [8]. Hospitalisation rates were highest for Aboriginal and Torres Strait Islander people in the 45-64 year age-group (0.6 per 1,000) followed by the 65 years and over age-group (0.5 per 1,000)⁶⁵.

Haemophilus influenzae type b

Haemophilus influenzae type b (Hib) is a bacterium that can cause a number of conditions including meningitis, pneumonia, epiglottitis, septic arthritis and cellulitis [180]. Children are particularly susceptible to Hib, which is serious in its invasive form [179, 180]. Vaccination has substantially reduced notifications of invasive Hib disease in Australia, with a reduction of more than 99% across both the Aboriginal and Torres Strait Islander and non-Indigenous populations compared with the pre-immunisation era [179].

For 2011-2015, 16 (19%) of the 86 cases of invasive Hib disease notified in all jurisdictions were identified as Aboriginal and Torres Strait Islander [179]. The highest notification rate was for Aboriginal and Torres Strait Islander children aged 0-4 years (3.3 per 100,000 population). The only other Aboriginal and Torres Strait Islander age-group to report cases was the 25-49 years age-group (0.2 per 100,000). Between 2007-2010 and 2011-2015 notification rates have decreased by around 67%, from 0.9 per 100,000 to 0.3 per 100,000 [179, 193].

Skin health

The most common skin infections affecting Aboriginal and Torres Strait Islander children are scabies and impetigo [194, 195]. Scabies is a skin disease caused by the mite *Sarcoptes scabiei* that produces skin inflammation and itching [196]. Scratching in response to a scabies infestation can result in impetigo⁶⁶, a bacterial infection of the skin [196, 198]. Research suggests that scabies mites could also spread bacterial infection and promote bacterial growth [199, 200]. Impetigo in Aboriginal and Torres Strait Islander communities commonly involves GAS, which brings a risk of severe effects including kidney disease and, possibly, ARF [201-205].

⁶⁵ Rates were not available for the 15-24 year age-group.

⁶⁶ Impetigo is also referred to as skin sores, or the broader term, pyoderma, and these terms are commonly used interchangeably [197].

Resource-poor environments [206, 207] and the ‘normalisation’ of infections in communities [208, 209] are associated with an increased burden of skin infections and infestations. The treatment and control of scabies and impetigo in remote Aboriginal communities has been a challenge for many years [209]. Preventative, focused and collaborative programs based within remote Aboriginal communities have had some positive outcomes [210-212], however, these outcomes have not continued over the longer-term [213]. One current program, the StoP (See, Treat, Prevent) Skin Sores and Scabies Trial in WA, aims to address the issues of sustainability and the ethical aspects of Indigenous research so that the positive outcomes of this trial, and others that may follow, will extend beyond the life of the programs [213].

Risk factors for skin infections include: perinatal risk factors [214] family income, overcrowding, quality of water supply and housing, access to affordable healthy food, hygiene, adherence to treatment programs and cultural sensitivities [209, 215].

Prevalence

Scabies is endemic in some remote central and northern Aboriginal and Torres Strait Islander communities, affecting both adults and children (cited in [216, 217]). Most prevalence data available is for children, with research indicating that the most frequent age of the first infection for both skin sores and scabies is at three to four months of age [218]. Aboriginal and Torres Strait Islander people, particularly those living in the high-rainfall, humid areas of northern Australia, are also vulnerable to a variety of other fungal and bacterial infections [219].

Aboriginal and Torres Strait Islander children under 15 years of age were screened between September 2004 and August 2007 in five remote NT communities for the East Arnhem Healthy Skin Project (EAHSP). Over the course of the study, the average monthly prevalence for pyoderma was 36% and for scabies 13% [210]. For children under three years of age, scabies prevalence was 23%, double that of children aged 3-14 years (11%). However, scabies prevalence did decrease with age. Nearly all participants in the study (92%) had presented with pyoderma and 35% with scabies at least once.

A study of medical records for children born between 2001-2006 participating in the EAHSP found that 69% of children had presented with scabies and 82% had presented with skin sores during their first year of life [220]. A study based on the EAHSP data show similar results with 84% of children presenting at least once with skin sores and 71% with scabies before their first birthday [218]. It was also revealed in the study of medical records that skin sores were seven times more likely to be present if scabies was also diagnosed than if scabies was not evident [220]. In the Skin Sore Trial, conducted in seven remote NT communities between November 2009 and November 2012, scabies was detected in almost 17% of Aboriginal and Torres Strait Islander children who had impetigo [194, 203].

The 2018-19 NATSIHS provides some data for diseases of the skin and subcutaneous tissue⁶⁷ [50]. The proportion of Aboriginal and Torres Strait Islander people reporting a disease of the skin and subcutaneous tissue was 3.2% (males 2.4% and females 4.0%). The prevalence reported ranged from 2.1% in the 0-14 year age-group to 4.7% in the 25-34 years age-group.

Hospitalisation and primary health care presentation

There were 11,283 hospital separations with a principal diagnosis of ‘diseases of the skin and subcutaneous tissue’ among Aboriginal and Torres Strait Islander people in 2017-18 [39], representing 4.0% of all separations (excluding dialysis) among Aboriginal and Torres Strait Islander people.

A report by the Australasian College for Emergency Medicine examined the experiences of Aboriginal and Torres Strait Islander people presenting to public hospital emergency departments⁶⁸ [221]. For the period 2014-15, 6.7% of emergency presentations among Aboriginal and Torres Strait Islander people were for illness of the skin/subcutaneous tissue/breast. It was reported most commonly by Aboriginal and Torres Strait Islanders in the 0-14 year age-group (7-10%). Emergency presentations in NSW, Qld, Vic, WA, SA and the NT for illness of skin/ subcutaneous tissue/breast were highest in WA (10% of presentations in that state), followed by the NT (8.3%) and NSW (5.5%).

⁶⁷ Includes dermatitis, eczema, psoriasis and other diseases, symptoms and signs of the skin and subcutaneous tissue.

⁶⁸ The information presented utilises data obtained from the National Non-admitted Patient Emergency Department Care Database managed by the AIHW for reporting public hospitals.

In 2014-15, the hospitalisation rates of 'diseases of the skin and subcutaneous tissue' as a principal diagnosis among Aboriginal and Torres Strait Islander children aged four years and under in Australia were 4.0 and 3.0 times higher for those living in remote and very remote areas respectively, than for those living in major cities and inner and outer regional areas respectively (Derived from [8]).

Between October 2015 and January 2016, 49% of children under 16 years of age (74% who were Aboriginal), admitted to two regional hospitals in WA were diagnosed with impetigo and 8.2% with scabies [222, 223].

In 2014, a healthy skin initiative in a remote Aboriginal community in the Kimberley was implemented in response to an outbreak of acute post streptococcal glomerulonephritis which can affect the kidneys after a GAS infection of the throat or skin [224]. Before the intervention, 9.5%, of all primary health care presentations to the local clinic among Aboriginal children 0-17 years, were for scabies. This dropped to 2.2% after the initiative was implemented.

For 2006-2010, 10% of medical admissions to Mt Isa Hospital (Qld) for children aged under five years, were due to scabies or pyoderma; all were Aboriginal and Torres Strait Islander children [225].

Factors contributing to Aboriginal and Torres Strait Islander health

Selected health risk and protective factors

The factors contributing to the health status of Aboriginal and Torres Strait Islander people should be seen within the broad context of the social determinants of health [30, 226]. The WHO describes the social determinants of health as the conditions in which people are born, grow, live, work and age [227]. A life course approach to health and the risk of disease, known as life course epidemiology, integrates theories about the social determinants of health, fetal and developmental origins of disease and the impact of lifestyle and individual behaviour [228]). The determinants of health, some of which are discussed in the *Social and cultural concepts* section of this *Overview*, are shaped by a wider set of forces and systems, including policies, political systems and social norms [227, 229].

For the health of Aboriginal and Torres Strait Islander people, social disadvantage needs to be considered together with 'health risk and protective factors'. These are the behaviours, characteristics, or exposures that may increase or decrease the likelihood of developing a particular health condition [30]. Health risk and protective factors can be divided into non-modifiable factors, often biomedical (e.g. age, sex, genetics), and modifiable factors which are environmental or behavioural and which, in theory, can be changed [30, 73, 230]. It is important to note that risk is based on probability, or likelihood [231]. Not everyone who is exposed to a known risk factor will have an adverse outcome [231], and people may develop a health condition without ever having been exposed to an associated risk factor [230].

The selected health risk and protective factors summarised in the following sections are generally related to individual behaviour. However, these behavioural factors should be considered within the context of the social determinants of health and structural influences that could be shaping behaviour and the ability to make changes over a person's lifespan [232, 233]. Research undertaken in WA emphasised the importance of having a strong cultural identity in enabling Aboriginal people to make healthy choices [234].

Nutrition

The diets of Aboriginal and Torres Strait Islander people have changed since the time of colonisation, from traditional diets that were high in protein, fibre, polyunsaturated fat and complex carbohydrates to a more highly refined carbohydrate diet, with added sugars, saturated fat, sodium and low levels of fibre [235]. Traditional foods remain an important part of the diet for many people, and are strongly linked to culture, identity and country.

The nutritional status of Aboriginal and Torres Strait Islander people is influenced by many factors such as socioeconomic disadvantage, and environmental, geographical and social factors [236]. Poor diet is an important factor contributing to being overweight and obese, malnutrition, CVD, type 2 diabetes and tooth decay [236, 237]. The Australian dietary guidelines recommend that adults eat fruit and plenty of vegetables every day, selected from a wide variety of types and colours [237]. The guidelines also

recommend including reduced fat varieties of milk, yoghurts and cheeses, and limiting the intake of added sugar and salt, and the consumption of 'discretionary'⁶⁹ foods and drinks.

A recent report by the AIHW states that there is little difference between the food and nutrient intakes and health outcomes of Aboriginal and Torres Strait Islander people and non-Indigenous Australians [239].

Fruit consumption

In the 2018-19 NATSIHS, participants self-reported their usual serves of fruit eaten per day, 39% of Aboriginal and Torres Strait Islander people (aged 15 years and over) met the recommendations for usual serves [50]. Females (aged 15 years and over) were more likely than their male counterparts to have eaten an adequate amount of fruit (44% and 35% respectively). The guidelines for daily fruit intake were met by 69% of Aboriginal and Torres Strait Islander children aged 2-14 years and 92% of 2-3 year-olds. Slightly higher proportions of Aboriginal and Torres Strait Islander people living in remote compared with non-remote areas usually met the guidelines for daily serves of fruit (42% and 39% respectively). For children, this was reversed (61% and 66% respectively).

Based on data from the 2012-13 National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey (NATSINPAS), Aboriginal and Torres Strait Islander children (aged 2-18 years) averaged 1.6 serves of fruit a day and adults (aged 19 years and over) averaged one serve per day [240].

Vegetable consumption

In the 2018-19 NATSIHS, participants self-reported their usual serves of vegetables eaten per day, 4.2% of Aboriginal and Torres Strait Islander people (aged 15 years and over) met the recommendations for daily serves [50]. Females (aged 15 years and over) were more likely than their male counterparts to have eaten an adequate amount of vegetables (6.3% and 1.7% respectively). The guidelines for daily vegetable intake were met by 6.5% of Aboriginal and Torres Strait Islander children aged 2-14 years and 23% of 2-3 year-olds. Similar proportions of Aboriginal and Torres Strait Islander people living in non-remote and remote areas usually met the guidelines for daily serves of vegetables (4.3% and 3.6% respectively). For children, this was also the case (6.2% and 5.6% respectively).

According to the 2012-13 NATSINPAS, Aboriginal and Torres Strait Islander children (aged 2-18 years) averaged 1.4 serves of vegetables a day and adults (aged 19 years and over) averaged 2.1 serves per day [240].

Fruit and vegetable dietary behaviour and labour force

The 2012-13 AATSIHS examined associations between dietary behaviour and labour force status and educational attainment [241]. After age-adjustment, unemployed Aboriginal and Torres Strait Islander people were more likely to have an inadequate daily fruit intake (63%) and inadequate vegetable intake (98%) than those who were employed (54% and 94% respectively), or not in the labour force (60% and 95% respectively). When considering educational levels, Aboriginal and Torres Strait Islander people who had completed year 10 or below were more likely to consume inadequate amounts of fruit (59%) and vegetables (95%) than those who had completed year 12 or equivalent (54% and 93% respectively).

Discretionary foods

According to the 2012-13 NATSINPAS, discretionary foods were consumed by a large proportion of Aboriginal and Torres Strait Islander people in the 24 hours prior to the survey, including confectionary (25%), snack foods (20%) and alcoholic beverages (11%) [242]. On average, Aboriginal and Torres Strait Islander people consumed 41% of their total daily energy in the form of discretionary foods; including 8.8% of daily energy as cereal-based products (such as cakes, biscuits and pastries), and 6.9% of daily energy as non-alcoholic beverages (such as soft drinks) [243]. Similar proportions of females and males consumed all discretionary foods except for alcoholic beverages for which twice as many males as females reported consuming (15% and 7.7% respectively) [242]. People in non-remote areas were more likely to consume all discretionary foods types than those in remote areas, except for non-alcoholic beverages (99% of people in both non-remote and remote locations).

⁶⁹ Foods that are energy dense but do not provide many/any nutrients and that typically contain high levels of sugar, salt and fat [237, 238].

In the 2018-19 NATSIHS, 24% of Aboriginal and Torres Strait Islander people (aged 15 years and over) reported that they usually consumed sugar sweetened drinks every day and 5.5% consumed diet drinks; 71% (75% of males and 67% of females) usually consumed sugar sweetened drinks or diet drinks at least once per week [50]. For children (aged 2-14 years), 20% usually consumed sugar sweetened drinks daily and 1.5% consumed diet drinks daily; 63% usually consumed sugar sweetened drinks or diet drinks at least once a week. The proportion of people who usually consumed sugar sweetened or diet drinks was higher for people living in remote areas (77%) than for non-remote areas (69%). The proportion was lowest for those aged 45-54 years (63%) and 55 years and over (49%), compared with 80% for people aged less than 45 years.

Sugar consumption

The WHO recommends that both adults and children consume less than 10% of daily dietary energy from free sugars⁷⁰ [244]. According to the 2012-13 NATSINPAS, Aboriginal and Torres Strait Islander people consumed 111 grams (g) of total sugars per day on average [238]. Around two-thirds of this (75 g or 18 teaspoons of white sugar) was free sugars which equated to an average of 14% of daily dietary energy from free sugars. Ninety-one percent (91%) of the free sugars were added sugars (Derived from [238]). Males consumed more total sugars on average than females (121 g compared with 101 g) especially in the 14-18 years age-group (147 g compared with 102 g). The variation in sugar consumption across age and sex was mostly due to the consumption of free sugars as the amount of intrinsic and milk sugars consumed remained relatively constant across all age and sex groups. The majority of free sugars consumed were from discretionary foods and beverages.

Sodium (salt) consumption

According to the 2012-13 NATSINPAS, the average daily amount of sodium consumed from food by Aboriginal and Torres Strait Islander people was 2,379 mg (approximately one teaspoon of salt) [243]. This excludes salt added by consumers when preparing or eating food. Sodium consumption was higher among males than females (2,638 mg and 2,122 mg respectively). Males in all age-groups, except for those 51 years and older, had average intakes that exceeded the upper level of sodium intake recommended by the National Health and Medical Research Council (NHMRC).

Bush foods

As a proxy measure of bush food consumption, participants in the 2012-13 NATSINPAS were asked about their consumption of foods that were naturally harvested or wild-caught, such as fish and seafood, wild harvested fruit and vegetables, reptiles and insects [242]. Aboriginal and Torres Strait Islander people in remote areas were more likely than their non-remote counterparts to eat non-commercially caught fin fish (7.8% and 1.8% respectively); crustacea and molluscs (1.2% and 0.3% respectively); wild harvested meat (7.7% and 0% respectively) and reptiles (3.9% and 0.1% respectively).

Biomarkers of nutrition

The 2012-13 National Aboriginal and Torres Strait Islander Health Measures Survey (NATSIHMS) collected information on biomarkers of nutrition, including vitamin D, anaemia and iodine [245]. It found that:

- More than a quarter of Aboriginal and Torres Strait Islander adults (27%) had a vitamin D deficiency. The levels of vitamin D deficiency were similar for both Aboriginal and Torres Strait Islander males and females across all age-groups (ranging from 25% to 29%). Vitamin D deficiency was more common among Aboriginal and Torres Strait Islander people living in remote areas (39%) than those in non-remote areas (23%).
- The proportion of Aboriginal and Torres Strait Islander adults who were at risk of anaemia was 7.6%. Females were more likely to be at risk of anaemia than males (10% compared with 4.8%). The risk of anaemia was higher for those living in remote areas compared with those living in non-remote areas (10% compared with 6.9%).
- The Aboriginal and Torres Strait Islander adult population was found to be iodine-sufficient. Those living in remote areas had higher median levels than those living in non-remote areas.

⁷⁰ Free sugars are added sugars plus those naturally occurring in honey, fruit juice and fruit concentrate [238].

Food security

The 2012-13 NATSINPAS addressed the issue of food security by asking respondents if they had run out of food and couldn't afford to buy more in the last 12 months [246]. This had been a problem for 22% of respondents; 7% of respondents had run out and gone without food, while 15% had run out but not gone without food. People in remote areas were more likely to run out of food than people in non-remote areas (31% and 20% respectively) and slightly more likely to go without (9.2% and 6.4% respectively). A recent study conducted in urban settings identified that food insecurity was intermittently experienced by Aboriginal and Torres Strait Islander families, occurring particularly when large household bills were due [247]. A study of five remote community stores on the Anangu Pitjantjatjara Yankunytjatjara (APY) Lands of SA in June 2017 assessed food insecurity and found that nearly 50% of disposable household income was spent on food (compared with the international benchmark of 30%), with 62% of this food budget appearing to be allocated to discretionary foods and drinks (alcohol was not available in the communities) [248].

Breastfeeding

Breast milk is the natural and optimum food for babies and provides all the energy and nutrients that a baby needs for the first six months of life [237, 249]. Breastfeeding promotes sensory and cognitive development, contributes to the development of the baby's microbiome and protects the baby against OM, SIDS, asthma, infectious diseases and some chronic diseases later in life [250]. Exclusive breastfeeding aids a quicker recovery from illness and reduces infant deaths from common childhood illnesses such as pneumonia or diarrhoea. The Australian dietary guidelines recommendation is to 'encourage, support and promote breastfeeding' p. 87 [237]. The WHO and United Nations International Children's Emergency Fund (UNICEF) recommend exclusive breastfeeding for six months followed by complementary feeding with continued breastfeeding for up to two years or beyond [249]. Breastfeeding contributes to the health of the mother by reducing the risk of ovarian and breast cancers and reducing maternal depression [250].

In the 2014-15 NATSISS, it was reported that 80% of Aboriginal and Torres Strait Islander children aged 0-3 years had been breastfed [27, 95]. This is similar to the proportion measured in the 2012-13 AATSIHS, where 83% of Aboriginal and Torres Strait Islander children aged 0-3 years had been breastfed. The NATSISS found that 18% of Aboriginal and Torres Strait Islander children aged 0-2 years had never been breastfed. Of those who had been breastfed, 15% of Aboriginal and Torres Strait Islander babies had been breastfed for less than one month. Around 4% of Aboriginal and Torres Strait Islander babies were breastfed for 12 months or more.

The proportion of Aboriginal and Torres Strait Islander children aged 0-2 years who had been breastfed ranged from 98% in the NT to 75% in Vic (87% in ACT, 86% in Qld, 83% in SA, 79% in NSW, 78% in Tas and 77% in WA) [27]. Breastfeeding proportions for Aboriginal and Torres Strait Islander children were higher in very remote areas (91%) compared with major cities (73%).

According to the 2010 Australian National Infant Feeding Survey, 87% of Indigenous mothers initiated breastfeeding, but levels of exclusive breastfeeding declined steeply, so that at five months of age, 11% of Indigenous babies were exclusively breastfed [251]. A study⁷¹ of women giving birth to an Aboriginal baby in SA between July 2011 and June 2013 found that while 86% initiated breastfeeding, this fell to 54% at 12 weeks and 33% at six months postpartum [252]. Exclusivity of breastfeeding was not recorded. The study also found that women living in remote or regional areas were more likely to breastfeed for longer.

A study of infant feeding behaviour among Aboriginal women in rural Australia concluded that lack of intergenerational support, unsupportive social factors and the pervasive presence of infant formula produced strong barriers to breastfeeding [253]. However, the study in SA mentioned above concluded that Aboriginal Family Birthing program services – which provide care by Aboriginal women – are having a beneficial impact on rates of breastfeeding of Aboriginal babies in urban areas [252, 254].

Physical activity

Physical activity is important for maintaining good overall health and wellbeing [255]. Low levels of activity, including high levels of sedentary behaviour are risk factors for a range of health conditions as well as being a strong contributor to obesity. Australia's physical activity and sedentary behaviour guidelines ('the guidelines') for adults recommends a combination of moderate and vigorous physical activity on most,

⁷¹ The findings of this study should be treated with caution due to the small number of participants.

preferably all, days of the week to improve health and reduce the risk of chronic disease and other conditions [256]. However, doing some physical activity is better than doing none and the health benefits of being physically active are continuous, starting with any activity above zero [257]. Regular physical activity reduces the risk of many health problems, such as CVD, type 2 diabetes, depression and certain cancers [256].

According to the 2018-19 NATSIHS, 11% of Aboriginal and Torres Strait Islander people aged 15 years and over had met the guidelines⁷² target of combining some or all of the following physical activities in the week prior to the survey: walking for transport, walking for fitness (recreation or sport), moderate or vigorous intensity exercise and strength or toning activities [50]. Prevalence varied by state and territory with the highest proportion of Aboriginal and Torres Strait Islander people who met the guidelines living in the ACT (21%) compared with the lowest proportion living in the NT (7.2%).

Nationally, 89% of Aboriginal and Torres Strait Islander people aged 15 years and over had not met the guidelines, and 22% had not participated in any physical activity in the week prior to the survey [50]. Prevalence varied across all states and territories for people who did not meet the guidelines, with the highest proportion being in WA (92%) and the NT (93%) compared with the lowest proportion in the ACT (79%).

For Aboriginal and Torres Strait Islander adults aged 18 years and over living in non-remote areas, 12% had met the guidelines [50]. A larger proportion of adults (20%) had done some strength or toning activities on two or more days in the week prior to the survey.

Among Aboriginal and Torres Strait Islander adults living in non-remote areas, a higher proportion of males than females met the guidelines (13% compared with 10% respectively), and had done some strength or toning activities on two or more days in the week prior to the survey (24% compared with 15% respectively) [50]. The proportion of Aboriginal and Torres Strait Islander males over the age of 18 years who participated in strength or toning activities on three or more days was 18%, while the proportion of females was 12%.

For information relating to Aboriginal and Torres Strait Islander children, please refer to the *Overview of Aboriginal and Torres Strait Islander health status 2018*.

Bodyweight

The most common measure for classifying a person's weight status is body mass index (BMI) (BMI: weight in kilograms divided by height in metres squared) or by measuring their waist circumference (WC) [258]. Being overweight (BMI 25 to 29) or obese (BMI of 30 or more) [258] increases a person's risk for CVD, type 2 diabetes, certain cancers, CKD and some musculoskeletal conditions [259]. A high BMI can be a result of many factors, alone or in combination, such as poor nutrition, physical inactivity, socioeconomic disadvantage, genetic predisposition, increased age and alcohol use [237, 260]. Being underweight (BMI less than 18.5) [73] can also have adverse health consequences, including lower immunity (leading to increased susceptibility to some infectious diseases) and osteoporosis (bone loss) [237].

Abdominal obesity, a risk factor for the development of metabolic syndrome, can be measured by WC alone (greater than 94 cm for males and greater than 80 cm for females), or waist-hip ratio (WHR) (greater than or equal to 0.90 for males and 0.85 for females) [261].

Obesity and abdominal obesity, as measured by BMI and WC, have been shown to be risk factors for hypertension [262] and type 2 diabetes in Aboriginal and Torres Strait Islander people [263]. However, optimal BMI and WC cut-offs are still uncertain for Aboriginal and Torres Strait Islander people (due to differences in body shape and other physiological factors) when calculating diabetes type 2 and cardiovascular risk [264-266]. It has been suggested that a BMI of 22 might be more appropriate than 25 as a measure of acceptable BMI for Aboriginal people [266]. There is also evidence that measuring the WHR in Aboriginal people is more accurate and easier to measure than BMI. An equation has been developed for calculating fat free mass in Aboriginal and Torres Strait Islander adults using the easily acquired variables of resistance⁷³, height, weight, age and sex for use in the clinical assessment and management of obesity [267].

72 The NATSIHS used the 2014 Australia's physical activity and sedentary behaviour guidelines for Australian adults aged 18 years and over. The workplace component of the guidelines was excluded.

73 When an electrical current is passed through the body, fatty tissue offers more resistance than lean tissue. The resistance to the flow of electricity is used to calculate the proportion of body fat in the individual.

Results from the 2018-19 NATSIHS indicated that 71% of Aboriginal and Torres Strait Islander people aged 15 years and over were either overweight or obese (Aboriginal people: 71% and Torres Strait Islander people: 75%) [50]. Almost 29% were overweight and 43% were obese. A further 25% of people were in the normal weight range and 3.9% were underweight. The survey found that the proportion of people measured, who were obese, was higher for females 45% than for males 40%. There was no marked difference between males and females who were overweight (31% compared with 27% respectively), normal weight (26% compared with 24% respectively) and underweight (3.2% compared with 4.5% respectively).

Between 2012-13 and 2018-19 the proportion of people who were overweight or obese increased for Aboriginal and Torres Strait Islander people aged 15 years and over (from 66% to 73%) [50]. Overweight and obesity increased with age: 15-17 years age-group: 42%, 18-24 years age-group: 59%, 25-34 years age-group: 73%, 35-44 years age-group: 80%, 45-54 years age-group: 81% and 82% for those over 55 years of age.

By jurisdiction (except the ACT where results had a high margin of error), the proportion of Aboriginal and Torres Strait Islander people, aged 15 years and over, who were overweight/obese was highest in Tas (76%) followed by NSW (74%) and Vic and WA (both 73%) [50]. The NT reported the highest proportion of people who were underweight/normal weight (41%) with the remaining states and territories between 26% and 30%.

Aboriginal and Torres Strait Islander people aged over 18 years living in major cities had a higher BMI than those living in very remote areas, (77% and 66% respectively). However, 80% of people living in inner regional areas were overweight or obese [50]. For respondents aged 15 years and over, those living in outer regional areas had the highest BMI (76%) followed by major cities (73%), with the overall proportion for non-remote areas (73%) compared with remote areas (64%). People living in remote areas were more likely to be underweight or have a normal BMI (36%) compared with non-remote residents (27%).

Measurements of WC were taken in the 2018-19 NATSIHS to help determine levels of risk for developing certain chronic diseases, such as diabetes and heart disease [50]. Based on WC, 71% of Aboriginal and Torres Strait Islander people aged 18 years or older were at an increased risk of developing chronic diseases, a higher proportion of females (81%) than males (60%) were at risk. This risk was highest in the 55 years and over age-group for both males and females (86%).

According to the 2018-19 NATSIHS, based on BMI information reported for children aged 2-17 years, 38% were overweight or obese (overweight 24%, obese 14%); 53% were normal weight and 8.8% were underweight [50]. For males, the highest BMI (overweight/obese) was reported in the 12-13 years age-group (54%) and the lowest in the 2-3 years age-group (22%). For females, the highest proportion was reported in the 2-3 years age-groups (44%) and the lowest in the 4-8 years age-group (35%). For normal weight, the highest proportions were reported for males in the 2-3 years age-group (68%) and for females in the 4-8 years age-group (57%). For the underweight category, the highest proportions for males was in the 4-8 years age-group (14%) and for females in the 14-17 years age-group (11%).

Tobacco use

Tobacco use has a number of health impacts, including increasing the risk of chronic disease, such as CVD, many forms of cancer, and lung diseases, as well as a variety of other health conditions [27]. Tobacco use is also a risk factor for complications during pregnancy and is associated with preterm birth, LBW, and perinatal death. Environmental tobacco smoke (passive smoking) is of concern to health, with children particularly susceptible to resultant problems that include exacerbation of middle ear infections, asthma, and increased risk of SIDS.

Extent of tobacco use among Aboriginal and Torres Strait Islander people

The 2018-19 NATSIHS found 37% of Aboriginal and Torres Strait Islander people aged 15 years and over reported they were current daily smokers [50]; a reduction from levels reported in the 2012-13 AATSIHS (41%). This is consistent with findings from the 2016 National Drug Strategy Household Survey (NDSHS) which found 27% of Aboriginal and Torres Strait Islander people aged 14 years and over reported smoking, declining from 32% in 2013 [268].

A report which looked at long-term smoking trends among Aboriginal and Torres Strait Islander people found some significant reductions in smoking rates over the 20 year period 1994 to 2014-15 [269]. In particular, smoking prevalence had decreased in those aged 18 years and over, and also in smoking initiation for the 15-17 years age-group. While the year-to-year declines in smoking rates reported in the major health surveys do not always appear to be significant, this report showed that there are encouraging trends in the younger age cohorts which will result in improved health outcomes over time.

In 2018-19, the proportion of Aboriginal and Torres Strait Islander males who were current daily smokers (39%) was higher than the proportion of Aboriginal and Torres Strait Islander females (36%) [50]. Aboriginal and Torres Strait Islander males had the highest proportion of current daily smokers across all age-groups, most notably in the 25-34 years age-group (47% compared with 41% of females). For Aboriginal and Torres Strait Islander people, the age-group with the highest proportion of current daily smokers was 35-44 years (47%).

In 2018-19, Aboriginal and Torres Strait Islander people living in remote areas reported a higher proportion of current daily smokers (49%) than those living in non-remote areas (35%) [50]. While there has been a decrease in smoking rates for non-remote areas since 2012-13 (down from 39%), the overall proportion of current smokers in remote areas in 2018-19 has only seen a minor decrease since 2012-13 (49% and 50% respectively).

When comparing smoking prevalence over the 14 years between the 2018-19 NATSIHS and the 2004-05 NATSIHS, the highest reductions in daily smoking have been found in the younger age-groups [50]. In 2004-05, the proportion of 18-24 year-olds who smoked daily was 50%, compared with 36% in 2018-19. The proportion for the 25-34 years age-group was 55% in 2004-05 compared with 44% in 2018-19.

Since 2009, the proportion of Aboriginal and Torres Strait Islander mothers who reported smoking during pregnancy has decreased from 52% in 2009 to 44% in 2017. The proportion of Aboriginal and Torres Strait Islander women who quit smoking after 20 weeks of pregnancy was 12%.

In 2014-15, the NATSISS found 57% of Aboriginal and Torres Strait Islander children aged 0-14 years lived in households with a daily smoker (a decline from 63% in 2008) [95]. For those children living with a daily smoker, 13% were living in households where people smoked indoors.

Alcohol use

Drinking too much alcohol, both on single drinking occasions (binge drinking) and over a person's lifetime can lead to health and social harms including chronic diseases, injury and transport accidents, mental health disorders, intergenerational trauma and violence. This affects individuals, families and the wider community [270, 271]. Many common factors influence why people drink too much alcohol, for example, socioeconomic disadvantage, stress and negative early life experiences [272, 273]. With regard to Aboriginal and Torres Strait Islander people, it is important to understand the historical and social contexts of colonisation, the effects of dispossession of land and culture and economic exclusion [270, 274, 275].

Aboriginal and Torres Strait Islander people are less likely to drink alcohol than non-Indigenous people, but those who do drink are more likely to at levels that cause harm [27, 271]. Evidence suggests that Aboriginal and Torres Strait Islander people have better health outcomes when there are adequately resourced and culturally safe alcohol and other drug (AOD) services provided by community controlled organisations [275, 276].

Extent of alcohol use among Aboriginal and Torres Strait Islander people

Assessing risks from use of alcohol

The 2009 NHMRC Australian guidelines to reduce health risks from drinking alcohol seeks to estimate the overall risk of alcohol-related harm over a person's lifetime [277]:

- Guideline 1 states that to reduce the risk of alcohol-related harm over a lifetime, no more than two standard drinks should be consumed on any day.
- Guideline 2 states that to reduce the risk of injury on a single occasion of drinking, no more than four standard drinks should be consumed.
- Guideline 3 recommends that the safest option is not drinking alcohol for those aged under 15 years and delaying alcohol use for as long as possible for those aged 15 to 17 years.
- Guideline 4 recommends that the safest option for pregnant and breastfeeding women is not to drink alcohol.

The *Draft Australian guidelines to reduce health risks from drinking alcohol* were released for consultation in December 2019 and recommend not drinking more than 10 standard drinks per week [278]. The guidelines also recommend that those younger than 18 years don't drink at all, and that women who are pregnant or planning to have a baby avoid alcohol.

Abstinence or no consumption of alcohol in the last 12 months

The 2018-19 NATSIHS found that 26% of Aboriginal and Torres Strait Islander people aged 18 years or older had never drunk alcohol or had not done so for more than 12 months (26% of Aboriginal people and 23% of Torres Strait Islander people) [50]. The proportion was higher for females (31%) than males (19%). The proportion was lowest for younger age-groups, 18-24 years (19%) and 25-34 years (18%), and highest for people aged 55 years and older (42%). Across the jurisdictions, the proportion ranged from 44% in the NT, followed by SA (28%), WA and Qld (both 25%), with the lowest in the ACT (10%). It was higher for people living in remote and very remote areas (37%) than non-remote areas (23%). In 2018-19, Aboriginal and Torres Strait Islander people were more likely to not drink alcohol than non-Indigenous people. After age-adjustment, abstinence was 1.4 times more common among Aboriginal and Torres Strait Islander people than among non-Indigenous people [50].

Short-term and single occasion risk

In the 2018-19 NATSIHS, 18% of Aboriginal people and 22% of Torres Strait Islander people aged 18 years and over reported not exceeding the 2009 guidelines for drinking at risk on a single occasion⁷⁴. However, 54% of Aboriginal and Torres Strait Islander people reported exceeding the guidelines, this was a decrease though since the 2012-13 survey (57%) [50, 119]. In 2018-19, males were 1.5 times more likely than females to exceed the guideline (65% compared with 43% respectively). Respondents in the younger age-groups (18-24 and 25-34 years) were more likely to exceed the guideline (65% and 62% respectively) and respondents in the 55 years and older were least likely to exceed the guideline (34%). In 2018-19 of the jurisdictions, WA reported the highest level of exceeding the guideline (61%) and NT the lowest (42%) [50]. The proportion exceeding the guidelines was similar for people living in remote (53%) or non-remote areas (54%).

Lifetime risk

In the 2018-19 NATSIHS, 26% of Aboriginal and Torres Strait Islander (26% Aboriginal and 21% of Torres Strait Islander) people aged 18 years and over reported not exceeding the 2009 guideline for drinking at lifetime risk⁷⁵ [50]. A further 20% of Aboriginal people and 24% of Torres Strait Islander people reported exceeding the guideline. Aboriginal and Torres Strait Islander males were three times more likely to exceed the guideline for lifetime risk (30%) compared with females (10%), and across all age-groups. Qld reported the highest proportion of people exceeding the guidelines (25%) among the jurisdictions and NT the lowest (13%). The proportion was higher in non-remote areas (21%) compared with remote areas (17%).

⁷⁴ Four or less standard drinks on a single day for both males and females.

⁷⁵ No more than two standard drinks on any single day.

The 2016 NDSHS reported that between 2010 and 2016 there was a decline (from 32% to 20%) in the proportion of Indigenous people aged 12 years and older exceeding the 2009 guidelines for lifetime risk [271].

Alcohol and pregnancy

Drinking alcohol in pregnancy can affect the unborn baby leading to fetal alcohol spectrum disorder, a diagnostic term that describes a range of conditions including central nervous system dysfunction, poor growth, characteristic facial features and developmental delay [279, 280]. The 2014-15 NATSISS reported a 50% reduction for mothers of Aboriginal and Torres Strait Islander children that drank through pregnancy, from 20% in 2008 to 9.8% in 2014-15 [95]. In the 2008 NATSISS, 80% of mothers of Indigenous children aged 0-3 years did not drink during pregnancy, 16% drank less, and 3% drank the same or more alcohol during pregnancy [281]. The proportion of mothers who drank the same or more alcohol during pregnancy was greatest in Tas and the ACT (6.0%), followed by Vic (5.4%), and WA (5.0%).

Hospitalisation

In 2014-15, the crude alcohol-related hospitalisation rate for Aboriginal and Torres Strait Islander people was 7.3 per 1,000 [8]. The rate was higher for males than females (8.2 per 1,000 and 6.3 per 1,000 respectively).

Between 2004-05 and 2014-15, age-adjusted hospital separations due to acute intoxication increased among Aboriginal and Torres Strait Islander people⁷⁶, from 2.1 per 1,000 to 5.8 per 1,000 [8]. In 2014-15, the highest crude rate of hospital separations related to alcohol use for Aboriginal and Torres Strait Islander people was for mental/behavioural disorders at 5.9 per 1,000 (males: 6.9 per 1,000 and females 4.9 per 1,000).

Hospital separation rates related to alcohol use due to acute intoxication for Aboriginal and Torres Strait Islander people in 2014-15 varied by level of remoteness [8]. Aboriginal and Torres Strait Islander people living in remote and very remote areas had the highest crude rate of hospitalisation due to acute intoxication (8.7 per 1,000) while people in major cities had the lowest (2.5 per 1,000).

Mortality

For 2013-2017 in NSW, Qld, WA, SA and NT, the Aboriginal and Torres Strait Islander age-adjusted death rate due to alcohol was 24 per 100,000 [282]. The death rate for Aboriginal and Torres Strait Islander males was 2.9 times higher due to alcohol use, compared with females (37 per 100,000 and 13 per 100,000 respectively). The main cause of alcohol-related deaths was from alcoholic liver disease [282].

Illicit drug use

Illicit drug use describes the use of drugs that are illegal to possess (e.g. cannabis, heroin, cocaine and methamphetamine), and the non-medical use of prescribed drugs such as painkillers [270, 283]. Illicit drug use is associated with an increased risk of; mental illness, poisoning, self-harm, infection with blood borne viruses from unsafe injection practices, chronic disease and death [8, 43, 284, 285].

Extent of illicit drug use among Aboriginal and Torres Strait Islander people

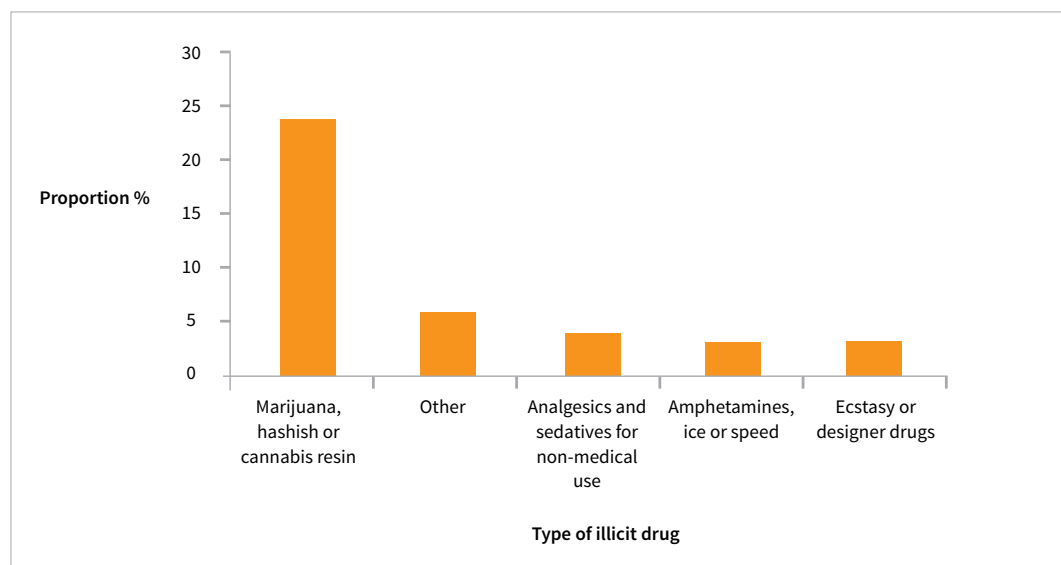
Surveys consistently show that most Aboriginal and Torres Strait Islander people do not use illicit drugs [95, 271, 286]. The two most recent national surveys to collect this data, the 2018-19 NATSIHS and the 2016 NDSHS found that 70% of people aged 15 years and over (NATSIHS) and 73% of people aged 14 years and over (NDSHS) reported either never using illicit drugs or had not used illicit drugs in the last 12 months (Derived from [50, 271]).

The 2018-19 NATSIHS found that 28% of people aged 15 years and over reported using illicit drugs in the last 12 months [50]. Similar proportions were recorded in the 2016 NDSHS which found 27% of people aged 14 years and over reported using illicit drugs in the last 12 months [271].

⁷⁶ In NSW, Vic, Qld, WA, SA and NT.

The 2018-19 NATSIHS found that cannabis (marijuana, hashish or cannabis resin) was the most commonly used illicit drug, used by 24% of Aboriginal and Torres Strait Islander people in the previous 12 months [50]. Similar proportions were found by the NDSHS which reported 19% of respondents used cannabis in the last 12 months [271]. The NATSIHS reported that, after cannabis, the most commonly used illicit drugs were ‘other drugs’⁷⁷ (5.9%) analgesics and sedatives for non-medical use (3.8%), amphetamines, ice or speed (3.3%) and ecstasy or designer drugs (3.3%).

Figure 3. Proportion of Aboriginal and Torres Strait Islander people who reported illicit drug use in the last 12 months, 2018-19



Note: ‘Other’ includes heroin, methadone, cocaine, petrol and other inhalants, LSD/hallucinogens, and kava.

Source: ABS, 2019 [50]

In 2018-19, Aboriginal and Torres Strait Islander males were more likely than females to have used an illicit drug in the previous 12 months (37% and 21% respectively) [50]. The higher proportions of use by males were found for all drug types. Almost three times as many males as females had used amphetamines (5.0% compared with 1.8%), and almost twice as many males had used cannabis (31% compared to 18%). Use of illicit drugs in the previous 12 months was similar for people aged 15 years or over living in non-remote areas and remote areas in 2018-19 (29% and 27%).

In 2017-18, 16% of clients seeking treatment for alcohol and drug use from general AOD treatment services were Aboriginal and Torres Strait Islander [287]. After alcohol, the most common principal drugs of concern that Aboriginal and Torres Strait Islander people sought treatment for were amphetamines, cannabis and heroin.

Use of amphetamines is associated with risky behaviour such as injecting drug use [288]. A 2019 report on the National Syringe Program (NSP) found that stimulants and hallucinogens (predominantly methamphetamines) were the most commonly injected drugs reported by attendees of NSPs [289]. Of those attending NSPs, 20% identified as Aboriginal or Torres Strait Islander.

Hospitalisation

In 2014-15, the most common drug-related conditions resulting in hospitalisation for Aboriginal and Torres Strait Islander people were for ‘poisoning’ and ‘mental and behavioural disorders’ [8]. The crude hospitalisation rate for Aboriginal and Torres Strait Islander people from poisoning due to drug use was 2.7 per 1,000 population and for mental and behavioural disorders due to drug use 3.4 per 1,000. Hospitalisation for mental/behavioural disorders from use of amphetamines⁷⁸ had the highest rate of separations due to drug use at 1.5 per 1,000. Cannabis use was the second highest cause of hospitalisation for mental and behavioural disorders due to drug use, at 0.8 per 1,000.

⁷⁷ More detailed information was not available at time of publication.

⁷⁸ ICD code F15 hospitalisation from use of other stimulants includes amphetamine-related disorders and caffeine but not cocaine.

Crude hospitalisation rates due to drug use were higher for Aboriginal and Torres Strait Islander people in major cities (8.5 per 1,000) than in inner and outer regional areas (5.8 per 1,000) and remote areas (3.8 per 1,000) [8].

Mortality

For the period 2010-2014, SA recorded the highest rate of drug-induced deaths for Aboriginal and Torres Strait Islander people (24 per 100,000), followed by NSW (17 per 100,000), and WA (9.4 per 100,000) [8]. Rates of drug induced deaths were higher for Aboriginal and Torres Strait Islander males (14 per 100,000) than for females (10 per 100,000).

Volatile substance use

Volatile substance use (VSU) involves sniffing substances that give off fumes at room temperature such as petrol, paint, glue or deodorants [290]. They are also called 'inhalants' because of the way people use them by inhaling the fumes through the nose or mouth.

Most volatile substances are central nervous system depressants which slow down brain activity [291]. Short-term effects include; slurred speech, lack of coordination, dizziness and euphoria [291, 292]. Sniffing volatile substances can cause the heart to stop within minutes [291]. This condition is known as sudden sniffing death and can happen to a first-time user who is otherwise healthy. VSU can also cause a person to lose consciousness, increasing the risk of suffocation [293].

Typically use of volatile substances is initiated at a young age (around 12 years and sometimes younger) which has implications for the developing brain and long-term health of young people using volatile substances [294, 295]. Exposure to toluene through sniffing petrol in adolescents has been shown to be associated with impaired growth for both height and weight and a 'failure to thrive' [295]. Excessive harmful inhalant use can also lead to permanent acquired brain injury [295-297]. Petrol is one of most dangerous volatile substances to sniff, especially when it contains tetraethyl lead (found in leaded petrol and no longer sold in Australia) which can result in damage to the brain [297, 298]. Long-term abstinence from inhalants however, may allow recovery of normal brain function, where encephalopathy from lead poisoning is not present [297].

Sniffing volatile substances repeatedly is also associated with damage to the kidneys, liver, heart and lungs, and can cause hearing loss and bone marrow damage [290, 291, 293].

Extent of VSU use among Aboriginal and Torres Strait Islander people

The 2012-13 AATSIHS found that 5.4% of Aboriginal and Torres Strait Islander people reported they had 'ever used' petrol and other inhalants, with more males reporting having ever used (6.6%) compared with females (4.2%) [299].

A study of petrol sniffing in 41 Aboriginal and Torres Strait Islander communities found that the number of people sniffing petrol decreased by 29% from 298 in 2011-12 to 204 in 2013-14 [300]. Since 2005, an overall decline in reported use for 17 of these communities for which there are comparable data, shows that the total number of people sniffing petrol has fallen, from 647 in 2005-06 to 78 in 2013-14, a reduction of 88%. This decrease in prevalence of sniffing has been associated with the replacement of regular unleaded petrol with low aromatic fuel (LAF) [300].

A follow up study on the effects of LAF found that in 25 communities for which there is comparable data the total estimated number of people sniffing petrol fell from 453 in 2006 to 22 in 2018, a decline of 95% [294]. The number of people sniffing petrol for these communities represented just under 1% of the population aged 5-39 years.

While overall the number of people using volatile substances is small, the issue of volatile substance use remains a potential for concern in some regions where opportunistic or casual sniffing of petrol and use of other volatile substances such as deodorants have been reported [294].

Hospitalisation

In 2014-15, the crude rate of hospital separations for Aboriginal and Torres Strait Islander people from poisoning and accidental poisoning due to the toxic effect of organic solvents (e.g. petrol) was 0.05 per 1,000 [8]. For males, hospitalisation rates from poisoning and accidental poisoning due to the toxic effect of organic solvents were 0.06 per 1,000 for both, and for females 0.04 and 0.03 per 1,000 respectively.

The crude rate of hospital separations due to mental/behavioural disorders from use of volatile substances was 0.06 per 1,000 (males 0.07 per 1,000 and females 0.04 per 1,000) [8].

Mortality

The systematic collection of VSU associated mortality data is very limited due to the practice of listing the medical explanation for death rather than the use of volatile substances as a cause [301]. For example, the death of a chronic petrol sniffer may be recorded as 'end-stage renal failure', not 'petrol sniffing'. This practice has most likely resulted in VSU mortality and morbidity rates being underestimated.

Early research using a combination of coronial and government reports, community death registers and personal communication identified 37 petrol sniffing deaths between 1998 and 2003 in Australia with the main reported causes of death being respiratory failure/asphyxia and suicide [302-304].

Immunisation

In recent decades, vaccination has been very successful in contributing to improvements in Aboriginal and Torres Strait Islander health and child survival [180]. Aboriginal and Torres Strait Islander children were the first to achieve the target of 95% for national immunisation coverage rates, making significant gains during the 2013-2018 period as part of the National Immunisation Strategy (NIS) [305]. The National Immunisation Program (NIP) schedule for the Australian population recommends vaccinations at different stages of life and additional recommendations for specific high risk populations [181]. A range of vaccinations are funded by the Australian Government for eligible people, which includes the influenza vaccine. This vaccine is provided free for Aboriginal and Torres Strait Islander people, people over 65 and over, pregnant women and people at risk medically [30]. Due to some vaccine-preventable diseases still being experienced at higher rates among Aboriginal and Torres Strait Islander people and children, other supplementary vaccines⁷⁹ are also specifically prescribed and provided free through the NIP, depending on age, location and health risk factors [306].

In 2017, the Australian Government implemented the Australian Immunisation Register along with the National Partnership on Essential Vaccines; an agreement between the states and territories and the Commonwealth of Australia which would also ensure high immunisation coverage rates for Aboriginal and Torres Strait Islander people [305]. At a national level, the development of culturally appropriate resources and follow up programs specifically for Aboriginal and Torres Strait Islander people, the employment of Aboriginal and Torres Strait Islander immunisation health workers in all local health districts of NSW, also contributed to the success of the NIS in increasing vaccination rates.

Childhood vaccination

Nationally, in 2014 it was agreed by the Australian Chief Medical Officer and state and territory chief health officers, to set a goal of having 95% of children fully immunised in line with the NIP schedule's recommendations relevant to their age [307]. The NIP requires the following vaccinations for a child to be considered fully immunised by age 5 years: diphtheria, tetanus, pertussis (whooping cough), hepatitis B, polio, *Haemophilus influenzae type b* (Hib) disease, pneumococcal conjugate, rotavirus, measles, mumps and rubella (MMR), meningococcal and varicella (chickenpox) [306].

⁷⁹ These include vaccinations for Bacille Calmette-Guérin (BCG) for newly born babies living in areas of high TB incidence in Qld, northern SA and NT, hepatitis A for children living in Qld, WA, SA and the NT, hepatitis B for adults not previously vaccinated against hepatitis B and who are non-immune, influenza for all persons aged 6 months or over, meningococcal for MenACWY and MenB for persons aged 2 months to 19 years, pneumococcal conjugate (13vPCV) for children living in Qld, WA, SA and the NT and pneumococcal polysaccharide (23vPPV) for children aged 4-5 years medically at risk, and all persons aged 50 years, and 65 years and older, with a second dose 5 years later, Japanese encephalitis for residents of the Torres Strait and outer islands with underlying conditions [306].

Across primary health networks (PHN), percentages for fully immunised Aboriginal and Torres Strait Islander children varied for all three age-groups. For the period October 2018 to September 2019, these were for [308]:

- 1 year-olds - 98% in the ACT to 88% in North Western Melbourne, Vic
- 2 year-olds - 94% in the ACT to 82% in Perth South, WA
- 5 year-olds - 99% in Gippsland, Qld to 90% in Northern Sydney, NSW.

For the period October 2018 to September 2019, the number of PHN areas with vaccination proportions above 95% for 1, 2 and 5 year-old fully immunised Aboriginal and Torres Strait Islander children, were: 7 out of 31, 0 out of 31, 25 out of 31, respectively [308]. The NIP schedule provides state and national data for fully immunised Aboriginal and Torres Strait Islander children, ranging from for [309]:

- 1 year-olds⁸⁰ - 98% in the ACT to 91% in SA; nationally 92%
- 2 year-olds⁸¹ - 94% in the ACT to 87% in SA; nationally 90%
- 5 year-olds⁸² - 98% in NSW to 96% in the NT; nationally 97%.

Adult vaccination

Vaccinations for HBV (if non-immune or non-vaccinated), seasonal influenza, pneumococcal disease, Japanese encephalitis (outer Torres Strait Islander residents) and MMR (non-pregnant women of child bearing age) if seronegative for rubella, are recommended for Aboriginal and Torres Strait Islander adults [306]. Due to the high rates of mortality and morbidity associated with HBV in the Aboriginal and Torres Strait Islander population, it is important that people are tested for HBV infection, and offered vaccination if they are not immune.

As reported in the *National key performance indicators for Aboriginal and Torres Strait Islander primary health care: results to June 2018*, 34% of Aboriginal and Torres Strait Islanders regular clients⁸³ aged over 50 years, were immunised against influenza compared with 36% in December 2017; 38% in remote areas, and 41% in very remote areas ([310]. For Aboriginal Torres Strait Islander males and females, the proportions were similar, both 34%, showing a slight decrease from December 2017, 35% and 36% respectively. To June 2018, for clients aged 15-49 years with type 2 diabetes and COPD, 34% and 37% were immunised against influenza compared with 36% and 37% respectively for December 2017.

The *Evaluation of the National Shingles Vaccination Program: process and early impact evaluation: final report* provides information on shingles vaccination for the period November 2016 to March 2018. The national vaccination coverage for Aboriginal and Torres Strait Islander people aged 70 years and over in the funded program was 43%, and 33% in the 71–79 years age-group [311]. In Vic, 71% of Aboriginal and Torres Strait Islander people aged 70 years were vaccinated for shingles, compared with 28% in WA (for the same period).

Environmental health

Environmental health refers to the physical, chemical and biological factors that may affect people in particular surroundings or settings [312]. Environmental factors can be associated with ill health conditions including intestinal and skin infections and some chronic diseases, for example, ARF, respiratory issues (such as asthma) and some cancers [313]. Aboriginal and Torres Strait Islander people are disproportionately affected by the diseases associated with environmental health due to a number of factors, including: the remoteness of some communities; poor infrastructure; lack of access to tradespeople and repairs; and the cost of maintenance [313, 314]. The physical and emotional wellbeing of Aboriginal and Torres Strait Islander people and especially for children, can be enhanced through improvements in environmental health and a healthy home environment, to reduce the rates and spread of diseases that are commonly linked to environmental causes [8].

80 Pneumococcal (dose 3) was included in the definition of fully immunised for the quarter ending 31 December 2013, for the 12 to less than 15 months cohort.

81 Dose 2 (MMR), and Meningococcal C (given at 12 months) were included in the definition of fully immunised from quarter ending 31 December 2014, for the 24 to 27 month cohort.

82 Dose 2 (MMR) was removed from the definition of fully immunised from quarter ending 31 December 2017 for the 60-63 month cohort.

83 A regular client is a person who has an active medical record, that is, a client who attended the primary health care organisation at least three time in the last two years [24].

This section will primarily cover information relevant to housing and infrastructure. For more detailed information about some of the health conditions associated with environmental health, see the *Cardiovascular health* section for information on ARF, the *Eye health* section for information on trachoma, the *Respiratory health* section for information on asthma and other related conditions, as well as the *Skin health* section for information about scabies and other skin health issues.

Housing

Housing issues such as overcrowding and poor infrastructure contribute significantly to the ill health of some Aboriginal and Torres Strait Islander people [95].

Overcrowding

Cultural aspects need to be considered in relation to housing conditions and overcrowding for Aboriginal and Torres Strait Islander people. Contributions to overcrowding include: visits to other households (to see relatives, for funerals or because of ties to neighbourhoods or towns and to be closer to 'country') and the high importance placed on demand sharing⁸⁴ [315].

In the 2016 Census, the ABS introduced a new housing suitability measure, which provides some data on overcrowding in Aboriginal and Torres Strait Islander communities [316]. In 2016, around one fifth (18%) of Aboriginal and Torres Strait Islander people were living in an overcrowded house⁸⁵. In regional and remote areas this figure was higher, with just over a quarter of Aboriginal and Torres Strait Islander people (28%) living in an overcrowded house, compared with 16% in urban areas. The Census also provided some information at a state and territory level. In 2016, the NT had the highest rates of overcrowding, with 53% of houses requiring one or more additional bedrooms. WA and Qld also had high levels of overcrowding (20% and 17% respectively).

More detailed information on overcrowding is available for the period 2014-15. This data shows there have been some small decreases in overcrowding in Aboriginal and Torres Strait Islander households in recent years [8]. In 2014-15, the proportion of Aboriginal and Torres Strait Islander people living in overcrowded households was 21%, this compares with 23% in 2012-13. Overcrowding was higher in very remote areas, in 2014-15, 49% of Aboriginal and Torres Strait Islander people were living in overcrowded households, compared with 15% for non-remote areas. However, over time there has been a decrease in overcrowding in very remote areas. In 2004-2005, 63% of Aboriginal and Torres Strait Islander people were living in an overcrowded household, decreasing to 49% in 2014-15 [8].

The proportion of Aboriginal and Torres Strait Islander people reporting overcrowding as a stressor has also decreased over time. In 2014-15, 6.5% of Aboriginal and Torres Strait Islander people reported overcrowding as a stressor in the last year, which was a decrease from 21% in 2002 [8]. This decrease was consistent across both remote and non-remote areas, but particularly for very remote areas, decreasing from 50% in 2002 to 9.8% in 2014-15 [8].

For social housing, the 2018 National Social Housing Survey (2018 NSHS) reported that of the 79% of Aboriginal and Torres Strait Islander people living in social housing, the size of dwellings met their needs [317].

Infrastructure

An important contributor to the health and wellbeing of Aboriginal and Torres Strait Islander people is access to working infrastructure in housing and communities, including sewerage, water supply and electricity [318] which support and encourage healthy living practices [8].

In the 2016 NSHS, 72% of Aboriginal and Torres Strait Islander respondents reported living in a house of an 'acceptable' standard [319]. In addition, 25% of Aboriginal and Torres Strait Islanders reported that their household facilities were of an acceptable standard, but the structure of the dwelling was not. *The Aboriginal and Torres Strait Islander people: a focus report on housing and homelessness* released in 2019, found there was infrastructure stress on bathrooms, sewerage systems, laundry facilities, and food preparation areas in overcrowded households [320].

⁸⁴ Demand sharing is mainly where resources and money are shared within an extended family group [315].

⁸⁵ A dwelling requiring one or more additional bedrooms, according to the Canadian Nation Occupancy Standard (CNOS), a measure widely used in Australia [316].

More detailed information on household infrastructure is available for 2014-15, when 82% of Aboriginal and Torres Strait Islander households were living in houses of an acceptable standard⁸⁶ [8]. This proportion has remained relatively stable, with 78% of households living in houses of an acceptable standard in 2012-13. In 2014-15, 26% of households reported major structural issues within their dwelling. However, this proportion has declined since 2012-13 when 35% of Aboriginal and Torres Strait Islander people reported living in a house with major structural issues. Dwellings with major structural problems increased with remoteness. In 2014-15, for Aboriginal and Torres Strait Islander households living in very remote areas, 37% reported living in a house with major structural problem, compared with 26% for non-remote areas. Nationally, the most significant issues for Aboriginal and Torres Strait Islander dwellings were major cracks in the walls/floors (11%), walls or windows not straight (6.1%) and major plumbing problems (5.7%) [8].

In terms of access to household facilities, the majority of Aboriginal and Torres Strait Islander households across Australia in 2014-15 had access to working facilities, with over nine in ten households reporting functioning facilities [8]. This included access to working facilities for: washing people (97%); washing clothes and bedding (91%); preparing food (92%) and sewerage facilities (97%). Access to working facilities in remote and very remote areas was lower than in non-remote areas. Overall, access to household facilities has remained relatively stable since 2012.

For Aboriginal and Torres Strait Islander people living in remote communities, a 2019 report, *Housing conditions and health in Indigenous Australian communities*, provides an overview of the current status of housing conditions and health, and the challenges [321].

Remote housing review

A 2017 review which assessed the outcomes of two Australian Government key strategies, the National Partnership Agreement for Remote Indigenous Housing (NPAI) and its replacement, the Remote Housing Strategy, found that there has been some progress in the provision of remote housing [322]. The strategy aimed to deliver in 2018; 11,500 liveable homes to remote areas consisting of 7,500 refurbishments and 4,000 new houses. To reduce levels of overcrowding to an acceptable level, an additional 5,500 houses are needed by 2028 in remote areas, of which half will need to meet the housing pressure in the NT.

However, there was also a range of ongoing issues that need to be addressed to reduce the levels of overcrowding, and to sustain the quality of housing achieved as a result of these strategies. There were also some issues around the implementation and development of the Remote Housing Strategy, which hampered the effectiveness of this program. These included:

- complications because of the Commonwealth being the only funder of the program, which did not ensure that the states and territories were adequately motivated to provide strong outcomes
- obstacles relating to objectives and shifting policy settings
- opportunities for local workers to be engaged in the program were not always available
- a lack of long-term employment and business growth because of the two-year capital work cycles.

The Australian Government recognises that in remote areas overcrowding and poor quality housing impacts on education and employment opportunities, health and safety [323]. As a result, national remote housing conditions was added as a high priority initiative to the 2019 Australian Infrastructure Plan.

Hospitalisation

In 2014-15, Aboriginal and Torres Strait Islander crude hospitalisation rates for selected diseases related to environmental health were 7.6 per 1,000 for intestinal infectious diseases, 7.4 per 1,000 for influenza and immunisation, 5.1 per 1,000 for bacterial disease and 2.3 per 1,000 for scabies [8]. Hospitalisation rates for the selected diseases increased with remoteness.

Mortality

For 2010-2014, in NSW, Qld, WA, SA and the NT, after age-adjustment, Aboriginal and Torres Strait Islander males died as a result of disease associated with poor environmental health at 46 per 100,000 and females 41 per 100,000 [8].

⁸⁶ Housing of an acceptable standard includes two components: working household facilities; and major structural components [8].

Concluding comments

This *Overview* describes the current health status of Aboriginal and Torres Strait Islander people in Australia. It provides a ‘snapshot’ of the most recent indicators of health and this year’s update shows some evidence of improvements. There has been a range of positive signs, for example, in recent years there has been a decrease in death rates, including infant mortality rates and a decline in death rates from avoidable causes. However, according to the *Closing the Gap report 2020*, the Aboriginal and Torres Strait Islander mortality rate has not met the target since 2011 and the rate of improvement for mortality rates has not been as strong as prior to the 2006 baseline [324]. In relation to Aboriginal and Torres Strait Islander child mortality rates, there has been an improvement of seven per cent between 2008 and 2018 although this improvement is not as strong as prior to the 2008 baseline. The 2018-19 NATSIHS reported that there has been a reduction in the proportion of Aboriginal and Torres Strait Islander people who smoke tobacco since the previous survey in 2013-14, this has been particularly evident in younger age groups [50]. As smoking is a risk factor for many health conditions, this is very good news. It has also been found that fewer mothers are smoking and drinking alcohol during pregnancy meaning that babies have a better start to life.

The style of the *Overview* is changing as described in the introduction. One of the key recommendations by many Indigenous scholars and leaders in the data sovereignty and governance debate is a call for data and statistics to be more cogently and coherently contextualised. The data and statistics reporting the health and wellbeing of Aboriginal and Torres Strait Islander people arise in the context of the lived experience of Aboriginal and Torres Strait Islander people and communities. In this respect, comparative data for Aboriginal and Torres Strait Islander people and non-Indigenous people is incommensurable. The lived experience of Aboriginal and Torres Strait Islander people and communities since colonisation simply has no parallel to the lived experience of non-Indigenous people regardless of their own diverse experiences.

The call by many leaders is now for local level data to inform local level solutions, as outlined by the Prime Minister in the *Closing the Gap report 2020* [324] and as Ian Anderson described in the *2017 Menzies Oration: democratising data/building a platform for Indigenous development* [325]. Others have called for disadvantageous comparisons to be dispensed with entirely and some (such as Craig Ritchie, AIATSIS [326]), have argued that comparative statistics (the ‘what’) should only be presented in the context of evidence for the ‘how’ and the ‘why’ the data is manifested as disadvantageous comparisons. In this edition of the *Overview*, we continue our journey of learning and understanding of what these principles mean and how to apply them in everyday practise.

The evidence for the impact of colonisation, the Stolen Generations and the subsequent intergenerational trauma is unarguable [2]. Significant challenges are how to address the consequences of colonisation and the consequential impact on health [327]. Racism, discrimination and disenfranchisement are manifestly evident in the daily lives of many Aboriginal and Torres Strait Islander people and communities and structurally perpetuated in many of the indicators of the social determinants of health such as employment, education and housing [328]. Thankfully, there has been a resurgence of the recognition of many of the cultural determinants of health [6]. The aspirations for a more appropriate use of data and for more robust data governance practices are embodied in the Principles for Data Governance articulated by the Maïam nayri Wingara Data Sovereignty Collective (<https://www.maïamnayriwingara.org>) [329].

The Australian Reconciliation Barometer (2018) [330] offers considerable additional insight into the ‘what’, ‘how’ and ‘why’ lived experience of Aboriginal and Torres Strait Islander people and provides a point of reflection when considering the context of the health data reported in this *Overview*. The Barometer reports on 5 key dimensions that explore the experiences of Aboriginal and Torres Strait Islander people as well as non-Indigenous Australians.

These 5 dimensions are:

- Race relations
- Equality and equity
- Institutional integrity
- Unity
- Historical acceptance

The dimensions are implicated as potential positive pathways forward.

According to the results of the Reconciliation Barometer, 95% of the general community and 94% of Aboriginal and Torres Strait Islander communities believe it is important or very important for Indigenous⁸⁷ people to have a say in their affairs [330]. Encouragingly, 86% of the general community believe it is important for all Australians to learn more about past issues. Eighty percent of the general community and 91% of Aboriginal and Torres Strait Islander people believe it is important to undertake some form of ‘truth telling’ process. On the less positive side, 43% of Indigenous respondents experienced at least one form of racism in the last six months, including verbal abuse (33%, which is twice that of the general community, 16%), refused entry to a venue (12%) and physical violence (14%). A slim majority of Aboriginal and Torres Strait Islander people (51%) believe Australia is racist country, compared to the general community (38%). It was reported that 63% of the general community rarely or never socialise with Aboriginal and Torres Strait Islander people and indeed most socialise more with any other major cultural groups. Trust remains low with only 27% of the general community indicating they trust Aboriginal and Torres Strait Islander people. So, while most respondents believe the relationship is important, trust remains stubbornly low.

A majority of people, both Indigenous and non-Indigenous, believe more needs to be done in the area of employment in all sectors (community, private, government and educational institutions). Fifty seven percent of Indigenous respondents believe that Aboriginal and Torres Strait Islander organisations need to more (36%) or a lot more (21%), compared with 53% of the general community (37% and 16% respectively). In the area of health, 61% of Indigenous respondents believe that more needs to be done (31%) or a lot more needs to be done (30%).

Unfortunately, there has been a sharp increase in Indigenous respondents who view racial/cultural differences as the biggest cause of social division in Australia, 49%, compared with 39% in 2016 [330]. More Aboriginal and Torres Strait Islander people (73%) would like to do something to improve reconciliation than the general community (54%). A clear majority of all respondents believe it is important for key constitutional change to happen, however the issue of a treaty remains mixed with 64% of Aboriginal and Torres Strait Islander people supporting the idea compared with 47% of the general community.

A majority of the general community believe that Indigenous disadvantage today is because of past race-based policies and the impact of colonisation, including alcohol and substance use, discrimination, poor education, low employment, poor health, inadequate living conditions and the lack of respect for Aboriginal and Torres Strait Islander people. This is also reflected in the lack of confidence and self-esteem among Aboriginal and Torres Strait Islander people. Interestingly, these findings are also reflected in the area of personal responsibility. Encouragingly, this belief in the impact of past policy and colonisation has grown since 2014.

This brief snapshot from the Reconciliation Barometer is not intended to be definitive but rather illustrative, providing an insight into the lived experiences and opinions of samples of the general community and Aboriginal and Torres Strait Islander peoples. Overall, they provide some of the ‘context’ that Indigenous scholars have called for in relation to the data and statistics that are reported. The overall report provides many opportunities to reflect on what may be improving in Australian society, what is not improving and offers some pathways forward.

⁸⁷ The Reconciliation Barometer uses the term ‘Indigenous’ throughout the report to refer to Aboriginal and Torres Strait Islander people and non-Indigenous people are referred to as ‘general community’ [330].

The report in its entirety is an important document and extracting some key findings illustrates the link between these dimensions and health [330]. The authors also point to important social, political and economic changes that may have influenced the results of the latest survey when compared to the findings in 2008. Some findings indicate changes in a positive direction that notionally bode well for the future while others indicate quite clearly there is still much to be done. Two polar opposite historical moments were the Northern Territory Intervention that commenced in 2007 [331] and the apology by Kevin Rudd in 2008 [332]. More recently, the campaign for constitutional recognition has waxed and waned for almost a decade culminating in the Uluru Statement from the Heart [333] and even more recently with the appointment of the Hon Ken Wyatt as the Minister for Indigenous Australians. Minister Wyatt has embarked on an ambitious program of formal recognition.

Once again the results of the Closing the Gap campaign have been generally disappointing but there are indicators of commitments to what the future must look like [324]. For the new National Agreement on the Closing the Gap, the Coalition of Peaks led engagements with Aboriginal and Torres Strait Islander people, communities and organisations in all states and territories to talk about what is needed to improve lives and provide an opportunity for input into the agreement [334]. In a survey, more than 90% of respondents said it was either important or extremely important for Aboriginal and Torres Strait Islander people to have formal partnership arrangements with governments to share decision-making on Closing the Gap. In the consultations, Aboriginal and Torres Strait Islander people said that Aboriginal and Torres Strait Islander communities must choose their own representatives to negotiate with governments and community-controlled organisations need all levels of government to be fully supportive, engaged and committed to their success. The Prime Minister, Scott Morrison, has stated that a 'new process has begun. A process that is truthful, strengths based, community led, and that puts Aboriginal and Torres Strait Islander people at the centre' (p.3) [324].

The National Indigenous Australians Agency (<https://www.niaa.gov.au>) was formed in 2019 and is committed to implementing Government policies and programs to improve the lives of Aboriginal and Torres Strait Islander people. The agency works to influence policy across the Australian Government and liaises closely with state and territory governments, Indigenous peak bodies, stakeholders and service providers to ensure that Indigenous programs and services are delivering as intended. Minister for Indigenous Australians, the Hon Ken Wyatt announced the membership of the National Co-design Group in January, 2020 [335].

At the *HealthInfoNet*, we reaffirm our commitment to work in authentic and respectful partnership with Aboriginal and Torres Strait Islander people and communities and their non-Indigenous allies to make a positive contribution to the national, community led efforts to seek solutions that honour and respect the aspirations of the First Nations people of Australia.

Appendix 1

Limitations of the sources of Aboriginal and Torres Strait Islander health information

The assessment of Aboriginal and Torres Strait Islander people's health status requires accurate information about the size of the population and the numbers of specific health conditions/occurrences. This information is required at national, regional and local levels.

There have been improvements in recent years - both in estimates of the Indigenous population (the denominator for calculation of rates) and in the availability of data for a number of health conditions/occurrences (the numerators for calculating rates) - but there is still some uncertainty in most areas.

In relation to population estimates, the ABS has made considerable efforts to achieve accurate counts of the Aboriginal and Torres Strait Islander population in the five-yearly Australian censuses [316]. Despite these efforts, there are impacts on data quality such as non-responses for identification.

The ABS has also worked for many years with the AIHW and state and territory authorities to improve the accuracy of Indigenous status in a number of health-related collections, including:

- birth and death registrations
- hospital administrative data
- maternal/perinatal collection
- pathology forms
- primary health care data
- AOD treatment services
- mental health services
- community services data collection [60](cited in [336]).

A persistent problem, however, is the extent to which Aboriginal and Torres Strait Islander people are correctly identified in the various health-related data collections. In death registrations, for example, not all Aboriginal and Torres Strait Islander deaths are correctly identified as such [32, 336]. Due to concerns about the mortality rates of Aboriginal and Torres Strait Islander people relative to the total population, there has been ongoing data integration to investigate the quality of the data using health and death records by several state and territory government departments.

The ABS Death Registration collection collects information on Indigenous status from the 'death registration form'; some states and territories also collect this information from medical certificates of causes of death [337]. While, according to the ABS, most deaths of Aboriginal and Torres Strait Islander people are registered, the Indigenous status of some deaths is not registered, raising concerns about the accuracy of this information [337, 338]. Aboriginal and Torres Strait Islander deaths may be underestimated because of:

- inaccurate data
- lag in registration (the interval between when a death occurs and when it is registered).

This lag in registration is often longer for the Aboriginal and Torres Strait Islander population than the non-Indigenous population [338]. However, there is normally only a slight difference between registered and occurring deaths because, for each year, the number of deaths not registered balances out the deaths that occurred in the previous year but were registered late.

Estimating the proportions of deaths identified correctly is not simple, so it is difficult to estimate the actual number of Indigenous deaths occurring and the corresponding rates. The ABS uses estimates of the proportions of registered deaths correctly identified as Indigenous in preparing its life tables, the source of life expectancy figures [32].

The Indigenous Mortality Study (now the 2016 Death Registrations to Census Linkage Project [339]) involved linking death registrations with 2006 Census records with the aim to assess the consistency of Indigenous

status across the two datasets [32]. This was repeated for the 2011 Census and the 2016 Census. Based on the 2016 Census, of the 3,246 Aboriginal and Torres Strait Islander death records 2,315 (71%) were linked.

The ABS has estimated that the proportion of Indigenous births identified correctly was 96% in 2002-2006, a significant improvement over the level for previous years [340]. Completeness of identification varied across the country, with only Vic, Qld, WA, SA and the NT having levels above 90%.

The National Perinatal Data Collection provides data on pregnancy and childbirth; prior to 2011, the Indigenous status of the baby was based on the Indigenous status of the mother, since then, the Indigenous status of the baby has been based on the mother and/or father identifying as being of Aboriginal and/or Torres Strait Islander origin [8]. This means that previously there was an underestimation of Aboriginal and/or Torres Strait Islander births. Indigenous status for around 6% of births is unknown, due to unknown status of the father. Identification of the father is not compulsory for birth registrations.

The level of identification in hospital admissions is variable, but overall it has been estimated that 88% of Aboriginal and Torres Strait Islander patients were correctly identified in Australian public hospital admission records in 2011-12 [341]. The accuracy of the identification of Indigenous people varied between states and territories, from 98% in the NT to 58% in the ACT. The accuracy of identification also varied with remoteness level, from 99% in very remote areas to 77% in major cities. Another limitation is that all hospitalisation data for Tas, ACT and the NT include only public hospitals [39].

The levels of Aboriginal and Torres Strait Islander people's identification in many of the other health-related data collections are generally so incomplete as to preclude reasonably accurate estimates. With these uncertainties, there must be some doubt about the precision of the various estimates of health status. The differences between Aboriginal and Torres Strait Islander people and non-Indigenous people in the levels of most of these estimates are so great, however, that the slight imprecision in some estimates is of little practical importance.

Despite the important advances that have been made in recent years in both the extent and quality of information about the health of Aboriginal and Torres Strait Islander people, there is substantial scope for further improvement. For example:

- There are deficiencies in the information available for some important areas. Probably the best example is cancer, a leading cause of death among Aboriginal and Torres Strait Islander people. The AIHW's *Cancer in Australia 2019* acknowledges that national data on cancer incidence and mortality among Aboriginal and Torres Strait Islander people are not available and Indigenous-specific information about screening is only collected for breast cancer and bowel cancer (both self-reported) and not for cervical cancer [1, 342-344].
- Special reports related to Aboriginal and Torres Strait Islander health (see the *Sources of information* section) tend to be selective rather than comprehensive in their coverage of the various health topics.
- The time periods for which detailed information is available tend to vary substantially; this means that documents like this *Overview* need to draw on information from various time periods in attempting to compile a comprehensive picture.
- Important data sources, particularly major national surveys, are generally only conducted around every five years; this is inevitable, but it means that relevant information is often quite dated.
- Changes in aspects like methodology and levels of reporting in publications pose difficulties in the analysis and synthesis of information for periods of time and for comparisons.

Glossary

Aboriginal and Torres Strait Islander

people who identify themselves as being of Aboriginal and/or Torres Strait Islander origin. See also **Indigenous**

age-adjustment or age-adjusted

see **age-standardisation**

age-specific rate

an estimate of the number of people experiencing a particular event in a specified age-group relative to the total number of people 'at risk' of that event in that age-group

age-specific death rate

the number of deaths of persons of a specific age-group in a calendar year per 1,000 persons of the same age-group. For the purposes of this report the age-specific death rate is calculated per 100,000 persons of the same age-group so the rate can be expressed as a whole number

age-specific fertility rate

the number of live births to women in a specified age-group in one year per 1,000 women in the same age-group

age-standardisation

a method of removing the influence of age when comparing populations with different age structures. This is necessary because the rates of many diseases increase with age. The age structures of the different populations are converted to the same 'standard' structure; then the disease rates that would have occurred with that structure are calculated and compared. This method is used when making comparisons for different periods of time, different geographic areas and/or different population sub-groups (e.g. between one year and the next and/or states and territories, Indigenous and non-Indigenous populations). They have been included for users to make comparisons that may not be available in this report. See **direct standardisation** and **indirect standardisation**

avoidable mortality

a death that, theoretically, could have been avoided given an understanding of causation, the adoption of available disease prevention initiatives and the use of available health care

body mass index (BMI)

a measure calculated by dividing weight in kilograms by height in metres squared, and which categorises a person as ranging from underweight to obese: underweight (BMI: <18.5); normal (BMI: 18.5-24.9); overweight (BMI: 25.0-29.9); obese (BMI: 30.0+)

cause of death

as entered on the medical certificate of cause of death - refers to all diseases, morbid conditions or injuries that either resulted in or contributed to death

crude rate

the number of new cases (crude incidence rate) or deaths (crude death rate) due to a disease in the total population that could be affected, without considering age or other factors

direct standardisation

the procedure for adjusting rates in which the specific rates for a study population are averaged using as weights the distribution of a standard population. This form of standardisation is used when the populations under study are large and the age-specific rates are reliable

expectation of life

predicted number of years of life remaining to a person if the present pattern of mortality does not change. It is a statistical abstraction based on current age-specific death rates

fertility rate

see **age-specific fertility rate** and **total fertility rate**

hospitalisation

an episode of admitted patient care, which can be either a patient's total stay in hospital (from admission to discharge, transfer or death), or part of a patient's stay in hospital that results in a change to the type of care (for example, from acute care to rehabilitation)

hospital separation

see **hospitalisation**. Also, the formal process by which a hospital records the completion of treatment and/or care for an admitted patient

hospital separation rate

the total number of episodes of care for admitted patients divided by the total number of persons in the population under study. Often presented as a rate per 1,000 or 100,000 members of a population. Rates may be crude or standardised

incidence

the number of instances of illness commencing, or of persons falling ill, during a given period in a specified population

incidence rate

the number of instances of illness commencing, or of persons falling ill, during a given period in a specified population divided by the population at risk

Indigenous

term used to refer collectively to the two Indigenous sub-populations within Australia – Australian Aboriginal and Torres Strait Islander people

indirect standardisation

the procedure for adjusting rates in which the specific rates in a standard population are averaged using as weights the distribution of the study population. This form of standardisation is used when the populations under study are small and the age-specific rates are unreliable or not known

infant mortality

the death of a live-born child who dies before reaching his/her first birthday

infant mortality rate

the number of deaths of children under one year of age in a specified period per 1,000 live births in the same period

International Classification of Disease

World Health Organization’s internationally accepted classification of death and disease. The ICD-10-AM (Australian modification) was introduced in hospitals and other healthcare agencies in 1999 to report morbidity data

life expectancy

see **expectation of life**

maternal mortality

pregnancy-related deaths occurring to women during pregnancy or up to 42 days after delivery

maternal mortality ratio

number of maternal deaths divided by the number of confinements (expressed in 100,000s)

median age at death

the age above and below which 50% of deaths occurred

morbidity

state of being diseased or otherwise unwell

mortality

death

non-Indigenous

a person who does not identify as Aboriginal and/or Torres Strait Islander

other Australians

includes people who did not identify as being of Aboriginal and/or Torres Strait Islander origin, and people for whom information on their Indigenous status is not available

potentially preventable hospitalisations

hospital separations from a specified range of conditions where hospitalisation is considered to be largely preventable if timely and adequate care had been provided through population health services, primary care and outpatient services

prevalence

the number of instances of a given disease or other condition in a given population at a designated time

rate

one number (the numerator) divided by another number (the denominator). The numerator is commonly the number of events in a specified time. The denominator is the population at risk of the event. Rates (crude, age-specific and age-standardised) are generally multiplied by a number such as 100,000 to create whole numbers

rate ratio

the rate for one population (example, Aboriginal and Torres Strait Islander) divided by the rate for another population (example, non-Indigenous population)

risk factor

an attribute or exposure that is associated with an increased probability of a specified outcome, such as the occurrence of a disease. A risk factor is not necessarily a causal factor

self-reported data

data based on how an individual perceives their own health. It relies on survey participants being aware, and accurately reporting, their health status and health conditions, which is not as accurate as data based on clinical records or measured data

standardised mortality ratio

the ratio of the observed number of deaths in a study population to the number expected if the study population had the same age-specific rates as a standard population. The standardised mortality ratio is expressed sometimes as the ratio multiplied by 100. See **age-standardisation**

standardised rate

the number of new cases (standardised incidence rate) or deaths (standardised death rate) due to a disease for a particular population after adjustment has been made for differences in the age structures of this population and a reference population. See **age-standardisation**

total fertility rate

the number of live births a woman would have if, throughout her reproductive years, she had children at the rates prevailing in the reference calendar year. It is the sum of the age-specific fertility rates for that calendar year

Abbreviations

AATSIHS - Australian Aboriginal and Torres Strait Islander Health Survey	LSIC - Longitudinal Study of Indigenous Children
ABS - Australian Bureau of Statistics	LAF - Low aromatic fuel
ACCHOs - Aboriginal Community Controlled Health Organisations	LBW - Low birthweight
ACT - Australian Capital Territory	MMR - Maternal mortality ratio
AHMAC - Australian Health Ministers' Advisory Council	NCOHS - National Child Oral Health Study
AIHW - Australian Institute of Health and Welfare	NATSIHS - National Aboriginal and Torres Strait Islander Health Survey
ANZDATA - Australia and New Zealand Dialysis and Transplant Registry	NATSINPAS - National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey
AOD - Alcohol and other drug	NATSISS - National Aboriginal and Torres Strait Islander Social Survey
ARF - Acute rheumatic fever	NDSHS - National Drug Strategy Household Survey
BMI - Body mass index	NEHS - National Eye Health Survey
CKD - Chronic kidney disease	NHMRC - National Health and Medical Research Council
COAG - Council of Australian Governments	NIP - National Immunisation Program
COPD - Chronic obstructive pulmonary disease	NSW - New South Wales
CSOM - Chronic suppurative otitis media	NT - Northern Territory
CVD - Cardiovascular disease	OM - Otitis media
DNA - Deoxyribonucleic acid	PD - Peritoneal dialysis
DR - Diabetic retinopathy	Qld - Queensland
EAHSP - East Arnhem Healthy Skin Program	RHD - Rheumatic heart disease
ERP - Estimated resident population	SA - South Australia
ESRD - End-stage renal disease	SCRGSP - Steering Committee for the Review of Government Service Provision
GAS - Group A streptococci	SDAC - Survey of Disability, Ageing and Carers
GDM - Gestational diabetes mellitus	SEWB - Social and emotional wellbeing
GP - General practitioner	SIDS - Sudden infant death syndrome
HBV - Hepatitis B virus	STI - Sexually transmitted infection
HCV - Hepatitis C virus	Tas - Tasmania
HD - Haemodialysis	TB - Tuberculosis
Hib - Haemophilus influenzae type b	VI - Vision impairment
HIV - Human immunodeficiency virus	Vic - Victoria
ICD - International Classification of Diseases - the World Health Organization's internationally accepted classification of death and disease	VSU - Volatile substance use
IHD - Ischaemic heart disease	WA - Western Australia
IMR - Infant mortality rate	WC - Waist circumference
IPD - Invasive pneumococcal disease	WHO - World Health Organization
	WHR - Waist to hip ratio

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