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Overview of Aboriginal and Torres Strait Islander health status 2022

Australian Indigenous HealthInfoNet

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celebrating 25 years 1997-2022

Overview of Aboriginal and Torres Strait Islander health status 2022

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Australian Indigenous Health*InfoNet*

The Australian Indigenous Health*InfoNet's* (Health*InfoNet*) mandate 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 Health Practitioners), and researchers. The Health*InfoNet* also provides easy-to-read and summarised material for students and the general community.

The Health*InfoNet* 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 Health*InfoNet*, the Alcohol and Other Drugs Knowledge Centre, Tackling Indigenous Smoking and WellMob websites. 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 Health*InfoNet* recognises and acknowledges the sovereignty of Aboriginal and Torres Strait Islander people as the original custodians of the country. Aboriginal and Torres Strait Islander cultures, customs and beliefs are persistent and enduring, continuing unbroken from the past to the present and will continue well into the future. They are 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 identities, cultural practices and spiritualties. 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, present and emerging throughout the country. In particular, we pay our respects to the Whadjuk Noongar people of Western Australia on whose country our offices are located.

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Cover artwork

Bibdjool *by Donna Lei Rioli*

Donna Lei Rioli, a Western Australian Indigenous artist - was commissioned by the Health*InfoNet* 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/Noongar woman who is dedicated to the heritage and culture of the Tiwi people on her father's side, Maurice Rioli, and the Noongar people on her mother's side, Robyn Collard. Donna enjoys painting because it enables her to express her Tiwi and Noongar 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.

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 Health*InfoNet* 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 indicator of the Health*InfoNet'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. The subsequent sections are about specific health conditions and risk/protective factors that contribute to the overall health of Aboriginal and Torres Strait Islander people. These sections comprise an introduction about the condition and evidence of the current status of the condition or risk/protective factor and burden of disease. Information is provided for states and territories, Indigenous Regions and remoteness, 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 Health*InfoNet*'s website. Additional, more in-depth information about the topics summarised in this *Overview* is included in the corresponding sections of the Health*InfoNet*'s website.

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, 2022.*

Neil Drew, Director, on behalf of the Health*InfoNet* team

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- staff of the Health*InfoNet* for their assistance, support and encouragement in the preparation of this *Overview*.
- previous staff members of the Health*InfoNet* who have contributed to earlier versions of the *Overview*.
- the Australia 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 Aged Care and other funding partners for their ongoing support of the work of the Health*InfoNet*.
- members of the Health*InfoNet* Advisory Board and Health*InfoNet* Consultants.
- users of the Health*InfoNet* resource for their ongoing support and feedback.
- readers of the *Overview* who provide feedback during the post-publication peer review period.

Tell us what you think

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

Contents

Introduction

This *Overview* provides a comprehensive summary of the most recent indicators of the health of Aboriginal and Torres Strait Islander people 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).

Since the publication of our Overview in 2020, we have actively participated in discussions and sought advice on the emerging understandings of data sovereignty and governance in Aboriginal and Torres Strait Islander health. Recent literature in Australia attests to the importance and urgency of this issue to Aboriginal and Torres Strait Islander people [1]. In this edition, we continue to strive to develop our capacity to accurately and authentically represent the data and statistics that impact Aboriginal and Torres Strait Islander people and communities. It is a learning journey that we share with other data-driven organisations such as the Australian Bureau of Statistics (ABS) and the Australian Institute of Health and Welfare (AIHW). Following on from previous editions of the Overview, we have relied less on comparisons between Indigenous and non-Indigenous data. Of course, as with the previous Overview this depends on the availability of data. We reiterate our public 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 Maiam nayri Wingara Indigenous Data Sovereignty Collective.

Sources of information

The Overview provides the latest up-to-date data on the health status of Aboriginal and Torres Strait Islander people. For readers interested in historical health data for selected health conditions, these data are available in previous editions of the *Overview*.

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 ABS, the AIHW, the Health Chief Executives Forum (formerly the Australian Health Ministers Advisory Council), 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 from 2006 to 2020 and from then by the AIHW and the Welfare and National Indigenous Australians Agency.
- *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 ANZDATA).

As noted above, we are pleased that many of these data sources are actively engaged in the national debate on data sovereignty and governance and the extent to which their efforts are reflected in publications and data sets; we have attempted to represent them in this edition of the *Overview*.

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-standardised incidence of ESRD were made using notification data provided by ANZDATA.

Key facts

Population

- In 2022, the estimated Australian Aboriginal and Torres Strait Islander population was 896,265.
- In 2022, NSW had the highest number of Aboriginal and Torres Strait Islander people (the estimated population was 297,389 people, 32% of the total Aboriginal and Torres Strait Islander population).
- In 2022, the 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.

Births and pregnancy outcomes

- In 2021, there were 23,510 births registered in Australia with one or both parents identified as Aboriginal and/or Torres Strait Islander (7.5% of all births registered).
- In 2021, the median age for Aboriginal and Torres Strait Islander mothers who gave birth was 26.5 years.
- In 2021, the total fertility rate was 2.3 babies per 1,000 Aboriginal and Torres Strait Islander women.
- In 2020, 89% (crude) of pregnant Aboriginal and Torres Strait Islander women attended five or more antenatal visits.
- In 2020, the average birthweight of babies born to Aboriginal and Torres Strait Islander mothers was 3,223 grams.

Mortality

- In 2021, the age-standardised death rate for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT was 9.5 per 1,000.
- For Aboriginal and Torres Strait Islander people born in 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 2021, the median age at death for Aboriginal and Torres Strait Islander people in NSW, Qld, WA, SA and the NT was 61.7 years.
- For 2015-2019, among Aboriginal and Torres Strait Islander children aged 0-4 years, living in NSW, Qld, WA, SA and the NT, there were 622 deaths; 527 in children aged 0-1 years (85% of deaths) and 95 in children aged 1-4 years.
- In 2021, 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 2012-2020, the maternal mortality ratio for Aboriginal and Torres Strait Islander women was 16 deaths per 100,000 women who gave birth.
- In 2015-2019, there were 7,366 deaths (males: 4,322; females: 3,044) from avoidable causes among Aboriginal and Torres Strait Islander people aged 0-74 years living in NSW, Qld, WA, SA and the NT, representing 60% of all deaths for this period.

Hospitalisation

- In 2020-21, 5.2% of all hospital separations were for Aboriginal and Torres Strait Islander people.
- In 2020-21, the age-standardised hospital separation rate for Aboriginal and Torres Strait Islander people was 994 per 1,000, with the highest rate in the NT of 2,262 per 1,000.
- In 2015-17, age-specific hospital separation rates (excluding dialysis) for Aboriginal and Torres Strait Islander people increased with age (except for 0–4 year-olds), with the highest rate in the 65 years and over age-group.

- In 2020-21, 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 47% of all Aboriginal and Torres Strait Islander hospital separations.
- In 2020-21, the age-standardised rate of overall potentially preventable hospitalisations for Aboriginal and Torres Strait Islander people was 68 per 1,000.

Selected health conditions

Cardiovascular health

- In 2018-19, around 15% of Aboriginal and Torres Strait Islander people reported having cardiovascular disease (CVD).
- In 2016-2020, in Qld, WA, SA and the NT combined, there were 1,399 new diagnoses of rheumatic heart disease (RHD) among Aboriginal and Torres Strait Islander people, a crude rate of 61 per 100,000.
- In 2020-21, there were 17,275 hospital separations for CVD among Aboriginal and Torres Strait Islander people, representing 5.3% of all Aboriginal and Torres Strait Islander hospital separations (excluding dialysis).
- In 2021, IHD was the leading specific cause of death for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT.

Cancer

- For 2012-2016, there were 8,326 new cases of cancer diagnosed among Aboriginal and Torres Strait Islander people living in NSW, Vic, Qld, WA and the NT, at an average of 1,665 new cases per year.
- For 2012-2016, the most common cancers diagnosed among Aboriginal and Torres Strait Islander people living in NSW, Vic, Qld, WA and the NT were lung cancer, breast cancer, bowel and prostate cancer (in males).
- Survival rates indicated 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 2016, nearly half (47%) had survived for five years after their diagnosis.
- In 2020-21, there were 10,755 hospital separations for neoplasms[1] among Aboriginal and Torres Strait Islander people.
- In 2021, cancers of the trachea, bronchus and lung combined were the fourth leading cause of death overall for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT, being responsible for 245 deaths.
- For 2015-2019, the age-standardised mortality rate in NSW, Qld, WA, SA and the NT due to cancer of any type was 230 per 100,000; 276 per 100,000 for males and 194 per 100,000 for females.

Diabetes

- In 2021, 5.9% of Aboriginal and Torres Strait Islander people reported having diabetes as a long-term condition.
- In 2019-20, there were 4,835 potentially preventable hospitalisations of Aboriginal and Torres Strait Islander people for a principal diagnosis of diabetes.
- In 2021, diabetes was the second leading cause of death for Aboriginal and Torres Strait Islander people in NSW, Qld, SA, WA and the NT.
- In 2018, endocrine disorders accounted for 3.3% of total disease burden among Aboriginal and Torres Strait Islander people. Of this, 87% was attributed to type 2 diabetes.

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[1] Data sources may use the 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) [2].

Social and emotional wellbeing

- In 2018-19, 80% of Aboriginal and Torres Strait Islander males over 18 years of age reported feeling calm and peaceful all/most of the time, 87% felt happy all/most of the time and 79% felt full of life all/most of the time.
- In 2018-19, 78% of Aboriginal and Torres Strait Islander females over 18 years of age reported feeling calm and peaceful all/most of the time, 88% felt happy all/most of the time and 76% felt full of life all/most of the time.
- In 2018-19, 31% of Aboriginal people and 23% of Torres Strait Islander people aged 18 years and over reported high or very high levels of psychological distress.
- In 2018-19, 25% of Aboriginal people 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 by Aboriginal and Torres Strait Islander people aged two years and over (17%), followed by depression (13%).
- In 2020-21, there were 27,457 hospital separations with a principal diagnosis of International Classification of Diseases (ICD) ‘mental and behavioural disorders’ identified as Aboriginal and Torres Strait Islander.
- In 2021, 196 Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA, and the NT died from intentional self-harm.
- In 2018, mental and substance use disorders accounted for 23% of total disease burden among Aboriginal and Torres Strait Islander people. Of all disease groups, mental and substance use disorders made the highest contribution to total burden.

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 2016-2020, the age-standardised notification rate of end-stage renal disease (ESRD) was 616 per 1,000,000.
- In 2012-13, 18% of Aboriginal and Torres Strait Islander adults had biomedical signs of chronic kidney disease (CKD).
- In 2021, 349 Aboriginal and Torres Strait Islander people commenced dialysis.
- In 2020, 48 Aboriginal and Torres Strait Islander people received a kidney transplant.
- In 2018-19 there were 242,274 hospitalisations for Aboriginal and Torres Strait Islander people for end-stage kidney disease (ESKD).
- In 2021, the most common causes of death among the 236 Aboriginal and Torres Strait Islander people who were receiving dialysis was CVD (81 deaths).
- For 2016-2020, 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 the NT was 22 per 100,000. In 2018, CKD was the 10th leading specific cause of total disease burden among Aboriginal and Torres Strait Islander people (2.5%).

Injury, including family violence

- 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 2020-21, injury was the leading cause of hospitalisation (excluding dialysis) for Aboriginal and Torres Strait Islander people.
- In 2020-21, the leading cause of injury-related hospitalisations among Aboriginal and Torres Strait Islander people were for falls (21%).
- In 2021, intentional self-harm was the leading specific cause of injury deaths for NSW, Qld, WA, SA and the NT (5.3% of all Aboriginal and Torres Strait Islander deaths).

- In 2018, of all disease groups, injury made the second highest contribution to the total disease burden among Aboriginal and Torres Strait Islander people (12%).

Respiratory health

- For December 2021 – October 2022, there were 316,068 confirmed and probable cases of coronavirus disease (COVID-19) among Aboriginal and Torres Strait Islander people.
- In 2021, 13% of Aboriginal and Torres Strait Islander people reported having asthma and 2.2% chronic obstructive pulmonary disease (COPD). In 2018-19, 29% of Aboriginal and Torres Strait Islander people reported having a long-term respiratory condition.
- In 2020-21, there were 24,903 hospitalisations for respiratory disease among Aboriginal and Torres Strait Islander people.
- For December 2021- October 2022, there were 279 deaths from COVID-19 among Aboriginal and Torres Strait Islander people.
- In 2021, 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.
- In 2018, COPD was the 2nd leading specific cause of total disease burden among Aboriginal and Torres Strait Islander people, and asthma the 11th.

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 Islander people 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 2018-19, 10% of Aboriginal and Torres Strait Islander children, aged 0-14 years, were reported to have eye or sight problems.
- In 2020, 196 cases of trachoma were detected among 2,177 Aboriginal and Torres Strait Islander children aged 5-9 years living in at-risk communities in Qld, WA, SA and the NT.
- For 2017-19, 5,826 of the 9,681(60%) hospitalisations for diseases of the eye among Aboriginal and Torres Strait Islander people were for disorders of the lens (mainly cataracts).
- For 2017-19, crude hospitalisation rates for eye disease, by Indigenous Regions, ranged from 1.9 per 1,000 in Western Metropolitan Sydney, NSW to 12 per 1,000 in the Pilbara, WA.

Ear health and hearing

- In 2018-19, 43% of Aboriginal and Torres Strait Islander people aged seven years and over had measured hearing loss in one or both ears.
- There were 3,355 ear-related hospitalisations in 2020-21, representing 1.0% of all hospitalisations (excluding dialysis) of Aboriginal and Torres Strait Islander people.
- The most common ear-related reasons for hospitalisation in 2018-20 were middle ear disease/s (73% of ear/hearing related hospitalisations), inner ear disease/s (8.2%), otitis externa (7.1%) and hearing loss (6.0%).
- In 2018, hearing loss was the 13th leading specific cause of total disease burden among Aboriginal and Torres Strait Islander people.

Oral health

- 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 2017-18, 7.1% of Aboriginal and Torres Strait Islander people aged 15 years and over had complete tooth loss.
- In 2018-19, there were 3,773 potentially preventable hospitalisations for dental conditions for Aboriginal and Torres Strait Islander people. The crude rate of hospitalisation was 4.5 per 1,000.
- In 2018, oral disorders accounted for 2.1% of total disease burden among Aboriginal and Torres Strait Islander people. Of this, 63% was caused by dental caries.

Disability

- In the 2021 Census, 8.2% of Aboriginal and Torres Strait Islander people reported a need for assistance with either self-care, mobility, or communication.
- In 2018-19, 38% of Aboriginal people, and 35% of Torres Strait Islander people reported having a disability or restrictive long-term health condition.
- In 2018-19, 8.2% of Aboriginal people and 8.3% of Torres Strait Islander people reported a profound or severe core activity limitation.
- In 2018-19, Aboriginal and Torres Strait Islander people reported a profound/severe disability more often in non-remote areas (8.6%) than in remote areas (5.7%).
- In 2018-19, the most commonly self-reported disabilities for Aboriginal and Torres Strait Islander people were physical (63%), sensory (47%), psychological (23%) and intellectual (18%).

Communicable diseases

- In 2020, there were 7,030 notifications of chlamydia for Aboriginal and Torres Strait Islander people.
- In 2020, there were 4,237 notifications of gonorrhoea for Aboriginal and Torres Strait Islander people.
- In 2020, there were 883 notifications of syphilis for Aboriginal and Torres Strait Islander people.
- In 2021, there were 17 (3.1% of 552 total cases) notifications of human immunodeficiency virus (HIV) infection among Aboriginal and Torres Strait Islander people.
- In 2020, there were 1,106 Aboriginal and Torres Strait Islander people diagnosed with newly notified hepatitis C virus (HCV).
- In 2020, there were 151 Aboriginal and Torres Strait Islander people diagnosed with newly notified hepatitis B virus (HBV).
- For 2017-2021, there were 1,207 notifications (14% of the total notifications of 8,578) of invasive pneumococcal disease (IPD) for Aboriginal and Torres Strait Islander people.
- For 2017-2021, 178 (17%) of the 1,025 notified cases of invasive meningococcal disease (IMD) were identified as Aboriginal and Torres Strait Islander.
- In 2020, the notification rate for tuberculosis (TB) among Aboriginal and Torres Strait Islander people was 3.0 per 100,000.
- For 2000-2017, there were 76 Aboriginal and Torres Strait Islander people diagnosed with invasive *Haemophilus influenzae* type b (Hib) in Australia.
- A 2018 systematic review found that the median prevalence of impetigo among remote-living Aboriginal and Torres Strait Islander children in northern Australia was 45%.
- In 2018-19, there were 1,230 Aboriginal and Torres Strait Islander children, aged four years and under, who were hospitalised with a principal diagnosis of ‘diseases of the skin and subcutaneous tissue’.
- In 2018, skin disorders accounted for 1.4% of total burden from all diseases among Aboriginal and Torres Strait Islander people.

Factors contributing to Aboriginal and Torres Strait Islander health

Nutrition and breastfeeding

- In 2018-19, 39% of Aboriginal and Torres Strait Islander people aged 15 years and over reported eating the recommended amount of two serves of fruit per day and 4.2% reported eating the recommended five serves of vegetables per day.
- In 2018-19, 92% of Aboriginal and Torres Strait Islander children aged 2-3 years reportedly ate an adequate amount of fruit per day and 23% ate an adequate quantity of vegetables per day.
- In 2018-19, 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% 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 2018-19, 87% of Aboriginal and Torres Strait Islander children aged 0-2 years had been breastfed.
- In 2018, all dietary factors were the fifth leading risk factor contributing to the total burden of disease among Aboriginal and Torres Strait Islander people, responsible for 6.2% of the total burden of disease.

Physical activity

- In 2018-19, 89% of Aboriginal and Torres Strait Islander people living in non-remote areas (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.

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%; 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%).
- The proportion of Aboriginal and Torres Strait Islander mothers who reported smoking during pregnancy decreased from 49% in 2010 to 43% in 2020.
- 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%).
- A study from 2021 found half of deaths among Aboriginal and Torres Strait Islander people in NSW aged 45 years and over, and 37% of deaths among all age-groups, were caused by smoking.
- In 2018, tobacco use was the leading risk factor contributing to the burden of disease among Aboriginal and Torres Strait Islander people, responsible for 12% of the total burden of disease.
- In 2018-19, 8.1% of Aboriginal and Torres Strait Islander adults self-reported having ever used e-cigarettes and 1.3% reported that they were currently using e-cigarettes either daily or weekly.

Alcohol use

- In 2018-19, 26% of Aboriginal and Torres Strait Islander adults reported abstaining from alcohol.
- In 2018-19, 18% of Aboriginal adults and 22% of Torres Strait Islander adults did not exceed the guideline for drinking at risk on a single occasion.
- In 2018-19, 26% of Aboriginal and Torres Strait Islander adults did not exceed the guideline for drinking at lifetime risk.

- In 2018-19, a higher proportion of Aboriginal and Torres Strait Islander males (30%) exceeded the guideline for drinking at lifetime risk than females (10%).
- In 2020, 92% of pregnant Aboriginal and Torres Strait Islander women self-reported not consuming alcohol during the first 20 weeks of pregnancy.
- In 2016-18, the crude alcohol-related hospitalisation rate for Aboriginal and Torres Strait Islander people was 7.6 per 1,000.
- For 2015-2019 in NSW, Qld, WA, SA and the NT, the Aboriginal and Torres Strait Islander crude rate for deaths related to alcohol use was 13 per 100,000.
- In 2018, alcohol use was the second leading risk factor contributing to the total burden of disease among Aboriginal and Torres Strait Islander people, accounting for 11% of the burden of disease.

Illicit drug use

- In 2018-19, 70% of Aboriginal and Torres Strait Islander people aged 15 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 reported they had used an illicit substance in the previous 12 months.
- In 2016-18, hospitalisation for mental and behavioural disorders due to drug use was highest for amphetamines (2.1 per 1,000) for Aboriginal and Torres Strait Islander people.
- In 2016-2020, there were 536 unintentional drug-induced deaths among Aboriginal and Torres Strait Islander people.
- In 2018, illicit drug use contributed to 6.9% of the total burden of disease among Aboriginal and Torres Strait Islander people.

Volatile substance use

- In 2018-19, 0.9% of Aboriginal and Torres Strait Islander people aged 15 years and over reported using petrol or other inhalants in the last 12 months.
- In 2016-18, the crude rate of hospital separations for Aboriginal and Torres Strait Islander people from poisoning due to the toxic effect of organic solvents (e.g. petrol) was 0.05 per 1,000.
- In 2016-18, the crude hospitalisation rate among Aboriginal and Torres Strait Islander people for accidental poisoning from organic solvents was 0.03 per 1,000.

Immunisation

- As at 30 September 2022, 96% of Aboriginal and Torres Strait Islander five-year-old children were fully immunised against the recommended vaccine preventable diseases.
- As at 1 December 2022, 82% of Aboriginal and Torres Strait Islander people aged 16 years and over had received at least two doses of a COVID-19 vaccine.

Environmental health

- In 2021, 19% of Aboriginal and Torres Strait Islander people reported living in overcrowded households.
- In 2018-19, 80% of Aboriginal and Torres Strait Islander households reported living in houses of an acceptable standard.
- In 2018-19, 33% of Aboriginal and Torres Strait Islander households reported major structural issues with their dwelling.
- In 2018-19, Aboriginal and Torres Strait Islander crude hospitalisation rates for selected diseases related to environmental health were 9.2 per 1,000 for influenza and pneumonia, 9.0 per 1,000 for intestinal infectious diseases, 8.0 per 1,000 for bacterial diseases, 4.6 per 1,000 for acute upper respiratory infections, 2.7 per 1,000 for asthma and 1.8 per 1,000 for scabies.
- For 2014-2018, the age-standardised death rate for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT, from conditions associated with poor environmental health, was 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 [3, 4]. Torres Strait Islander people live permanently in 20 communities on 17 of the 270 islands in the Torres Strait and across mainland Australia including mainland communities in Far North Qld.

Aboriginal people enjoyed a semi-nomadic lifestyle in family and community groups, moving across a defined area following seasonal changes [3]. Contrary to the myth of the 'hunter gatherer', Aboriginal and Torres Strait Islander people developed complex societies, trading systems and agricultural activities that were celebrated and recorded in dance, song and stories [4].

Aboriginal and Torres Strait Islander people have also been characterised as 'homogenous and unchanging' [4, p.39]. In truth, however, the Aboriginal and Torres Strait Islander people of Australia have, for millennia, been a diverse mix of peoples, groups and nations that spoke over 260 languages and over 500 dialects [4, 5]. Colonisation is now recognised as a 'traumatic disruption' to the way of life prior to colonisation when Aboriginal and Torres Strait Islander people lived relatively healthy lives [4, p.40]. This disruption is exemplified in the proportion of Aboriginal people who now speak languages, which has decreased markedly [5] and there has been 'irreparable' damage to ways of life and 'irreplaceable' loss of wisdom [4, p.40-41]. Nevertheless, Aboriginal and Torres Strait Islander people continue to reclaim, evolve and practice as one of the world's most enduring and persistent cultures [4-6].

Aboriginal and Torres Strait Islander people have a 'whole of life' view of health that incorporates the total wellbeing of their community and not just the individual [7]. The National Aboriginal Community Controlled Health Organisation (NACCHO) has adopted the World Health Organization's (WHO) view that people should be 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 [8, 9]. These fundamental rights have been reaffirmed by the WHO in the 2018 Declaration of Astana [10].

There is now irrefutable evidence that not only social but also, and importantly, cultural factors can have a profound impact on the health of Aboriginal and Torres Strait Islander people [6, 11-14]. It is evident that ongoing oppression, exploitation, marginalisation, separation from culture and land, food and resource insecurity, intergenerational trauma, disconnection from culture and family, racism, systemic discrimination and poverty have resulted in poorer physical and mental health for many Aboriginal and Torres Strait Islander people [4-6]. However, focusing less on the deficit narratives promoted by the way these indicators are framed and more on the positive affirming impacts of cultural determinants, the narrative can shift more towards strengths based understandings of Aboriginal and Torres Strait Islander health [11, 14].

There have been important positive changes enhancing Aboriginal and Torres Strait Islander opportunities for authentic self-determination and sovereignty. With increased representation in Parliament, Aboriginal and Torres Strait Islander people now have a stronger political voice [15]. The voice of Aboriginal and Torres Strait Islander people was further amplified in 2017 by the Uluru Statement From the Heart [16]. The *Australian reconciliation barometer 2022* report found that 93% of Australians believe that it is important for Aboriginal and Torres Strait Islander people to have a say about matters that affect them [17]. In July 2021, the *Indigenous Voice Co-Design Process Final Report* was delivered to the Australian Government by Co-Chairs of the Senior Advisory Group, Professor Tom Calma and Professor Marcia Langton that outlined a process for enacting a genuinely shared decision-making process that would ensure that the voice of Aboriginal and Torres Strait Islander peoples will be heard [18]. Another important Aboriginal and Torres Strait Islander representative body is the Coalition of Peaks, formed in 2018, which comprises 80 community controlled peak bodies representing 800 organisations to negotiate and reach agreement with government on approaches to Closing the Gap [19]. In 2022, the newly elected Albanese government committed to a referendum on the Indigenous Voice to Parliament.

A successful referendum would enshrine in the Australian political system and society the right to authentic leadership, voice, and ownership of the pathways towards positive outcomes for the health and wellbeing of Aboriginal and Torres Strait Islander people.

Social indicators

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

Education

According to the 2021 Australian Census, the proportion of Aboriginal and Torres Strait Islander people aged 20 to 24 years who had completed year 12[2] was 57% [20]. Females were more likely to have completed year 12 than males (61% compared with 52%). Year 12 completion was highest in the ACT (73%) and lowest in the NT (34%).

The proportion of Aboriginal and Torres Strait Islander people aged 18 to 24 years who were attending university in 2021 was 10% [20]. The proportion of females attending university (14%) was twice that of males (7%). University attendance was highest in the ACT (22%) and lowest in the NT (2.3%).

The proportion of Aboriginal and Torres Strait Islander people aged 18 to 24 years who were attending an education institution[3] other than university (e.g. TAFE) in 2021 was 12% [20]. The proportion of females (13%) was similar to the proportion of males (12%). Attendance was highest in Vic (18%) and lowest in the NT (5.1%).

ABS school statistics show that in 2021, the full-time apparent retention rates for Aboriginal and Torres Strait Islander students were:

- 59% for Year 7 to Year 12
- 81% for Year 7 to Year 11
- 100% for Year 7 to Year 10 [21].

Apparent retention rates for these year groups were higher for females than for males.

National Assessment Program - Literacy and Numeracy (NAPLAN) test results [22] show the proportions of Aboriginal and Torres Strait Islander students who met national minimum standards for literacy and numeracy in 2022 (Table 1). Proportions generally decreased with age, with the exception of numeracy (for which the proportion was highest in Year 9).

Table 1. Proportion (%) of Aboriginal and Torres Strait Islander students meeting national minimum standards for literacy and numeracy, by assessment domain and year level, 2022

	Year 3	Year 5	Year 7	Year 9
Reading	83	79	77	67
Writing	85	72	67	56
Numeracy	80	78	69	81

Source: Australian Curriculum Assessment and Reporting Authority, 2022 [22]

Employment

The 2021 Australian Census [20] showed that:

- Over half (54%) of Aboriginal and Torres Strait Islander people aged 15 years and over were in the labour force.
- 88% of Aboriginal and Torres Strait Islander people aged 15 years and over who were in the labour force were employed (49% full-time).
- The top three reported occupations for employed Aboriginal and Torres Strait Islander people aged 15 years and over were community and personal services worker (17%), labourer (14%) and professional (14%).

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[2] Or its equivalent [20].

[3] Includes preschool, primary, secondary, tertiary - vocational education (including TAFE and private training providers), tertiary - not further defined, and Other institutions [20].

Income

The 2021 Australian Census [20] showed that:

- 37% of Aboriginal and Torres Strait Islander people reported an equivalised[4] weekly household income of $1,000 or more.
- The median weekly household income for Aboriginal and Torres Strait Islander people was $1,507.
- The median weekly personal income for Aboriginal and Torres Strait Islander people was $540.

The Aboriginal and Torres Strait Islander population

The ABS estimated[5] the Aboriginal and Torres Strait Islander population at 896,265 people in 2022 (Table 2. Estimated Aboriginal and Torres Strait Islander (Indigenous) population, by jurisdiction, Australia, 2022 2) [23]. The Aboriginal and Torres Strait Islander population accounted for 3.4% of Australia's total population of just under 26 million (Derived from [23, 24]). The Aboriginal and Torres Strait Islander population was highest in NSW (297,389 people), followed by Qld (252,733). The NT had the highest proportion of Aboriginal and Torres Strait Islander people among its population (32%) and Vic the lowest (1.0%).

Table 2. Estimated Aboriginal and Torres Strait Islander (Indigenous) population, by jurisdiction, Australia, 2022

Jurisdiction	Indigenous population (number)	Proportion of Australian Indigenous population (%)	Proportion of total jurisdiction population (%)
NSW	297,389	32	3.6
Vic	66,975	7.5	1.0
Qld	252,733	28	4.7
WA	112,253	13	4.0
SA	47,426	5.3	2.6
Tas	31,337	3.5	5.5
ACT	8,869	1.0	1.9
NT	78,994	8.8	32
Australia	896,265	100	3.4

Note:
The Australian population includes Jervis Bay Territory, the Cocos (Keeling) Islands, Christmas Island and Norfolk Island.
Source: Derived from ABS, 2019 [23], ABS, 2022 [24]

The ABS estimated that of the population of 896,265 Aboriginal and Torres Strait Islander people in 2022, 44% lived in inner/outer regional areas, 39% in major cities and 17% in remote/very remote areas (Derived from [23]). In terms of specific geographical areas, the top five Indigenous Regions[6] where Aboriginal and Torres Strait Islander people resided in 2022 were Brisbane (100,234 residents); NSW Central and North Coast (97,912); Sydney-Wollongong (90,131); Perth (44,733) and Townsville-Mackay (36,424).

According to estimates from the 2021 Census, 91.4% of Indigenous people were identified as Aboriginal, 4.4% as Torres Strait Islander and 4.2% as of both Aboriginal and Torres Strait Islander descent [20].

In 2022, according to ABS estimates, about one-third (32%) of Aboriginal and Torres Strait Islander people were aged less than 15 years and 5.5% were aged 65 years or over [23].

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[4] Equivalised household income adjusts the actual incomes of households to make households of different sizes and compositions comparable [20].

[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.

[6] Indigenous Regions are large geographical units loosely based on the former Aboriginal and Torres Strait Islander Commission boundaries [25].

Births and pregnancy outcomes

There have been improvements in birth and pregnancy outcomes for Aboriginal and Torres Strait Islander mothers and babies in recent years, with evidence of 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 [26]. 'Birthing on Country' is an area of maternal and infant health that is gathering momentum [27] due to the positive impact it has on mothers and babies [28].

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 [29]. In 2021, there were 23,510 births (11,964 males and 11,546 females) registered in Australia with one or both parents identified as Aboriginal and/or Torres Strait Islander (7.5% of all births registered). 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).

In 2021, for births registered as Indigenous: 23% recorded both parents as Aboriginal and/or Torres Strait Islander; 46% 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 31% of registrations only the father was recorded as Aboriginal and/or Torres Strait Islander (including births where the mother's Indigenous status was unknown) [29].

Age of mothers

About births and fertility

There are several general measures of births and fertility[7], but detailed analysis involves the use of age-specific rates. The age-specific rate is 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 50 years and over are included in the 45-49 years age-group) [29].

In 2021, for babies born to Aboriginal and Torres Strait Islander women, 58% of babies were born to those aged 20-29 years, and 9.2% of babies were born to teenagers (15-19 years of age) [29].

In 2021, the median age of Aboriginal and Torres Strait Islander mothers who gave birth was 26.5 years [29]. The highest fertility rates for Aboriginal and Torres Strait Islander women were among those aged 25-29 years (135 per 1,000) and 20-24 years (123 per 1,000). The fertility rate of teenage Aboriginal and Torres Strait Islander women, aged 15-19 years, was 40 babies per 1,000 women.

Total fertility rate

The summary measure of fertility is the total fertility rate, which is the sum of age-specific fertility rates divided by 1,000. It represents the number of children a female would bear if each female experienced current age-specific fertility rates at each age of her reproductive life [29].

In 2021, the total fertility rate was 2.3 babies per 1,000 Aboriginal and Torres Strait Islander women [29].

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[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.

Antenatal care

Antenatal care from health professionals helps pregnant women by monitoring their health, screening, and providing information and support during pregnancy [30, 31]. It can help with the early identification of potentially preventable risk factors (especially when care is provided during the first trimester of pregnancy) that adversely affect maternal and child health outcomes [32].

In 2020, 89% (crude proportion) of pregnant Aboriginal and Torres Strait Islander women attended five or more antenatal visits[8] [26]. The Department of Health and Aged Care recommends 10 visits for first-time pregnancy without complications and seven visits for subsequent uncomplicated pregnancies [30]. The proportion of women attending the first antenatal visit during the first trimester of pregnancy (less than 14 weeks) was 71% [26]. This has increased from 50% in 2012. The proportions were highest in outer and inner regional areas (both 74%), with proportions for other areas ranging from 70% in major cities to 64% in remote areas [26].

Birthweight

In 2020, the average birthweight of babies born to Aboriginal and Torres Strait Islander mothers was 3,223 grams [26]. Low birthweight (LBW), defined as a birthweight of less than 2,500 grams [33], increases the risk of health problems and death in infancy [34]. In 2020, 12% of babies born to Aboriginal and Torres Strait Islander mothers were of LBW [26], of which 2.0% combined were very LBW (less than 1,500 grams) and extremely LBW (less than 1,000 grams) [33].

In 2020, the proportion of LBW babies born to Aboriginal and Torres Strait Islander mothers varied by remoteness, from 11% of babies born to mothers who lived in major cities and regional areas, 16% in remote areas and 15% in very remote areas [26]. Factors impacting on LBW include preterm birth, mothers smoking during pregnancy, mothers being underweight prior to pregnancy and not attending antenatal care in the first trimester [35]. Other factors include socioeconomic disadvantage and the age of the mother [34].

Tobacco smoking while pregnant has a major impact on birthweight. In 2020, 43% of Aboriginal and Torres Strait Islander mothers reported smoking during pregnancy [26]. Rates of smoking for Aboriginal and Torres Strait Islander mothers were highest in very remote and remote areas (54% and 49% respectively) and lowest in major cities (37%). If smoking during pregnancy could be eliminated, the prevention of an estimated 37% of LBW births among Aboriginal and Torres Strait Islander babies could occur [35].

Mortality

In July 2020, the National Agreement on Closing the Gap, an initiative to improve life outcomes for Aboriginal and Torres Strait Islander people was created in consultation with Aboriginal and Torres Strait Islander people. The initiative aimed to close the gap in life expectancy by 2031 [36]. Specific outcomes, targets and indicators aimed at policy direction and monitoring progress for mortality included life expectancy, all-cause mortality, leading causes of death and potentially avoidable mortality [37]. The difference in health outcomes (health gap) between Aboriginal and Torres Strait Islander people and non-Indigenous Australians (including life expectancy and infant/child mortality) can be attributed to several 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 [37, 38].

There were 4,081 deaths in Australia in 2021 where the deceased person was identified as Aboriginal and/or Torres Strait Islander (Table 3. Numbers and proportions (%) of Aboriginal and Torres Strait Islander deaths, Australia, 2021 3) [39]. See Appendix 1 for discussion of data limitations.

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[8] This excludes very preterm births [26].

Table 3. Numbers and proportions (%) of Aboriginal and Torres Strait Islander deaths, Australia, 2021

Jurisdiction	Number of deaths	Proportion of deaths in jurisdiction (%)
NSW	1,206	2.1
Vic	256	0.6
Qld	1,101	3.3
WA	604	3.8
SA	240	1.7
Tas	102	2.1
ACT	25	1.1
NT	545	45
Australia	4,081	2.4

Note:

1 Australian total includes other territories including Jervis Bay Territory, the Cocos (Keeling) Islands, Christmas Island and Norfolk Island.

Source: ABS, 2022 [39]

In 2021, there were 1,106 deaths for which no Indigenous status was reported, representing 0.6% of registered deaths; it is very likely that some of these deaths were among Aboriginal and Torres Strait Islander people [39].

Death rates

Crude and age-standardised death rates, median age at death, age-specific death rates and infant/child mortality rates (see the 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 [39]. 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 2021 is based on the three-year averages for the 2019-2021 period.

In 2021, the age-standardised death rate for Aboriginal and Torres Strait Islander people was 9.5 per 1,000 population (Table 4) [39]. 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 (7.8 per 1,000).

Table 4. Number of deaths and age-standardised death rates, Aboriginal and Torres Strait Islander people, NSW, Qld, WA, SA and the NT, 2021

Jurisdiction	Numbers	Aboriginal and Torres Strait Islander people
NSW	1,206	7.8
Qld	1,101	9.6
WA	604	12
SA	240	10
NT	545	13
Total for the selected jurisdictions	3,696	9.5

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, 2022 (Derived from [39])

In 2021, the crude death rate in NSW, Qld, WA, SA and the NT for Aboriginal and Torres Strait Islander people was 4.7 per 1,000. The rate for males was higher than that for females (5.1 per 1,000 and 4.3 per 1,000 respectively) [39].

For 2015-2019, in NSW, Qld, WA, SA and the NT, 15,439 deaths (males: 8,458, females: 6,981) were identified as Aboriginal and/or Torres Strait Islander [37]. The crude death rate for all Aboriginal and Torres Strait Islander people was 430 per 100,000, with the rate for males (472 per 100,000) higher compared with females (388 per 100,000). The age-standardised death rate for all Aboriginal and Torres Strait Islander people was 922 per 100,000, with NSW recording the lowest rate (710 per 100,000), followed by Qld (965 per 100,000); SA (974 per 100,000); WA (1,126 per 100,000) and the NT with the highest rate (1,356 per 100,000).

Expectation of life

In 2018, the ABS published revised estimates for expectation of life at birth for Aboriginal and Torres Strait Islander people [40]. 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 5. Expectation of life at birth in years, by Indigenous status and sex, selected jurisdictions, Australia, 2015-2017 5).

Table 5. Expectation of life at birth in years, by Indigenous status and sex, selected jurisdictions, Australia, 2015-2017

Jurisdiction	Aboriginal and Torres Strait Islander people	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 [40]

Life expectancy for Aboriginal and Torres Strait Islander people varied considerably by remoteness of residence [40]. 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 6).

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

Remoteness	Aboriginal and Torres Strait Islander people		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 [40]

The life expectancy data for 2015-2017 are not comparable to previous Census data due to changes in the identification of Indigenous status [37]. Due to this, the *Overview* does not provide trend analysis data for life expectancy.

Age at death

In 2021, the median age at death[9] for Aboriginal and Torres Strait Islander people in NSW, Qld, WA, SA and the NT was 61.7 years [39]. The median age of death varied across the selected jurisdictions, with NSW having the highest median age of death for both males and females (Table 7). The lowest median age of death for males was reported for WA, and for females, in the NT.

Table 7. Median age at death (in years), Aboriginal and Torres Strait Islander people, by sex, NSW, Qld, WA, SA and the NT, 2021

Jurisdiction	Aboriginal and Torres Strait Islander people		
	Males	Females	Persons
NSW	61.9	66.6	63.9
Qld	60.1	65.7	62.7
WA	55.7	61.3	58.6
SA	56.1	63.5	59.1
NT	55.9	60.6	58.4
Total for the selected jurisdictions	59.5	64.3	61.7

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, 2022 [39]

Age-specific death rates

The most detailed data are available for 2020. In NSW, Qld, WA, SA and the NT, the death rate for Aboriginal and Torres Strait Islander people for all ages was 459 per 100,000 [41]. The age-specific death rates increased with age from 5-14 years, with the highest rate reported in the 75 years and over age-group (7,521 per 100,000), followed by the 65-74 years age-group (2,613 per 100,000) and 55-64 years age-group (1,313 per 100,000). The lowest rate was in the 5-14 years age-group (17 per 100,000).

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[9] The median age at death is the age below which 50% of people die.

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 [41]. In NSW, Qld, WA, SA and the NT in 2021, the Aboriginal and Torres Strait Islander IMR was 5.2 per 1,000 live births [39]. The highest IMR was in the NT (13.4 per 1,000) and the lowest in SA (3.1 per 1,000).

In the five-year period 2015-2019, in NSW, Qld, WA, SA and the NT, 527 infant deaths represented 85% of all deaths among 0-4 year old Aboriginal and Torres Strait Islander children (622 deaths) [37]. The IMR was higher among male infants compared with female infants (6.4 per 1,000 and 5.4 per 1,000 respectively). For the selected jurisdiction, the IMR for Aboriginal and Torres Strait Islander infants was 5.9 per 1,000, with the highest rate in the NT (13 per 1,000), followed by Qld (6.2 per 1,000), WA (5.9 per 1,000), SA (4.5 per 1,000) and NSW the lowest (4.2 per 1,000).

Aboriginal and Torres Strait Islander infants less than one year of age most commonly died from conditions in the International Classification of Diseases (ICD) 'Certain conditions originating in the perinatal period', including birth trauma, disorders relating to fetal growth, complications from pregnancy, labour and delivery, and respiratory and cardiovascular disorders specific to the perinatal period [37]. This accounted for over half (57%) of all Aboriginal and Torres Strait Islander infant deaths for 2015-2019. The second major cause was ICD 'Congenital malformations, deformations and chromosomal abnormalities', which accounted for 15% of infant deaths.

Child mortality

For 2015-2019, among Aboriginal and Torres Strait Islander children aged 0-4 years, living in NSW, Qld, WA, SA and the NT, there were 622 deaths; 527 in children aged 0-1 years and 95 in children aged 1-4 years [37]. The child mortality rate was 150 per 100,000 for 0-4 year olds and 29 per 100,000 for 1-4 year olds. Aboriginal and Torres Strait Islander males had the highest child mortality rate for both age-groups (0-4 years: 160 per 100,000 and 1-4 years: 31 per 100,000) compared with females (0-4 years: 139 per 100,000 and 1-4 years: 27 per 100,000). For the selected jurisdictions, the NT had the highest child mortality rates for the 0-4 and 1-4 year old age-groups (308 per 100,000 and 55 per 100,000 respectively) and NSW the lowest rates (101 per 100,000 and 18 per 100,000 respectively).

For 2015-2019, Aboriginal and Torres Strait Islander children most commonly died from conditions in the ICD 'Certain conditions originating in the perinatal period and congenital malformations, deformations and chromosomal abnormalities' in the 0-4 year age-group (62% of deaths) and from 'Injury and poisoning', including transport accidents and other injury and poisoning in the 1-4 year age-group (47% of deaths) [37].

Causes of death

Ischaemic heart disease (IHD) was the leading specific cause of death for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT in 2021 [42]. IHD accounted for 383 deaths, representing 10% of all deaths for Aboriginal and Torres Strait Islander people (total 3,696 for selected jurisdictions) (Derived from [42]). The other leading specific causes of death were diabetes: 273 deaths (7.4%), chronic lower respiratory diseases: 260 deaths (7.0%) and cancer of trachea, bronchus and lung: 245 deaths (6.6%).

In 2021, for Aboriginal and Torres Strait Islander males living in NSW, Qld, WA, SA and the NT, the leading causes of death were IHD: 248 deaths, intentional self-harm: 134 deaths, cancer of trachea, bronchus and lung: 131 deaths, diabetes: 130 deaths and chronic lower respiratory diseases: 125 deaths [42]. For females, the leading causes of death were diabetes: 143 deaths, IHD and chronic lower respiratory diseases: both 135 deaths and cancer of trachea, bronchus and lung: 114 deaths.

For 2017-2021, age-standardised death rates for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT show that the leading cause of death was IHD (113 per 100,000) [42]. The next leading causes of death were chronic lower respiratory diseases (78 per 100,000) and diabetes (74 per 100,000). For 2017-2021, 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 (148 per 100,000 and 83 per 100,000 respectively). The next leading causes of death for males were chronic lower respiratory diseases (85 per 100,000) and diabetes and cancer of trachea, bronchus and lung (both 73 per 100,000), and for females, diabetes (74 per 100,000) and chronic lower respiratory diseases (72 per 100,000).

For 2017-2021 age-specific rates, from 15 years of age and above, for underlying causes of death among Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT, indicated that intentional self-harm[10] was the leading cause of death for those aged 15-24 years (43 per 100,000) and 25-34 and 35-44 years (both 48 per 100,000) [42]. The leading cause of death for the 45-54 years, 55-65 years and 65-74 years age-groups was IHD at rates of 121 per 100,000; 169 per 100,000 and 310 per 100,000 respectively. For Aboriginal and Torres Strait Islander people aged over 75 years, dementia, including Alzheimer's disease, was the leading cause of death at 918 per 100,000 deaths.

Maternal mortality

Maternal deaths refer to deaths of women during pregnancy or up to 42 days after delivery [43]. Direct maternal deaths refer to those resulting from obstetric complications (including in pregnancy, labour, and in the first six 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. Coincidental deaths refer to deaths from unrelated causes (accidental and/or incidental) that occur during the pregnancy or up until six weeks after delivery.

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 [43].

In Australia between 2012 and 2020[11], 18 of the 160 maternal deaths reported were of Aboriginal and Torres Strait Islander women (Indigenous status was not reported in 14 of the deaths) [43]. Of these 18 Aboriginal and Torres Strait Islander maternal deaths, 10 were direct and 8 were indirect. The MMR for Aboriginal and Torres Strait Islander women was 16 deaths per 100,000 women who gave birth.

Between 2006 and 2017[12], there were 24 maternal deaths among Aboriginal and Torres Strait Islander women with the leading causes of death being cardiovascular diseases (CVD) (25% of maternal deaths) and sepsis (21%) [44].

Avoidable deaths

Potentially avoidable deaths refers to deaths that could have been prevented with timely and effective health care, including early detection and effective treatment [45]. They are calculated using the population data for Australians less than 75 years of age. For Aboriginal and Torres Strait Islander people, chronic disease and injury caused the highest proportion of avoidable deaths [37].

In 2015-2019, there were 7,366 deaths (males: 4,322; females: 3,044) from avoidable causes among Aboriginal and Torres Strait Islander people aged 0-74 years living in NSW, Qld, WA, SA and the NT [37]. The 7,366 deaths represented 60% of Aboriginal and Torres Strait Islander people who died during this period. Males were more likely to die from avoidable causes than females (crude rate 243 per 100,000 and 172 per 100,000 respectively). The age-specific avoidable mortality rate was relatively high for children under one year of age (374 per 100,000 live births), falling to the lowest rate for children aged 5-14 years (11 per 100,000 estimated resident population (ERP)) and 1-4 years (18 per 100,000 ERP), before increasing from the 15-24 years age-group through to the 65-74 years age-group (Table 8).

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[10] Care needs to be taken in interpreting figures relating to intentional self-harm due to a revision process for coroner certified deaths and coding [42].

[11] Data not available from WA for all years.

[12] Data were unavailable for WA and due to the small number of Aboriginal and Torres Strait Islander women in the National Maternal Data Collection, data for 2006-2017 were used [44].

Table 8. Numbers and age-specific rates for avoidable deaths, by Indigenous status, NSW, Qld, WA, SA and the NT, 2015-2019

Age-group (years)	Aboriginal and Torres Strait Islander people	
	Number	Rate per 100,000
Less than 1	335	374
1-4	60	18
5-14	92	11
15-24	492	71
25-34	690	132
35-44	982	251
45-54	1,457	402
55-64	1,678	691
65-74	1,580	1,383
All ages – crude rate	7,366	208
All ages – age-standardised rate	7,366	314

Source: AIHW, 2022 [37]

For 2015-2019, age-standardised rates for avoidable deaths were highest in the NT (513 per 100,000), followed by WA (441 per 100,000), and lowest in NSW (222 per 100,000). Aboriginal and Torres Strait Islander people living in remote areas had the highest avoidable mortality rate (467 per 100,000), 2.1 times higher than those living in major cities (227 per 100,000) and 1.7 times higher than those living in regional areas (269 per 100,000) (Derived from [37]).

In 2015-2019, 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 IHD (21%), diabetes (12%), suicide and self-inflicted injuries (11%), chronic obstructive pulmonary disease (COPD) (8.8%) and cancer (8.0%) [37].

Hospitalisation

Statistics on hospitalisation provide some indication of the burden of disease in the population [46]. They are, however, a poor reflection of the extent and patterns of treatable illness in the community because they only represent the most serious illnesses, which require hospitalisation [37]. Hospitalisations are also influenced, to some extent, by the geographic accessibility of hospitals and variations in admission policies and practices for illnesses [38, 47]. 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) [47].

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 [38, 48]. 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 [38, 49].

Hospitalisation rates will be determined by advancements in the health system [37], improvements in self-identification by Aboriginal and Torres Strait Islander people [50], and reforms that tackle the social determinants of health [37].

Hospital separation rates

Of the 11.8 million hospital separations in Australia[13, 14] during 2020-21, there were 615,400 (5.2%) identified as Aboriginal and/or Torres Strait Islander (Table 9. Numbers of hospital separations and age-standardised hospital separation rates for Aboriginal and Torres Strait Islander people, by jurisdiction, 2020-21 9) [49]. Of these hospital separations, 92% were for Aboriginal people, 3.9% were for Torres Strait Islander people and 4.4% were for people who identified as being of both Aboriginal and Torres Strait Islander descent. Of the 615,400 hospital separations, 58% were for females and 42% for males.

In 2020-21, the overall age-standardised hospital separation rate for Aboriginal and Torres Strait Islander people was 994 separations per 1,000 (Table 9) [49]. The highest age-standardised hospital separation rate was for Aboriginal and Torres Strait Islander people living in the NT (2,262 per 1,000) and the lowest in NSW (578 per 1,000).

Table 9. Numbers of hospital separations and age-standardised hospital separation rates for Aboriginal and Torres Strait Islander people, by jurisdiction, 2020-21

Jurisdiction	Number	Rate
NSW	121,788	578
Vic	33,047	702
Qld	178,148	1,042
WA	107,291	1,464
SA	34,779	1,103
NT	125,595	2,262
Australia	615,400	994

Notes:

1 Rates per 1,000 population.

2 Numbers and rates for the NT are for public hospitals only; numbers and rates are not included separately for public hospitals in Tas or the ACT but included in totals where applicable. The data are not published for confidentiality reasons and low numbers.

Source: AIHW, 2022 [49]

For 2015-17, there were just over one million hospital separations among Aboriginal and Torres Strait Islander people at an age-standardised rate of 907 per 1,000 population [37]. Dialysis accounted for 461,806 of these separations and when care involving dialysis was excluded, the age-standardised rate was 435 per 1,000 (crude rate 340 per 1,000).

Age-specific hospital separation rates

In 2015-17, age-specific hospital separation rates (excluding dialysis) for Aboriginal and Torres Strait Islander people increased with age (except for 0-4 year olds), with the highest rate in the 65 years and over age-group (Table 10) [37]. For Aboriginal and Torres Strait Islander females, the rates, compared with males, were higher across all age-groups from 15 to 54 years of age.

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[13] All hospitalisation data for Tas, the ACT and the NT includes only public hospitals [49].

[14] 280,899 (2.3%) had no Indigenous status reported [49].

Table 10. Age-specific hospital separation rates (excluding dialysis), by sex, Aboriginal and Torres Strait Islander people, 2015-17

	Rates		
Age-group (years)	**Males**	**Females**	**Persons**
0-4	346	273	311
5-14	112	96	104
15-24	151	371	258
25-34	234	521	377
35-44	368	500	436
45-54	487	527	508
55-64	608	588	597
65+	893	864	877
All ages (age-standardised rate)	395	477	435
All ages (crude rate)	290	390	340

Notes:

1 Rates per 1,000 population.

2 Data includes public and private hospitals in all jurisdictions.

3 Age-standardised using the Australian 2001 standard population.

Source: AIHW, 2020 [37]

In 2018-19, Aboriginal and Torres Strait Islander children aged 0-4 years were hospitalised at a crude rate of 323 per 1,000, with diseases of the respiratory system (as a principal diagnosis) being responsible for the highest rates of hospitalisation (84 per 1,000) [51]. For 2016-18, hospitalisation rates for Aboriginal and Torres Strait children aged 0-4 years increased with remoteness: major cities (285 per 1,000); regional areas (294 per 1,000) and remote/very remote areas (475 per 1,000). Hospitalisation rates in remote/very remote areas were 1.7 times higher than those in the city.

Causes of hospitalisation

In 2020-21, the most common reason for the hospitalisation of Aboriginal and Torres Strait Islander people in Australia was for conditions in the ICD ‘Factors influencing health status and contact with health services’, mostly for care involving dialysis, responsible for 47% of Aboriginal and Torres Strait Islander hospital separations (287,023 separations) [49]. 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 second most common cause of hospitalisation for Aboriginal and Torres Strait Islander people, responsible for 43,082 hospital separations (7.0% of all separations). After ICD ‘Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified’ (6.2% of all separations), the next leading cause of hospitalisation for Aboriginal and Torres Strait Islander people was ‘Diseases of the digestive system’, responsible for 33,592 hospital separations (5.5% of all separations) (Table 11).

Table 11. Numbers, proportions (%), and age-standardised hospitalisation rates for leading causes of hospital separations among Aboriginal and Torres Strait Islander people, Australia, 2020-21

Principal diagnosis (ICD)	Number of separations	Proportion of separations (%)	Age-standardised separation rate
Injury, poisoning and certain other consequences of external causes	43,082	7.0	57
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	38,413	6.2	58
Diseases of the digestive system	33,592	5.5	49
Pregnancy, childbirth and the puerperium	32,948	5.4	35
Mental and behavioural disorders	27,457	4.5	38
Diseases of the respiratory system	24,903	4.0	35
Diseases of the genitourinary system	17,699	2.9	27
Diseases of the circulatory system	17,275	2.8	32
Diseases of the musculoskeletal system and connective tissue	16,545	2.7	28
Endocrine, nutritional and metabolic diseases	12,852	2.1	21
Diseases of the skin and subcutaneous tissue	12,707	2.1	17
Neoplasms	10,755	1.7	20
Diseases of the nervous system	9,636	1.6	14
Certain infectious and parasitic diseases	8,739	1.4	12
Factors influencing health status and contact with health services	287,023	47	528
All causes	615,400	100	994

Notes:

1 Hospital separation rates per 1,000 population.

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

3 Some principal diagnoses have been excluded.

Source: AIHW, 2022 [49]

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’ [52]. Rates for potentially preventable hospitalisations, including those for chronic conditions, acute conditions and vaccine preventable conditions, may be used as an indirect measure of problems with access to care and effective primary care [53].

In 2020-21, the age-standardised rate of overall potentially preventable hospitalisations for Aboriginal and Torres Strait Islander people was 68 per 1,000 [49]. The highest rates for potentially preventable hospitalisations of Aboriginal and Torres Strait Islander people were for chronic conditions: 33 per 1,000 (including 7.7 per 1,000 for diabetes complications) and acute conditions (30 per 1,000). The rate for vaccine preventable conditions was 6.7 per 1,000. Information by jurisdiction (Table 12) reveals that the NT had the highest rate for potentially preventable hospitalisations of 120 per 1,000, followed by WA of 88 per 1,000.

Table 12. Age-standardised hospital separation rates for selected potentially preventable hospitalisations for Aboriginal and Torres Strait Islander people, by condition type, by jurisdiction, all hospitals, 2020-21

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Vaccine preventable conditions	2.9	4.1	4.7	12	9.2	0.5	2.5	21	6.7
Acute conditions	20	21	35	37	30	10	27	53	30
Chronic conditions	24	30	35	41	36	16	14	50	33
Total	47	55	74	88	73	27	43	120	68

Note: Rates are per 1,000 population.

Source: AIHW, 2022 [49]

For 2020-21, age-standardised potentially preventable hospitalisation rates by remoteness indicated that vaccine preventable conditions, acute conditions and chronic conditions all experienced the highest rates in a remote setting (18, 50 and 49 per 1,000 respectively) (Table 13) [49]. When comparing between condition types and remoteness settings, vaccine preventable conditions had the greatest difference in rates between settings, with the rate for remote areas 4.8 times the rate for regional areas (18 per 1,000 compared with 3.7 per 1,000 respectively) and 4.6 times the rate for major cities (18 per 1,000 compared with 3.9 per 1,000 respectively).

Table 13. Age-standardised hospital separation rates for potentially preventable hospitalisations for Aboriginal and Torres Strait Islander people, by condition type, by remoteness, 2020-21

	Major cities	Regional	Remote/very remote	Total
Vaccine preventable conditions	3.9	3.7	18	6.7
Acute conditions	23	26	50	30
Chronic conditions	26	30	49	33
Total	53	59	113	68

Notes:

1 Rates are per 1,000 population.

2 Data are from public and private hospitals in all jurisdictions.

Source: AIHW, 2022 [49]

In 2018-19, the national crude rate of hospitalisations for Aboriginal and Torres Strait Islander children aged 0-4 years for potentially preventable diseases and injuries was 171 per 1,000 [51]. For remoteness, available data for 2016-18 show that the rates increased by remoteness: major cites (135 per 1,000); regional (147 per 1,000) and remote/very remote areas (319 per 1,000). The rate of hospitalisations of Aboriginal and Torres Strait Islander children was 2.4 times as high in remote/very remote areas as it was in major cities.

Selected health conditions

Cardiovascular health

Cardiovascular disease (CVD) is the term for diseases and conditions that affect the heart and blood vessels [54]. Specific types of CVD include IHD, cerebrovascular disease (including stroke), hypertension (high blood pressure), and rheumatic heart disease (RHD) [33, 54].

Most types of CVD (excluding RHD) share a common set of risk factors. These include smoking, unhealthy diet, physical inactivity, high alcohol use, high blood pressure, high cholesterol, unhealthy weight, type 2 diabetes, chronic kidney disease (CKD), depression/social isolation, sex, family history of CVD, ethnicity and age [55-57]. Evidence shows that the risk of CVD starts relatively early for Aboriginal and Torres Strait Islander people, and a consensus statement was released in 2020 recommending that Aboriginal and Torres Strait Islander people begin having CVD risk assessments at younger ages because of early disease onset [55].

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 [58]. ARF is caused by an untreated bacterial - group A streptococci (GAS) - infection of the throat[15]. 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 [58, 59]. A comprehensive, long-term strategy was released in 2020 setting out the actions required to eliminate RHD in Australia [58].

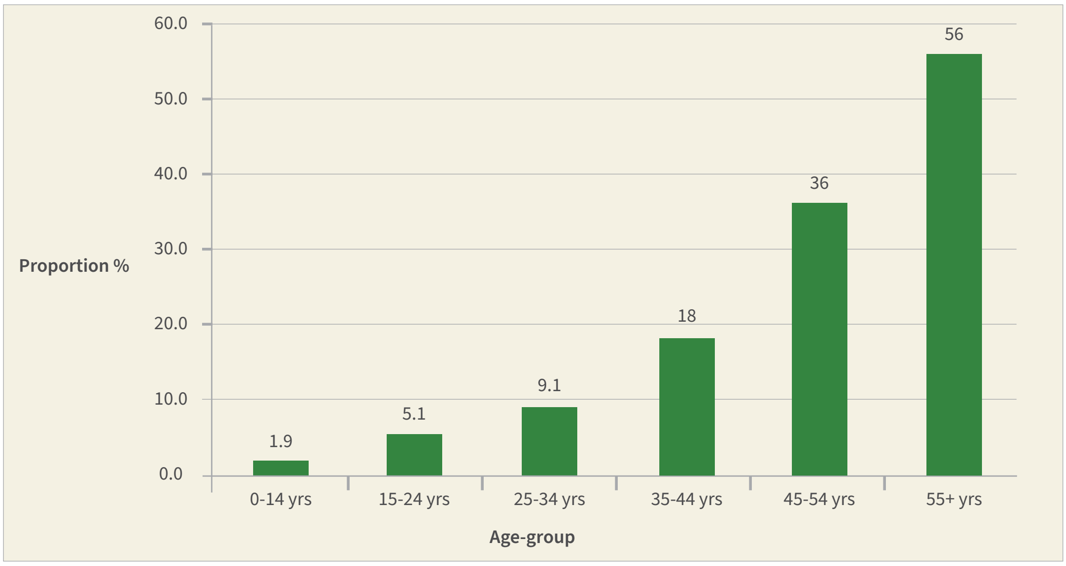
Extent of cardiovascular disease among Aboriginal and Torres Strait Islander people

Prevalence of cardiovascular disease

The 2021 Census measured the number of people who had a long-term health condition [20]. Heart disease (including heart attack or angina) was reported by 3.7% of the Aboriginal and Torres Strait Islander population and stroke by 0.9%.

Around 15% of participants in the National Aboriginal and Torres Strait Islander Health Survey, 2018-19 (NATSIHS) reported having CVD [60]. 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 1).

Figure 1. 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 [60]

'Heart, stroke and vascular disease'[16] 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) [60]. 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%).

Hypertension[17] was self-reported by 8.3% of NATSIHS participants (8.3% of Aboriginal people and 6.6% of Torres Strait Islander people) [60]. 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%).

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[15] In some settings GAS infections can also be present in the skin [58, 59].

[16] 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 [60].

[17] Self-reported hypertension only; excludes clinically measured high blood pressure results [60].

As well as being asked to self-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. When measured[18], 23% of adult participants had high blood pressure[19] [60]. Twenty-three per cent (23%) of Aboriginal adults and 26% of Torres Strait Islander adults had high blood pressure when measured. 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 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:

1 Proportion expressed as percentages.

Source: ABS, 2019 [60]

High cholesterol was reported by 4.5% of NATSIHS participants, with the prevalence being identical for males and females [60]. 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.

An AIHW study that used linked data to estimate the incidence[20] of stroke and acute coronary syndrome (ACS) found that in 2018 among Aboriginal and Torres Strait Islander people there were:

- about 560 new stroke events, at a crude rate of 87 per 100,000 population
- more than 1,100 new ACS events, at a crude rate of 382 per 100,000 population [61].

Incidence and prevalence of ARF and RHD

In 2016-2020, in NSW, Qld, WA, SA and the NT combined[21], there were 2,392 notifications of ARF for Aboriginal and Torres Strait Islander people [62]. The crude notification rate was 65 per 100,000. There were more notifications for females (56% of total notifications) than males (44%). The highest notification rate was for those aged 5–14 years, who accounted for 46% of all notifications (135 per 100,000 population, or 1,094 notifications). The jurisdictions with the highest notification rates were the NT (344 per 100,000 population, or 1,310 notifications), followed by WA (65 per 100,000 population, or 340 diagnoses).

In 2016-2020, in Qld, WA, SA and the NT combined[22], there were 1,399 new diagnoses of RHD among Aboriginal and Torres Strait Islander people [62]. The crude rate of new diagnoses was 61 per 100,000. The rate of new RHD diagnosis for females (80 per 100,000) was nearly two times that for males (43 per 100,000). Over half of the new diagnoses (54%, 754 diagnoses) were in people aged under 25 years. Rates of new diagnoses were highest in the NT (146 per 100,000 population) followed by WA (50 per 100,000). As at 31 December 2020, there were 4,696 Aboriginal and Torres Strait Islander people living with RHD in Qld, WA, SA and the NT combined.

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[18] Forty percent (40%) of adult participants in the NATSIHS did not have a blood pressure reading taken; for these participants, imputation (estimation of data) was used to obtain blood pressure [60].

[19] Measured high blood pressure is defined as a blood pressure reading of ≥140/90 mmHg. Measured high blood pressure does not necessarily mean a person has hypertension [60].

[20] Study did not include data from WA and the NT and therefore may underestimate true incidence [61].

[21] The jurisdictions where there are established ARF/RHD registers [62].

[22] NSW data not included for RHD because NSW uses different RHD notification criteria than other jurisdictions [62].

Several studies have used echocardiographic screening (ultrasound of the heart) to determine RHD prevalence in specific regions of Australia. A study conducted in a West Arnhem Land community in the NT in 2018 found that the total prevalence of ARF and RHD among Aboriginal and Torres Strait Islander people aged 5-20 years[23] in that community was at least 10% [63].

Hospitalisation

There were 17,275 hospital separations for CVD[24] among Aboriginal and Torres Strait Islander people in 2020-21 [49], representing 5.3% of all Aboriginal and Torres Strait Islander hospital separations (excluding dialysis) (Derived from [49]).

In 2018-19, the crude CVD hospitalisation rate was 19 per 1,000 [51]. In 2016-18, the crude CVD hospitalisation rate was 19 per 1,000 for males and 18 per 1,000 for females.

In 2015-17, age-specific hospitalisation rates for CVD rose with age, from 1.9 per 1,000 for those aged 0-4 years to 111 per 1,000 for those aged over 65 years [37]. 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 22 per 1,000 in 2015-17.

In 2015-17, the crude rate of CVD hospitalisation for Aboriginal and Torres Strait Islander people was highest in the NT (33 per 1,000), WA (22 per 1,000) and Qld (18 per 1,000) and lowest in Tas (9 per 1,000) [37]. Other jurisdictions had rates of around 14 per 1,000. In 2016-18, rates were much higher in remote and very remote areas (29 per 1,000) than in inner and outer regional areas (18 per 1,000) and major cities (13 per 1,000) [51].

In 2015-17, of specific CVDs, IHD was responsible for the highest number of hospitalisations of Aboriginal and Torres Strait Islander people (36% of CVD hospitalisations), followed by pulmonary and other forms of heart disease (33%), cerebrovascular disease (9.3%), ARF (2.6%), RHD (1.9%) and hypertension (2.9%)[25] [37].

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 2021 (383 deaths) [42]. The age-standardised death rate due to IHD was 106 per 100,000 (crude rate 50 per 100,000). The age-standardised IHD death rate for males (146 per 100,000) was over twice the rate for females (72 per 100,000).

In 2021, cerebrovascular diseases were the seventh leading specific cause of deaths of Aboriginal and Torres Strait Islander people in NSW, Qld, WA, SA and the NT combined (131 deaths, age-standardised rate 38 per 100,000) [42]. Other cardiovascular causes of death were hypertensive diseases (42 deaths, 14 per 100,000) and heart failure[26] (37 deaths, 13 per 100,000).

In 2015-2019, there were 3,471 deaths of Aboriginal and Torres Strait Islander people in NSW, Qld, WA, SA and the NT combined caused by CVD [37]. CVD was the second leading general cause of death after neoplasms (including cancer), accounting for 23% of all deaths. The crude CVD mortality rate was 97 per 100,000 (age-standardised rate 229 per 100,000). The crude CVD mortality rate for Aboriginal and Torres Strait Islander males (109 per 100,000) was higher than the rate for females (84 per 100,000). Age-specific mortality rates for overall CVD increased with age, with high rates seen among people as young as 25-34 years (23 per 100,000). Crude rates were highest in the NT (154 per 100,000) and lowest in NSW (74 per 100,000). Crude rates were higher in remote areas (152 per 100,000) than non-remote areas (78 per 100,000). Of specific CVD types, IHD caused the most deaths (56% of CVD deaths), followed by other heart disease[27] (17%), cerebrovascular disease (15%), hypertensive diseases (4.8%), other diseases of the circulatory system[28] (3.7%), and RHD (3.4%).

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[23] During the data collection period March to November 2018.

[24] ICD-10 codes I00-I99.

[25] 'Other diseases of the circulatory system' accounted for the remainder of CVD hospitalisations (around 14%) [37].

[26] Heart failure and complications and ill-defined heart disease.

[27] ICD-10 codes I26–I52.

[28] ICD-10 codes I70–I99.

Burden of disease

In 2018, CVD accounted for 10% of total burden, 19% of fatal burden (premature death) and 2.6% of non-fatal burden (living with illness or disability) among Aboriginal and Torres Strait Islander people [64]. It made the third highest contribution to total burden of all disease groups. The majority of CVD burden was caused by IHD (57%) followed by stroke (13%). Of total CVD burden, 86% was fatal and 14% was non-fatal.

In 2018, of all specific diseases and injuries, IHD was the leading cause of total burden among Aboriginal and Torres Strait Islander people, accounting for 5.8% of total burden [64]. Of all risk factors contributing to total burden, high blood pressure was ranked ninth and contributed 4.3% of total burden.

Cancer

Cancer is the term used for a number of related diseases that cause damage to healthy body cells [65]. Cancer arises from changes to the genes that control the way cells grow. Healthy cells grow and divide as the body needs them, whereas cancer causes some of the cells of the body to divide in an uncontrolled manner.

There are more than 200 types of cancer [66], and it can start almost anywhere in the body [65]. 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 [66].

Data sources may use the 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) [2].

Extent of cancer among Aboriginal and Torres Strait Islander people

Incidence and prevalence

In the 2018-19 NATSIHS, 1.3% of Aboriginal and Torres Strait Islander people reported having neoplasms (including both malignant and benign) as a long-term health condition [60]. For cancer (malignant neoplasms) the proportion was 1.1%. The proportion of males self-reporting cancer was slightly higher than that of females, with percentages of 1.2% and 1.1% respectively. For neoplasms (both malignant and benign) the proportions increased with age; among the 45-54 years age-group the proportion was 2.8% and among the 55 years and over age-group it was 5.3%. When comparing across jurisdictions, the highest proportion of cancer was reported in WA with 1.3%, and when comparing by remoteness, non-remote areas had a higher proportion of cancer (1.3%) reported than remote areas (0.7%).

For 2012-2016, there were 8,326 new cases of cancer diagnosed in Aboriginal and Torres Strait Islander people living in NSW, Vic, Qld, WA and the NT (an average of 1,665 new cases per year) [67]. The figures were similar across both sexes, with 4,134 new cases of cancer in males and 4,192 new cases in females (Table 15). Lung cancer had the highest incidence (15%) of all cancers among Aboriginal and Torres Strait Islander people, with an average of 244 cases diagnosed each year (Derived from [67]). Prostate cancer accounted for 17% of all cancers diagnosed among males, and among females, breast cancer had the highest incidence (24% of all cancers diagnosed).

Table 15. Incidence of all cancers combined and selected cancers for Aboriginal and Torres Strait Islander people, by sex, NSW, Vic, Qld, WA and the NT, 2012-2016

Cancer site/type	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	625	125	595	119	1,220	244
Breast	5	1	1,025	205	1,030	206
Colorectal (bowel)	393	79	349	70	742	148
Prostate	703	141	n/a	n/a	n/a	n/a
Head and neck	388	78	135	27	523	105
Melanoma (skin)	152	30	112	22	264	53
Liver	217	43	78	16	295	59
Non-Hodgkin lymphoma	139	28	113	23	252	50
Uterine	n/a	n/a	269	54	n/a	n/a
Unknown primary site	116	23	121	24	237	47
Pancreatic	138	28	122	24	260	52
Cervical	n/a	n/a	169	34	n/a	n/a
Kidney	134	27	97	19	231	46
Bladder	93	19	33	7	126	25
All cancers combined	4,134	827	4,192	838	8,326	1,665

Notes:

1 Number of cases of uterine and cervical cancers are for females only, and prostate cancer is for males only.

2 All cancers combined include cancer types not listed in the table.

3 n/a – non applicable, information unavailable.

Source: AIHW, 2021 [67]

For 2012-2016, the age-standardised incidence rate of all cancers combined for Aboriginal and Torres Strait Islander people living in NSW, Vic, Qld, WA and the NT was 523 per 100,000 population [67]. When comparing by remoteness, major cities, outer regional, remote and inner regional locations had higher age-standardised incidence rates (538, 518, 513 and 512 per 100,000 respectively) than very remote locations (424 per 100,000).

Further information by jurisdiction (NSW, Qld, WA and the NT) is available for 2011-2015 [37]. Across jurisdictions, the incidence rate was highest in Qld at 529 per 100,000, followed by NSW at 500 per 100,000. In the NT, the incidence rate was slightly lower at 448 per 100,000 and WA had the lowest rate at 441 per 100,000. Across nearly all jurisdictions, the most common new diagnoses among Aboriginal and Torres Strait Islander people in 2011-2015 were for cancers of the lung, breast (female), bowel, and prostate. However, for the NT the most common diagnoses included cancers of the head and neck and liver instead of bowel and prostate. Prostate cancer accounted for 2.2% of diagnoses in the NT, while in the other states it ranged from 7.1%-9.7% of diagnoses. When comparing by age-groups, the age-specific incidence rates of most cancer types generally increased with age. The cancer type affecting most Aboriginal and Torres Strait Islander people under 54 years of age was breast cancer at an age-specific rate of 10 per 100,000 for females aged less than 45 years, and 144 per 100,000 for females aged 45-54 years. Over the age of 54 years, it was prostate cancer for males (232 per 100,000 in the 55-64 years age-group, 561 per 100,000 in the 65-74 years age-group and 724 per 100,000 in the 75 years and over age-group).

Incidence rates for Aboriginal and Torres Strait Islander people are available for some cancer types through monitoring mechanisms for some national screening programs. For 2012-2016, the crude incidence rate of bowel cancer among Aboriginal and Torres Strait Islander people, aged 50-74 years, was

96 per 100,000 [68]. In the same time period, there were 561 cases of breast cancer diagnosed among Aboriginal and Torres Strait Islander females aged 50-74 years, across NSW, Vic, Qld, WA and the NT, with a crude incidence rate of 248 per 100,000 [69]. In 2014-2018, there were 161 cases of cervical cancer among Aboriginal and Torres Strait Islander women aged 25-74 years, living in NSW, Qld, WA and the NT, with a crude incidence rate of 19 per 100,000 [70].

Survival

Information on survival from cancer for Aboriginal and Torres Strait Islander people is available for the 10 year period 2007-2016 and was provided only for NSW, Vic, Qld, WA and the NT [67]. The observed survival for all cancers combined was 47%; this means that just under half of the people diagnosed with cancer had survived for five years after their diagnosis. The five-year observed survival for some cancer types was higher than others, with breast (in females), melanoma of the skin, prostate and uterine cancers having the greatest chance of survival (Table 16).

Table 16. Five-year observed survival (%) for Aboriginal and Torres Strait Islander people for selected cancers, NSW, Vic, Qld, WA and the NT, 2007-2016

Cancer type/site	Total (%)
Lung	10
Breast (females)	76
Colorectal (bowel)	51
Prostate	75
Head and neck	39
Melanoma (skin)	76
Liver	8.5
Non-Hodgkin lymphoma	62
Uterine	74
Unknown primary site	5.8
Cervical	54
Kidney	69
Bladder	37
All cancers combined	47

Notes:

1 Survival for breast, uterine and cervical cancers are for females only. Survival for prostate cancer is for males only.

2 All cancers combined include cancer types not listed in the table.

Source: AIHW, 2021 [67]

Observed survival rates are available by remoteness, for the same jurisdictions, in the period 2007-2016, which show survival generally decreases with remoteness [67]. The five-year survival rate for major cities was 53%, while for inner and outer regional locations it was 47% and for remote and very remote locations it was 38%.

Hospitalisation

In 2020-21, there were 10,755 hospital separations for neoplasms (including all types of cancer), representing 3.3% of all separations (excluding dialysis) among Aboriginal and Torres Strait Islander people (Derived from [49]). More detailed hospitalisation data for Aboriginal and Torres Strait Islander people are available for 2015-17 [37]. In this period there were 10,232 hospitalisations for cancer as the principal diagnosis, at an age-standardised rate of 12 per 1,000. The rate was higher for males (14 per 1,000) than for females (10 per 1,000). The rate of hospitalisations increased with age, with the highest age-specific rate being 49 per 1,000 among the 65 years and over age-group. Most hospitalisations were in regional locations (46%) and major cities (36%), while 17% were in remote and very remote locations.

The numbers of hospitalisations are available for selected cancer types for 2015-17, including: 1,281 hospitalisations (13% of total hospitalisations for malignant neoplasms) for cancers of the blood and lymphatic system; 985 (9.6%) for lung cancer; 678 (6.6%) for breast cancer; 605 (5.9%) for bowel cancer; 464 (4.5%) for bladder cancer; 463 (4.5%) for prostate cancer (in males); 437 (4.3%) for cancers of the mouth and throat; 188 (1.8%) for cervical cancer (in females); and 1,346 (13%) for cancers of unknown primary site (Derived from [37]).

Mortality

For 2015-2019, the age-standardised mortality rate due to cancer of any type was 230 per 100,000 [67]. The rate for males, 276 per 100,000, was much higher than for females, 194 per 100,000. Numbers of deaths relating to cancer among Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT are available for 2015-2019. The combined total number of deaths for all cancers was 3,576, comprising 1,939 males and 1,637 females. Table 17 shows numbers of deaths for males and females for selected cancers.

Table 17. Number of deaths for Aboriginal and Torres Strait Islander people by sex, for all cancer combined and selected cancers, NSW, Qld, WA, SA and the NT, 2015-2019

Cancer site/type	Number of deaths - Males	Number of deaths - Females	Total number of deaths
Lung	526	416	942
Breast	6	185	191
Colorectal (bowel)	148	128	276
Prostate	119	n/a	n/a
Head and neck	162	57	219
Melanoma (skin)	19	11	30
Liver	170	97	267
Non-Hodgkin lymphoma	38	28	66
Uterine	n/a	39	n/a
Unknown primary site	126	106	232
Pancreatic	117	123	240
Cervical	n/a	69	n/a
Kidney	32	18	50
Bladder	35	19	54
All cancers combined	1,939	1,637	3,576

Notes:

1 Numbers of deaths due to cervical cancer are for females only, and prostate cancer is for males only.

2 All cancers combined include cancer types not listed in the table.

3 This table only includes deaths due to malignant neoplasms (cancerous tumours) and excludes deaths due to non-malignant neoplasms (in situ tumours, benign tumours and tumours of uncertain or unknown malignancy).

4 n/a – non applicable.

Source: AIHW, 2021 [67]

Further information is available regarding mortality for some of the more common types of cancer. In 2021, cancers of the trachea, bronchus and lung combined were the fourth leading cause of death overall for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT, being responsible for 245 deaths [42]. There was an 8.6% increase in the age-standardised mortality rates for cancers of the trachea, bronchus and lung in Aboriginal and Torres Strait Islander people between 2012-2016 and 2017-2021 (56 per 100,000 for 2012-2016 to 61 per 100,000 for 2017-2021).

The age-standardised death rate for cancers of the trachea, bronchus and lung among Aboriginal and Torres Strait Islander people in 2021 was 66 per 100,000 (males: 79 per 100,000; females: 56 per 100,000) [42]. Of the top five causes of death in 2021, by sex, cancers of the trachea, bronchus and lung ranked as the third most common cause of death for Aboriginal and Torres Strait Islander males (131 deaths) and fourth for females (114 deaths). Between 2012-2016 and 2017-2021, males accounted for the highest increase in trachea, bronchus and lung cancers at 11%; for females, there was an increase of 5.4%.

Age-specific information is available for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT for 2017-2021 [42]. The death rate for cancers of the trachea, bronchus and lung (as an underlying cause of death) increased with age from 34 per 100,000 in the 45-54 years age-group, 129 per 100,000 in the 55-64 years age-group and 269 per 100,000 in the 65-74 years age-group.

Other types of cancer that were listed in the top 20 leading causes of death for Aboriginal and Torres Strait Islander people in 2021 included cancers of the colon (bowel), sigmoid, rectum and anus (22 deaths per 100,000 people); cancers of the liver and intrahepatic bile ducts (18 per 100,000); breast cancer (14 per 100,000); cancers of the lymphoid, haematopoietic and related tissue (15 per 100,000); pancreatic cancer (12 per 100,000); and cancer of the oesophagus (8.8 per 100,000) [42].

Indigenous identification data for cervical, bowel and breast cancer mortality were collected by cancer databases for 2016-2020. In this time period, there were 62 deaths due to cervical cancer among Aboriginal and Torres Strait Islander women aged 25-74 years in NSW, Qld, WA, SA and the NT, and the crude mortality rate was 7.2 per 100,000 women [70]. There were 174 deaths due to bowel cancer among Aboriginal and Torres Strait Islander people aged 50-74 years, living in NSW, Qld, WA, SA and the NT, and the crude mortality rate was 32 per 100,000 [71]. There were 213 deaths due to breast cancer [72]. Mortality rates are provided only for females in the 50-74 years age-group. For Aboriginal and Torres Strait Islander females in this age-group, 120 died from breast cancer at a crude mortality rate of 42 per 100,000.

Burden of disease

In 2018, cancer accounted for 9.9% of the total burden of disease among Aboriginal and Torres Strait Islander people [64]. Of all disease groups, cancer made the fourth highest contribution to total burden. It was the fourth leading cause of disease burden among males (9.8%) and second among females (10%).

Among the top 20 causes of total disease burden, lung cancer was 8th for males (2.6% of total disease burden) and 11th for females (2.3% of total disease burden) [64]. It was the fourth leading cause of burden for those aged 45 to 64 years (4.7% of total disease burden) and the third for those aged 65-74 years (6.5% of total disease burden).

Diabetes

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

There are several types of diabetes. The most frequently occurring are type 1, type 2 and gestational diabetes mellitus (GDM) [74]. 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 [75] and is largely preventable by maintaining a healthy lifestyle. GDM develops in some women during pregnancy [75].

Diabetes can cause life-threatening complications [73], and reducing its impact among Aboriginal and Torres Strait Islander people is one of the key goals of the *Australian national diabetes strategy 2021-2030* [76]. Type 2 diabetes occurs at earlier ages for Aboriginal and Torres Strait Islander people [73] and is often undetected and untreated [77]. Complications from diabetes may occur within months of diagnosis, while others may develop over several years [78]. Aboriginal and Torres Strait Islander people with diabetes tend to have higher levels of risk factors such as smoking [73, 74, 79] and may show signs of other chronic conditions, including CKD, CVD, liver disease and anaemia [80].

Extent of diabetes among Aboriginal and Torres Strait Islander people

Prevalence

In the 2018-19 NATSIHS, 7.9% of Aboriginal and Torres Strait Islander people reported having diabetes [60]. Prevalence was similar among Torres Strait Islander people (7.9%) and Aboriginal people (7.8%). The prevalence of diabetes among Aboriginal and Torres Strait Islander males and females was also similar (7.6% and 8.2% respectively). Diabetes levels increased with age, with the prevalence among those aged 55 years and over (35%) being 14 times higher than those aged 25-34 years (2.5%). The proportion of people with diabetes was highest in WA and the NT (both 11%), followed by Qld (8.7%), SA (8.6%), NSW (6.3%), Vic (5.5%), the ACT (5.2%) and Tas (4.7%). Prevalence was higher in remote areas (12%) than non-remote areas (7.0%). The prevalence of diabetes and high glucose levels (HGL) combined was 13% [37].

The 2021 Census measured the number of people who had a long-term health condition [20]. Diabetes (excluding GDM) was reported by 5.9% of Aboriginal and Torres Strait Islander people.

In 2020, there were 555 Aboriginal and Torres Strait Islander children and young adults aged 0–19 years[29] known to be living with type 1 diabetes [81]. The crude prevalence of type 1 diabetes among this group was 150 per 100,000.

A large study using linked data from 51 of the 84 health centres that serve the NT's remote Aboriginal communities found that the prevalence of diabetes among Aboriginal adults aged ≥20 years in these communities was 29% in 2018/2019 [82]. A 2021 study using cross-sectional data from primary healthcare services found that in northern Australia, the crude prevalence of youth-onset type 2 diabetes in Aboriginal and Torres Strait Islander people aged 24 years or younger was 6.7 per 1,000 [83].

Incidence

In 2020, the crude rate of all new diabetes diagnoses (diabetes incidence) among Aboriginal and Torres Strait Islander people was 281 per 100,000 [81]. Rates differed by diabetes type and sex (Table 18).

Table 18. Incidence of diabetes, by diabetes type and sex, Aboriginal and Torres Strait Islander people, 2020

	Number			Crude rate		
Diabetes type	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Type 1	99	65	165	23	15	19
Type 2	1,002	1,154	2,156	233	268	250
All diabetes[30]	1,144	1,282	2,426	266	297	281

Notes:

1 Rates are per 100,000 population.

2 Rates may be influenced by the low capture on the National Diabetes Services Scheme of Aboriginal and Torres Strait Islander people living in places classified as remote or very remote.

3 Excludes persons whose Indigenous status was not stated or inadequately described.

Source: AIHW, 2022 [81]

In 2019-20, there were 1,872 new cases of GDM among Aboriginal and Torres Strait Islander women aged 15-49 years, with a crude incidence proportion of 13% [81]. Incidence increased with age, from 6.4% in the 15-19 years age group to 33% in the 45-49 years age group.

Hospitalisation

In 2019-20, there were 4,835 potentially preventable hospitalisations of Aboriginal and Torres Strait Islander people for a principal diagnosis of diabetes [84]. When diabetes as an additional diagnosis[31] was included, there were:

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[29] Type 1 diabetes prevalence in based on AIHW analysis of data from the National (insulin-treated) Diabetes Register; reliable estimates based on Register data are not available for those aged over 19 years [81].

[30] Including type 1, type 2 and other diabetes, but excluding GDM [81].

[31] Diabetes that co-exists with the patient's main condition, or that arises during the patient's time in hospital [81].

- 81,347 hospitalisations with diabetes as a principal and/or additional diagnosis, with a crude rate of 9,527 per 100,000 (age-standardised rate 15,473 per 100,000)
- 2,907 hospitalisations with type 1 diabetes as a principal and/or additional diagnosis, with a crude rate of 341 per 100,000 (age-standardised rate 400 per 100,000)
- 74,465 hospitalisations with type 2 diabetes as a principal and/or additional diagnosis, with a crude rate of 8,721 per 100,000 (age-standardised rate 14,587 per 100,000) [81].

For 2015-17, 6,504 Aboriginal and Torres Strait Islander people were hospitalised for a principal diagnosis of diabetes, at a crude rate of 4.1 per 1,000 [37]. They were most likely to be hospitalised for type 2 diabetes (61% of diabetes hospitalisations) followed by type 1 diabetes (24%) and GDM (14%). Rates were similar for Aboriginal and Torres Strait Islander males (4.0 per 1,000) and females (4.1 per 1,000). Age-specific hospitalisation rates increased with age, from 0.2 per 1,000 for those aged 0-4 years to 16 per 1,000 for those aged 65 years and over. Age-specific rates were higher for males than females from age 35 years onwards.

In the same period, the age-standardised rate of hospitalisations was highest for Aboriginal and Torres Strait Islander people living in very remote areas (9.3 per 1,000) and lowest for those living in inner regional areas (4.2 per 1,000) [37]. The rates varied by jurisdiction and were lowest in Tas (2.7 per 1,000) and highest in WA (8.8 per 1,000).

In 2017-18, there were 1,016 hospitalisations with a principal diagnosis of type 1 diabetes, with an age-standardised rate of 1.3 per 1,000 (males: 1.1 per 1,000 and females: 1.4 per 1,000) [85]. Rates were highest in the 15-44 years age-groups (15-24 years: 1.9 per 1,000, 23-34 years: 1.7 per 1,000, 35-44 years: 2.5 per 1,000) and lowest in the 0-4 years age-group (0.3 per 1,000). Hospitalisation rates for type 1 diabetes among Aboriginal and Torres Strait Islander people living in major cities were 1.8 times higher than for those living in remote and very remote areas (1.3 per 1,000 and 0.7 per 1,000 respectively).

In 2017-18, there were 2,504 hospitalisations with a principal diagnosis of type 2 diabetes among Aboriginal and Torres Strait Islander people [85]. The age-standardised hospitalisation rate was 5.1 per 1,000, with higher rates among males than females (5.5 per 1,000 and 4.7 per 1,000 respectively). Rates were highest in the 45 years and over age-groups (45-54 years: 7.9 per 1,000, 55-64 years: 11 per 1,000, 65 years and over: 17 per 1,000). Hospitalisation rates for type 2 diabetes among Aboriginal and Torres Strait Islander people living in remote and very remote areas were 2.3 times higher than for those living in major cities (8.4 per 1,000 and 3.6 per 1,000 respectively).

In 2017-18, there were 589 hospitalisations with a principal diagnosis of diabetes during pregnancy among Aboriginal and Torres Strait Islander women [85]. The hospitalisation rates were highest among women aged 35-39 years (88 per 1,000) followed by women aged 40-44 years (67 per 1,000), with the lowest rate in the 10-19 years age-group (15 per 1,000). Hospitalisation rates increased with remoteness; the rate was more than five times higher for those living in remote or very remote areas than for those living in major cities (119 per 1,000 and 22 per 1,000 population respectively).

Mortality

Diabetes was the second leading specific cause of death among Aboriginal and Torres Strait Islander people in NSW, Qld, SA, WA and the NT combined in 2021, accounting for 273 deaths (7.4% of all deaths) [42]. The age-standardised mortality rate was 71 per 100,000 (crude rate 35 per 100,000). Age-standardised rates were higher among females (74 per 100,000) than males (68 per 100,000). In 2017-2021, diabetes was a significant cause of death for older Aboriginal and Torres Strait Islander people; age-specific mortality rates ranged from 49 per 100,000 for those aged 45-54 years to 564 per 100,000 for those aged 75 years and over. In 2021, the age-standardised diabetes mortality rate was highest in the NT (192 per 100,000) and lowest in NSW (42 per 100,000)[32].

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[32] Of those four jurisdictions for which separate jurisdictional data were available (NSW, Qld, WA and the NT) [42].

Burden of disease

In 2018, endocrine disorders accounted for 3.3% of total disease burden, 3.0% of fatal burden and 3.6% of non-fatal burden among Aboriginal and Torres Strait Islander people [64]. The majority of total endocrine disease burden was caused by diabetes (type 2: 87%; type 1: 7%). Of total endocrine disease burden, 43% was fatal and 57% was non-fatal.

Social and emotional wellbeing (including mental health)

Social and emotional wellbeing (SEWB) has been 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, culture, spirituality, family and community, the body and emotions [86, 87].

Aboriginal and Torres Strait Islander culture and self-determination can be powerful protective factors in providing a buffer to psychological distress [11, 13, 88]. The cultural determinants of health include connection to Country, cultural beliefs and knowledge, language, family, kinship and community, cultural expression and continuity, and self-determination and leadership [13]. Continuation of existing, and revival of, Aboriginal and Torres Strait Islander culture and Indigenous knowledge systems and the capacity for self-determination is increasingly being seen as fundamental to healing and supporting SEWB [87].

In recent years, the approach to conceptualising SEWB in cultural contexts has been expanded to embrace cultural, social and emotional wellbeing (CSEWB) [89, 90]. The key to understanding this expanded framework is acceptance of the importance of challenging the denial of cultural rights, identity and expression [4, 90]. Evaluations of the National Empowerment Program utilising the CSEWB approach have demonstrated that participants in the program developed approaches and skills that they could utilise on their healing journeys [89, 90].

Social and emotional wellbeing lessons from the Coronavirus disease (COVID-19) pandemic

The COVID-19 pandemic exposed a number of risks to the mental health and wellbeing of Aboriginal and Torres Strait Islander people due to higher levels of stress, uncertainty, loss of control and isolation [90, 91]. Evidence from previous pandemics indicates that mental health impacts were to be expected [90]. It has also been noted that the mental health and wellbeing impacts of COVID-19 will be felt for many years to come [92]. Overall, it has been generally accepted that the leadership within the Aboriginal Community Controlled Health Sector was instrumental in the largely positive outcomes for Aboriginal and Torres Strait Islander people [93, 94].

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

Prevalence

In previous editions of the *Overview*, we have provided prevalence data from the 2018-19 NATSIHS. In this section we have also summarised the outcomes of the Mayi Kuwayu study of 9,691 respondents from 2018-2020 [13]. The authors note that while large, the sample is not representative of all Aboriginal and or Torres Strait Islander people. However, internal comparisons of, for example the relationship between exposure to discrimination and health outcomes, are understood to be representative [95]. A key strength noted by the authors is that the study was 'conceptualised, designed, conducted and analysed by Aboriginal and Torres Strait Islander people for our mobs' [13, p.25]. To enshrine the principles of data governance and sovereignty, the research team established the Mayi Kuwayu Data Governance Committee, an external panel comprised of Aboriginal and Torres Strait Islander people to independently review applications for data use.

In relation to life satisfaction, 87% of Mayi Kuwayu participants reported being satisfied with their lives (30% 'a lot'; 39% 'a fair bit'; and 17% 'a little bit') [13]. Just over five percent (5.2%) of respondents reported feeling 'not at all' satisfied with their lives. The results for life satisfaction were similar across Aboriginal, Torres Strait Islander, and Aboriginal and Torres Strait Islander peoples.

The Mayi Kuwayu study findings are consistent with the results of the 2018-19 NATSIHS, with male respondents in the NATSIHS feeling calm and peaceful all or most of the time (80%), and happy all or most of the time (87%) [51]. For females over 18 years of age it was a similarly positive picture with 78% reporting feeling calm and peaceful all/most of the time, and 88% felt happy all/most of the time. The proportion of people reporting positive indicators increased with remoteness. Feeling calm and peaceful all/most of the time ranged from 78% in non-remote areas (major cities and regional areas) to 83% in remote areas (remote and very remote). The results for happiness followed a similar pattern (non-remote: 87% and remote: 90%), as did results for respondents feeling 'full of life' (non-remote: 76% and remote: 84%). A number of contextual and cultural factors reported in the Mayi Kawayu study may provide some insight into these positive indicators [13]. For example, a majority of participants (78%) reported feeling a 'fair bit' to 'a lot' of control over their lives, 48% reported high family wellbeing and a further 21% moderate family wellbeing.

Conversely, only 21% reported that local mob makes community decisions 'a lot', and 30% felt that the government has 'a lot' of the final say where they live, with a further 14% agreeing that the government had a 'fair bit' of the final say. A majority of participants had experienced low (44%), moderate (8.4%) or high (2.3%) everyday discrimination and all reported experiences of the Stolen Generations.

In the Mayi Kuwayu study, 36% of respondents reported high or very high levels of psychological distress with a further 29% experiencing moderate psychological distress [13]. Twenty-seven percent (27%) reported low levels of psychological distress. Once again, these findings are consistent across identification. The results are slightly higher than for the 2018-19 NATSIHS, which found that 31% of Aboriginal and Torres Strait Islander respondents aged 18 years[33] 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%) [60]. In 2018-19, more females reported high or very high levels of psychological distress compared with males (35% and 26% respectively). Similar levels of high to very high psychological distress were reported across age-groups, with the highest proportion (33%) reported among the 45-54 years age-group. Vic and SA were the jurisdictions that reported the highest proportion of people with high levels of distress (both 36%) and the NT the lowest (26%). The proportion of Aboriginal and Torres Strait Islander people who experienced high or very high levels of psychological distress was higher in non-remote areas (31%) than remote areas (28%).

In the 2018-19 NATSIHS, 25% of Aboriginal people and 17% of Torres Strait Islander people, aged two years and over, reported having a mental and/or behavioural condition [60]. The proportion of people with a mental health condition was about the same for males (23%) and females (25%). The highest reported proportion of a mental and/or behavioural condition (30-32%) was among respondents aged 25-54 years, with the lowest proportion in the 0-14 years age-group (15%). Across the jurisdictions, mental and behavioural conditions were reported the most in the ACT (40%), followed by Tas (34%) and Vic (33%), with the lowest proportion in the NT (10%). Mental and behavioural conditions were around three times 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%) [60]. Anxiety was almost twice as common among females (21%) than males (12%). The age-groups with the highest proportion of anxiety were the 25-34 years (25%) and 35-44 years age-groups (24%).

Depression was the second most common condition reported under mental and behavioural conditions (13%), with females reporting higher levels (16%) compared with males (10%) [60]. The reporting of depression increased with age, from 2.5% among those aged 0-14 years to 23% among those aged 45-54 years, before decreasing to 20% among people aged 55 years and over.

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[33] The Mayi Kuwayu study gathered data from respondents aged 16 and above.

Discrimination and racism are associated with poor SEWB and mental health outcomes. Thurber et al (2021) demonstrated a clear 'dose response' relationship between experiences of discrimination SEWB/mental health, with increased discrimination leading to poorer SEWB outcomes [95]. Reported prevalence ratios [34] for SEWB included high to very high psychological distress (PR 2.48; CI: 2.29, 2.69); depression (PR 1.63, CI: 1.49, 1.79); anxiety (PR 1.60, CI: 1.44, 1.78); low happiness (PR 3.74; CI: 3.11. 4.49); and low life satisfaction (PR 3.44, CI: 3.10, 3.82)[95, p.5]. Importantly, up to half of the psychological distress burden among Aboriginal and Torres Strait Islander people could be attributable to experiences of discrimination [96].

Hospitalisation

In 2020-21, there were 27,457 hospital separations of Aboriginal and Torres Strait Islander people with a principal ICD diagnosis of 'Mental and behavioural disorders' [49]. These separations accounted for 8.4% of all hospital separations (excluding dialysis) for Aboriginal and Torres Strait Islander people (Derived from [49]).

'Intentional self-harm' categorised as a principal diagnosis[35], was responsible for 2,967 (0.5%) of all hospital separations for Aboriginal and Torres Strait Islander people in 2020-21 (Derived from [49]).

Mortality

In 2021, 196 Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA, and the NT died from intentional self-harm[36] [42]. It was the fifth leading cause of death overall (second for males and seventh for females). The age-standardised death rate for suicide was 27 per 100,000 (males: 39 per 100,000 and females: 16 per 100,000).

In 2021, the median age at death from intentional self-harm among Aboriginal and Torres Strait Islander people in NSW, Qld, WA, SA and the NT was 29.6 years; 29.8 years for males and 27.7 years for females [42].

For 2017-2021, in NSW, Qld, WA, SA and the NT, age-groups with the highest age-specific rates of death by intentional self-harm were 35-44 years for males (78 per 100,000) and 15-24 years for females (27 per 100,000) [42].

For 2017-2021, age-standardised death rates from intentional self-harm for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT ranged from 21 per 100,000 in NSW to 35 per 100,000 in WA [42].

Suicide was the leading cause of death for Aboriginal and Torres Strait Islander children aged 5-17 years in the period 2017-2021 (30%). A little over 75% of children who died by suicide were aged between 15 and 17 years. Over half (55%) of Aboriginal and Torres Strait Islander children who died by suicide were female [42].

Burden of disease

In 2018, mental and substance use disorders accounted for 23% of total burden among Aboriginal and Torres Strait Islander people [97]. Of all disease groups, mental and substance use disorders made the highest contribution to total burden. Males experienced more than three times the amount of burden due to suicide and self-inflicted injuries than females (ranked fourth in males). Females suffered more burden from anxiety (ranked second in females) and depressive disorders (ranked fourth in females) compared with males. Across the life course, mental and substance use disorders and injuries (including suicide) were the main cause of burden for older children, adolescents and adults up to 44 years of age.

In 2018, anxiety was the third leading specific cause of total burden with an age-standardised rate of 17 disability-adjusted life years (DALY) per 1,000 people, depressive disorders the sixth leading (14 DALY per 1,000) and suicide and self-inflicted injuries the ninth leading (13 DALY per 1,000) [97].

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[34] Prevalence ratios (PR) in this case refers to the difference between the 'moderate to high' compared to 'no' reported discrimination groups. For example, the prevalence ratio for low life satisfaction of 3.4 means that those reporting moderate to high discrimination are 3.4 times more likely to report low life satisfaction. It is important to consider the confidence intervals (CI) when interpreting these data.

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

[36] Care needs to be taken in interpreting figures relating to intentional self-harm due to a revision process for coroner certified deaths and coding [42].

Kidney health

Kidneys clean the blood by processing excess fluid, unwanted chemicals and waste, and producing urine [98]. If the kidneys stop working properly, waste can build up in the body and lead to kidney disease (sometimes called renal disease) [99, 100].

The most common cause of kidney disease is diabetes and there is a strong link between kidney disease and high blood pressure [101]. Other causes include immune diseases, congenital conditions, and genetic disorders, such as polycystic kidney disease. Many people are unaware that they have kidney disease as up to 90% of kidney function can be lost before symptoms appear [102].

Chronic kidney disease (CKD refers to conditions of the kidney that cause dysfunction or kidney damage and last for three months or more [103]. There are five stages of CKD according to the level of kidney function. In early stages (1-2), there are usually no symptoms, and the kidneys are still able to function when they are slightly damaged, making diagnosis difficult. In middle stages (3-4), levels of waste (urea and creatinine) in the blood rise and the person starts to feel unwell and kidney function slows down with increased urination. In end-stage kidney disease (ESKD)[37] (stage 5), a person will require dialysis or a transplant to stay alive.

CKD can be prevented by a healthy lifestyle or treatment, if detected early [104]. Modifiable risk factors include high blood pressure, tobacco smoking, overweight and obesity and impaired glucose regulation [102].

For Aboriginal and Torres Strait Islander people, non-modifiable risk factors associated with CKD also include being over the age of 30 years, family history of CKD, history of acute kidney injury and established vascular disease [105].

Extent of kidney disease among Aboriginal and Torres Strait Islander people

Prevalence/incidence

Approximately 1.8% of Aboriginal and Torres Strait Islander people (Aboriginal people: 1.9% and Torres Strait Islander people: 0.4%) reported kidney disease as a long-term health condition in the 2018-19 NATSIHS [60]. The proportion 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 was less than 2% for all age-groups under 35 years, increasing to 2.3% for people aged 35-44 years, 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 areas (3.4%) than non-remote areas (1.4%).

In the 2012-13 Australian Aboriginal and Torres Strait Islander Health Survey (AATSIHS), 18% of Aboriginal and Torres Strait Islander adults had biomedical signs of CKD (12% in stage 1 and 1.1% in stages 4-5) [106]. However, only 1.8% self-reported that they had kidney disease [107]. For those aged 18-34 years, 9.0% had biomedical signs of CKD, increasing to 49% among those aged 65 years and over [108].

With most information on CKD limited to self-reported data, the primary focus in the literature has been on end-stage renal disease (ESRD). Data from the ANZDATA for the five-year period 2016-2020 reveal that the age-standardised notification rate of ESRD for Aboriginal and Torres Strait Islander people was 616 per 1,000,000 population (Derived from [23, 109-111]). The highest notification rates of ESRD were recorded for Aboriginal and Torres Strait Islander people living in the NT (1,723 per 1,000,000), WA (1,082 per 1,000,000), and SA (684 per 1,000,000) (Table 19).

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[37] Used interchangeably with end-stage renal disease (ESRD).

Table 19. Numbers of notifications and age-standardised notification rates for ESRD for Aboriginal and Torres Strait Islander people, selected jurisdictions, Australia, 2016-2020

Jurisdiction	Aboriginal and Torres Strait Islander	
	Number	Rate
NSW	177	201
Vic	54	291
Qld	477	660
WA	391	1,082
SA	100	684
NT	483	1,723
Australia	1,707	616

Notes:

1 Rates per 1,000,000 population have been standardised using the ERP from 30 June 2001.

2 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.

Source: Derived from ANZDATA, 2021 [111], ABS, 2018 [110], ABS, 2019 [23], ABS, 2003 [109]

Of people newly registered with the ANZDATA in 2016-2020, 55% of Aboriginal and Torres Strait Islander people were aged less than 55 years (Table 20) (Derived from [23, 109-111]).

Table 20. Numbers of notifications and notification rates of ESRD for Aboriginal and Torres Strait Islander people by age-group, Australia, 2016-2020

Age-group (years)	Aboriginal and Torres Strait Islander	
	Number	Rate
0-14	11	7.9
15-24	39	49
25-34	120	196
35-44	246	561
45-54	523	1,247
55-64	483	1,674
65-74	242	1,729
75+	43	803
All ages	1,707	616

Notes:

1 Rates per 1,000,000 population.

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

Source: Derived from ANZDATA, 2021 [111], ABS, 2019 [23], ABS, 2018 [110], ABS, 2003 [109]

Hospitalisation, dialysis and transplantation

Detailed information from ANZDATA is available for 2021, when a total of 349 Aboriginal and Torres Strait Islander people commenced haemodialysis (HD) and peritoneal dialysis (PD) (HD: 310 and PD: 39), an increase from 2020 (322 people) [112]. Qld accounted for the highest proportion of patients commencing dialysis (29%), followed by the NT (28%) and WA (24%).

In 2021, there were 2,170 prevalent dialysis patients in Australia (PD and HD treatments), who identified as an Aboriginal and/or Torres Strait Islander person [112]. HD accounted for the majority of treatment (93%), with only 7% of Aboriginal and Torres Strait Islander dialysis patients receiving PD (Derived from [112]). The highest proportion of patients on dialysis were from the NT (33%), followed by Qld (25%) and WA (24%). By modality, the NT had the highest proportion of patients on HD (34%) and Qld on PD (37%).

In 2019-20, the crude hospitalisation rate was 34 per 1,000 (29 per 1,000 for males and 40 per 1,000 for females) for Aboriginal and Torres Strait Islander people with CKD as a principal or additional diagnosis [103]. For regular dialysis as a principal diagnosis, there were 300 per 1,000 hospitalisations for Aboriginal and Torres Strait Islander people (256 per 1,000 for males and 345 per 1,000 for females). The age-standardised incidence rate of treated ESKD in 2015-17 was 0.6 per 1,000 (0.6 per 1,000 for males and 0.7 per 1,000 for females).

In 2018-19 there were 242,274 hospitalisations for Aboriginal and Torres Strait Islander people for ESKD (crude rate 289 per 1,000) [51]. Detailed information for ESKD is available for 2016-18. The crude hospitalisation rate for ESKD among Aboriginal and Torres Strait Islander people was 278 per 1,000 (males: 241 per 1,000, females: 316 per 1,000). Rates increased with remoteness: 137 per 1,000 for major cities, 229 per 1,000 for inner and outer regional areas and 681 per 1,000 for remote and very remote areas. The rate for remote and very remote areas was 5.0 times the rate for major cities.

In 2020, there were 48 kidney transplant operations for Aboriginal and Torres Strait Islander recipients [112]. At 31 December 2020, 48 (4.1%) of the 1,158 patients on the waiting list for a transplantation were of Aboriginal and/or Torres Strait Islander origin.

Mortality

In 2015-2019, there were 279 deaths from kidney disease (as an underlying cause of death) among Aboriginal and Torres Strait Islander people [37]. This accounted for 1.8% of total deaths. There were also 2,805 deaths (195 per 100,000, age-standardised) where kidney disease was an underlying or associated cause of death. In 2016-20, the age-standardised mortality rate for kidney disease (as a major cause of death) among Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT was 22 per 100,000 [84].

In 2021, diseases of the urinary system were reported as an underlying cause of 75 deaths (males: 28; females: 47) among Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT [42]. The age-standardised death rate for Aboriginal and Torres Strait Islander people was 25 per 100,000 (males: 20 per 100,000, females: 28 per 100,000). In 2021, 258 Aboriginal and Torres Strait Islander people who were receiving dialysis died [112]. The most common causes of death for the dialysis patients were CVD (81 deaths: 31%), ‘other’ (62 deaths: 24%) and withdrawal from treatment (53 deaths: 21%). Most deaths were among Aboriginal and Torres Strait Islander people on HD treatment (93%).

Burden of disease

In 2018, diseases of the kidney and urinary system[38] were the 12th leading cause of disease burden for Aboriginal and Torres Strait Islander people. For specific diseases, CKD was the 10th leading cause of disease burden, contributing to 2.5% of the total burden [97]. For females, CKD was the 8th leading cause of total disease burden (3.1% of total burden), and for males it was the 15th leading cause of total disease burden (2.0% of proportion of total burden). Across age groups, CKD was the fourth leading cause of total disease burden for those aged 65-74 years (6.0% of proportion of total burden); fifth for those aged 45-64 years (4.0% of total burden); and sixth for those aged 75+ years (4.7% of proportion of total burden).

Injury, including family violence

Injury includes physical or mental harm to a person that results from either intentional or unintentional contact with an object, substance or another person [114]. Injuries can occur as a result of road traffic crashes, falls, drowning, burns, poisoning and acts of harm against oneself or others, among other causes [115].

When looking at injury in the Aboriginal and Torres Strait Islander context, factors such as low socioeconomic status, experiences of racism and alcohol and other drugs (AOD) use are shown to increase the risk of injury [116]. In addition, social isolation, a lack of culturally appropriate services and separation from culture can further contribute to risk.

Preventing injury among Aboriginal and Torres Strait Islander people requires acknowledgement of the physical, emotional, spiritual and cultural aspects of harm, as well as focus on the interactions between injury, mental health and substance use [116].

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[38] Kidney and urinary conditions comprise CKD (stages 1-5), kidney stones, interstitial nephritis, enlarged prostate, and other kidney and urinary diseases [113].

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

Prevalence

In the 2018-19 NATSIHS, 16% of Aboriginal and Torres Strait Islander people (17% of males and 14% of females) aged 15 years and over had experienced physical harm or threatened physical harm at least once in the last 12 months [60]. The proportion was highest for those aged 25-34 years (21%) and lowest for those aged 55 years and over (8.8%) [37]. Age-standardised proportions were highest in the ACT (21%) and WA (18%), and lowest in Vic and Qld (both 14%) and the NT (12%). The crude proportion[39] was slightly lower in remote areas (14%) than non-remote areas (16%).

Hospitalisation

There were 43,082 hospital separations for injuries for Aboriginal and Torres Strait Islander people in 2020-21, representing 13% of all Aboriginal and Torres Strait Islander separations (excluding dialysis) (Derived from [49]). Injury was the leading cause of hospitalisation (excluding dialysis). The age-standardised rate of hospitalisation was 57 per 1,000. The leading external causes of injury-related hospitalisation were falls (21%), assault (18%), exposure to mechanical forces (17%) and complications of medical and surgical care (14%) (Derived from [49]).

In 2020-21, the crude rate of hospitalised injury for Aboriginal and Torres Strait Islander people was 39 per 1,000 [117]. The rate was higher for males (42 per 1,000) than females (35 per 1,000). Rates were highest for those aged 25-44 years (54 per 1,000) and lowest for those aged 5-14 years (20 per 1,000). In 2015-17, crude rates of hospitalised injury were highest in the NT (81 per 1,000) and lowest in Tas (17 per 1,000) [37].

In 2016-18, the age-standardised rate of hospitalised injury for Aboriginal and Torres Strait Islander people in remote and very remote areas (82 per 1,000) was twice the rate for those in major cities (41 per 1,000) (Derived from [51]). For those living in remote and very remote areas, assault was the leading cause of hospitalised injury (34% of injury hospitalisations); in major cities, falls were the leading cause (22% of injury hospitalisations).

In 2018-19, there were 3,371 non-fatal hospitalisations for family violence assaults for Aboriginal and Torres Strait Islander people [51]. The crude hospitalisation rate for females (6.1 per 1,000) was 3.2 times the rate for males (1.9 per 1,000). In 2016-18, spouses/domestic partners were the perpetrators of the majority (72%) of non-fatal hospitalised family violence assaults against females, while ‘other family members’ were the perpetrators of the majority (58%) against males. In 2016-18, age-standardised hospitalisation rates were highest for those aged 35-44 years (10 per 1,000) and lowest for children aged 0-14 years (0.4 per 1,000). The NT and WA had the highest age-standardised rates (19 per 1,000 and 8.0 per 1,000 respectively) and NSW and Vic had the lowest (both 0.9 per 1,000). Rates were highest in remote and very remote areas combined (14 per 1,000) and lowest in major cities (1.4 per 1,000).

Mortality

In 2021, the leading causes of death by injury among Aboriginal and Torres Strait Islander people in NSW, Qld, WA, SA and the NT were:

- intentional self-harm (196 deaths, 5.3% of all Aboriginal and Torres Strait Islander deaths)
- land transport accidents (104 deaths, 2.8% of all Aboriginal and Torres Strait Islander deaths)
- accidental poisoning (86 deaths, 2.3% of all Aboriginal and Torres Strait Islander deaths) (Derived from [42]).

In 2015-2019, there were 2,240 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 (18% of male deaths and 10% of female deaths) [37]. Injury was the third leading cause of death. Leading specific causes of injury-related death, as a percentage of total injury deaths were intentional self-harm at 38% (41% for males and

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[39] Crude proportion is the total number of cases in a given time period divided by the total number of persons in the population expressed as a percentage.

31% for females); transport accidents at 19% (19% for males and 18% for females); accidental poisoning at 18% (17% for males and 22% for females); and assault at 7.8% (7.2% for males and 9.0% for females) [37]. Age-specific death rates for injury were highest for those aged 75 years and over (180 per 100,000), followed by those aged 35-44 years (124 per 100,000); and lowest for those aged 5-14 years (9.3 per 100,000). Crude injury death rates were highest in WA (96 per 100,000) and lowest in NSW (47 per 100,000). The crude injury death rate for those in remote areas (90 per 100,000) was 1.7 times the rate for those in non-remote areas (52 per 100,000) (Derived from [37]).

Burden of disease

In 2018, injury accounted for 12% of total burden among Aboriginal and Torres Strait Islander people [97]. Of all disease groups, injury made the second highest contribution to total burden.

In 2018, ‘suicide and self-inflicted injury’ accounted for 4.6% of total burden among Aboriginal and Torres Strait Islander people [97]. It was the ninth leading specific cause of total burden, with an age-standardised rate of 13 DALY per 1,000 people.

Respiratory health

Respiratory health can be impacted by a number of conditions that affect the airways and other structures of the lung, and impair the process of breathing [118].These conditions range from acute respiratory infections to chronic respiratory conditions [119].

Respiratory disease is associated with a number of contributing risk factors, including tobacco use; environmental conditions; occupational exposures and hazards; family history and health conditions (such as obesity) [118]. 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 [120, 121].

Extent of respiratory disease among Aboriginal and Torres Strait Islander people

Prevalence

In the 2021 Census, 13% of Aboriginal and Torres Strait Islander people self-reported asthma as a long-term health condition and 2.2% of Aboriginal and Torres Strait Islander people self-reported COPD[40] as a long-term health condition [20]. Long-term diseases of the respiratory system[41] were reported by 29% of Aboriginal and Torres Strait Islander people who participated in the 2018-19 NATSIHS [60]. 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. 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 (Table 21).

Asthma was reported by 16% of Aboriginal and Torres Strait Islander people (Aboriginal people: 16%;Torres Strait Islander people 12%) 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 [60]. Asthma was reported more commonly by females (18%) than by males (13%), and prevalence increased with age from 12% in the 0-14 years age-group, to 26% in the 55 years and over age-group (Table 21). Asthma was more prevalent among people living in non-remote areas (17%) than those in remote areas (8.6%) [60].

COPD was reported by 3.4% of Aboriginal and Torres Strait Islander people in the 2018-19 NATSIHS [60]. The proportions were higher among females (4.3%) than males (2.5%), and increased with age, apart from the 0-14 years age-group, with the highest proportion in the 55 years and over age-group (13%) (Table 21). By remoteness, reported COPD was 2.7 times higher in non-remote areas compared with remote areas (3.8% and 1.4% respectively) (Table 21).

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[40] COPD relates to a progressive lung disease for which the symptoms are not fully reversible, and includes chronic bronchitis and emphysema [122].

[41] Individuals who reported a current respiratory condition that had lasted, or was expected to last, for six months or more [60].

The other specific long-term respiratory disease reported by Aboriginal and Torres Strait Islander people in the 2018-19 NATSIHS was chronic sinusitis (7.4%), with the proportion being almost twice as high in females than males (9.3% and 5.3% respectively) [60]. Proportions for chronic sinusitis mostly increased with age (Table 21).

Table 21. Long-term respiratory diseases among Aboriginal and Torres Strait Islander people, by age-group and remoteness, all jurisdictions, 2018-19, proportion (%)

	Age-group (years)						Remoteness		
	0-14	15-24	25-34	35-44	45-54	55+	Non-Remote	Remote	Total
COPD	1.7	0.8	1.3	3.6	6.4	13	3.8	1.4	3.4
Asthma	12	14	15	17	21	26	17	8.6	16
Chronic sinusitis	2.6	4.7	8.9	13	14	13	n/a	n/a	7.4
Other diseases of the respiratory system	8.6	16	20	19	19	20	n/a	n/a	15
Total respiratory system diseases	19	28	32	35	37	47	n/a	n/a	29

Notes:

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.

2 n/a – non applicable, information unavailable.

Source: ABS, 2019 [60]

Coronavirus disease (COVID-19) prevalence

For December 2021 – October 2022, there were 316,068 confirmed and probable cases of COVID-19 among Aboriginal and Torres Strait Islander people [123]. Most cases occurred in NSW (122,325: 39%), followed by WA (54,989: 17%) and Qld (42,789: 14%). The ACT had the fewest reported cases (3,653: 1.1%). There were 3.1 times as many cases in major cities compared with remote areas (138,959 and 44,161 respectively).

Hospitalisation

For 2020-21, there were 24,903 hospital separations with a principal diagnosis of respiratory disease among Aboriginal and Torres Strait Islander people [49], representing 7.6% of all separations (excluding dialysis) identified as Aboriginal and Torres Strait Islander (Derived from [49]).

For 2018-19, the crude hospitalisation rates for Aboriginal and Torres Strait Islander people by respiratory condition were influenza and pneumonia (9.2 per 1,000), COPD (6.7 per 1,000), acute upper respiratory infection (4.6 per 1,000) and asthma (2.7 per 1,000) [51].

For 2016-18, detailed information is available regarding hospitalisation rates for specific respiratory conditions including COPD, acute upper respiratory infections, influenza and pneumonia and asthma, by age and remoteness [51]. Crude hospitalisation rates were highest for Aboriginal and Torres Strait Islander people presenting with influenza and pneumonia (8.3 per 1,000), followed by COPD (6.0 per 1,000), acute upper respiratory infections (4.4 per 1,000) and asthma (2.8 per 1,000) (Table 22). The age-specific hospitalisation rates for acute upper respiratory infections were highest in the 0-14 years age-group (8.3 per 1,000), for influenza and pneumonia in the 65 years and over age-group (31 per 1,000), followed by the 45-64 years age-group (17 per 1,000), and for asthma in the 0-14 years age-group (4.0 per 1,000).

Table 22. Hospitalisation rates for selected respiratory diseases among Aboriginal and Torres Strait Islander people, by age-group and remoteness, 2016-18, proportion (%)

	Age-group (years)					Remoteness		Crude rate
	0-14	15-24	25-44	45-64	65+	Major Cities	Remote/ Very Remote	
Influenza and pneumonia	5.5	2.2	6.7	17	31	7.2	25	8.3
COPD	n/a	n/a	n/a	n/a	n/a	4.2	8.9	6.0
Acute upper respiratory infection	8.3	2.9	2.4	2.1	2.0	2.6	5.8	4.4
Asthma	4.0	1.5	2.3	2.9	2.6	2.5	3.5	2.8

Notes:

1 n/a – non applicable, information unavailable.

2 Crude rate per 1,000 population.

Source: SCRGSP, 2020 (Derived from [51])

For 2016-18, the age-standardised 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 [51]. The rate for influenza and pneumonia was 3.4 times[42] higher for Aboriginal and Torres Strait Islander people living in remote/very remote areas (25 per 1,000) compared with the rate for those living in major cities (7.2 per 1,000).

Coronavirus disease (COVID-19) hospitalisations

In 2020-21, 0.7% of hospitalisations involving a COVID-19 diagnosis (33 of 4,718 total COVID-19 hospitalisations) were for Aboriginal and Torres Strait Islander people [49]. For the period January 2020 – October 2022, there were 521 admissions to an intensive care unit for confirmed and probable COVID-19 cases among Aboriginal and Torres Strait Islander people [123]. Admissions were most common among the 18-59 years age-group (308), comprising 59% of total admissions.

Mortality

In 2021, chronic lower respiratory disease (which includes asthma, bronchitis, bronchiectasis, emphysema and COPD) was the third highest cause of death overall for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT, being responsible for 260 deaths [42]. There was a 12% increase in the age-standardised mortality rates for chronic lower respiratory diseases in Aboriginal and Torres Strait Islander people between 2012-2016 and 2017-2021 (2012-2016: 69 per 100,000 to 2017-2021: 78 per 100,000).

The age-standardised death rate for chronic lower respiratory disease among Aboriginal and Torres Strait Islander people in 2021 was 73 per 100,000 (females: 71 per 100,000; males: 75 per 100,000) [42]. Of the top five causes of death in 2021, by sex, chronic lower respiratory disease ranked as the second most common cause of death for females (135 deaths) and fifth for males (125 deaths).

Age-specific information is available for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT for 2017-2021 [42]. The rate for deaths from chronic lower respiratory diseases (as an underlying cause of death) increased with age from 31 per 100,000 in the 45-54 years age-group, 114 per 100,000 for the 55-64 years age-group, 263 per 100,000 for the 65-74 years age-group and 631 per 100,000 for the 75 years and over age-group.

For 2015-2019, there were 1,498 deaths among Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT due to respiratory diseases as an underlying cause of death [37]. This accounted for 9.7% of the total deaths of Aboriginal and Torres Strait Islander people. Of these deaths, 63% (937 deaths) were a result of COPD, 17% (247 deaths) due to pneumonia and influenza, and 4.9% (74 deaths) from asthma.

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[42] Rounding may lead to inconsistencies in rates reported.

Coronavirus disease (COVID-19) mortality

Between January 2020 and October 2022, there were 279 reported deaths from COVID-19 among Aboriginal and Torres Strait Islander people [123]. These deaths increased with age from 89 (32%) in the 18-59 years age-group to 189 (68%) in the 60 years and over age-group.

Burden of disease

In 2018, respiratory diseases accounted for 7.5% of total burden among Aboriginal and Torres Strait Islander people [64]. Of all disease groups, respiratory diseases made the sixth highest contribution to total burden. They affected all age-groups, accounting for between 3% and 13% of total burden in both males and females across the age-groups.

In 2018, COPD was the second leading specific cause of total burden with an age-standardised rate of 19 DALY per 1,000 people. Asthma was the 11th leading specific cause of total burden with an age-standardised rate of 11 DALY per 1,000 people [64].

Eye health

Eye health, particularly for Aboriginal and Torres Strait Islander people, can be affected by several factors that are complex and often dependent on a range of social and cultural determinants of health [124]. Factors can include previous eye problems; access to services; care coordination; medical factors; environmental and living conditions; use of alcohol and tobacco; and living in remote areas [124-126]. Eye disease and poor vision can limit opportunities in education, employment and social engagement and increase the risk of injury, which can lead to dependence on services and other people [37, 127]. Even partial loss of vision can reduce an individual's ability to live independently and increase their risk of mortality [126, 128].

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 surveys[43] and surveillance activities that rely self-report or eye examinations respectively[44].

Prevalence

According to the 2015-2016 National Eye Health Survey (NEHS)[45], bilateral vision impairment (VI) (VI in both eyes) and bilateral blindness occurred among 11% and 0.3% of Indigenous people aged 40 years and over respectively [129]. There was no statistically significant difference in the prevalence of VI or blindness between males and females. VI increased with age among 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. The prevalence of VI among 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.

The main causes of VI in Indigenous adults from the NEHS were uncorrected refractive error[46] (63%) and cataract (20%) [129]. Diabetic retinopathy (DR) was the third most common cause of VI (5.5%). Among those participants with self-reported diabetes, a high proportion had DR and vision-threatening DR (39% and 9.5% respectively) [130]. While not among the main causes of VI, the prevalence of vision loss due to ocular trauma (eye injury) was 0.8% [131]. Participants who were male or living in a very remote area were also more likely to have vision loss from ocular trauma.

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[43] Survey findings may not be directly comparable due to differing ways of defining and assessing vision loss [129].

[44] Self-reported survey data are open to interpretation; they provide insight on an individual's view of their eye health, but these may not have been diagnosed by a health professional [124]. The surveys do not count eye conditions that the respondent is not aware of.

[45] 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, for VI and blindness.

[46] 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 [129].

The NEHS identified five Indigenous participants with bilateral blindness, the main causes of which were cataract, DR, optic atrophy and a combination of mechanisms [129].

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 [132], self-reported information is the only recent data available for some aspects of eye health.

Eye and sight problems[47] were reported in the 2018-19 NATSIHS by 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 were collected for in the survey [60]. Eye and sight problems were reported by 32% of males and 43% of females. The proportion of Aboriginal and Torres Strait Islander people reporting eye or sight problems in non-remote areas combined[48] was 40% and in remote areas combined 30%. The lowest proportion reported was among people living in very remote areas at 27%. Proportions of people reporting eye or sight problems varied across jurisdictions, 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 the ACT: 47%; Tas: 47%; Vic: 43%; NSW: 38%; Qld: 37%; and WA: 33%.

The most common eye conditions reported by Aboriginal and Torres Strait Islander people in the 2018-19 NATSIHS were: hyperopia (22%), myopia (16%), other diseases of the eye and adnexa[49] (8.7%), cataract (1.4%), blindness (0.9%) and glaucoma (0.5%) (Table 23) [60]. Females reported higher levels of refractive error (hyperopia and myopia) compared with males, while males reported slightly higher levels of blindness and glaucoma compared with females.

Table 23. Prevalence (%) of diseases of the eye and adnexa among Aboriginal and Torres Strait Islander people, by sex, 2018-19

	Males (%)	Females (%)	Persons (%)
Hyperopia (long sightedness)	18	25	22
Myopia (short sightedness)	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

Note:

1 Proportions are non-age-standardised.

Source: ABS, 2019 [60]

In 2018-19, the reported prevalence of all diseases of the eye and adnexa in the Aboriginal and Torres Strait Islander population generally increased with age [60]. The total prevalence of eye and adnexa diseases increased 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 (32%) and 25-34 years (29%) age-groups.

In 2018-19, 10% of Aboriginal and Torres Strait Islander children aged 0-14 years, were reported to have diseases of the eye and adnexa[50] [60]. The most commonly reported conditions were hyperopia (4.3%) and myopia (4.0%).

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47 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 [60].

48 Non-remote areas include major cities and inner and outer regional areas [60].

49 '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 [60].

50 An adult was asked to respond on behalf of children aged less than 15 years [60].

Prevalence of trachoma and trichiasis

Trachoma is largely detected in remote and very remote Indigenous communities in WA, SA and the NT, with cases also found in NSW[51] and Qld in 2008 [133]. Australia is the only high-income country with endemic levels of trachoma. The National Trachoma Surveillance and Reporting Unit provides prevalence data for trachoma which shows there have been substantial improvements in trachoma control in many Indigenous communities in Australia.

The estimated prevalence of active trachoma among Indigenous children aged 5-9 years in selected at-risk remote communities decreased from 15% in 2009 to 4.8% in 2012 and then remained at a level of 4.5% from 2013-2019 [124], before a slight decrease to 3.8% in 2020 [133]. From 2019 to 2020, there was a decrease in the number of communities found to be at-risk of trachoma (from 115 in 2019 to 98 in 2020), however, the number of communities with endemic trachoma increased (from 45 in 2019 to 53 in 2020).

In 2020, screening was undertaken in at-risk communities in Qld, WA, SA and the NT [133]. Of the 2,177 children aged 5-9 years who were screened, 196 (9.0%) were found to have trachoma: 125 were in the NT, 60 in WA, 8 in Qld and 3 in SA. This was an increase from levels in 2019 when the total number of cases detected was 263 (8.3%) from 3,154 children screened [125]. No trachoma was reported in children aged 5-9 years in 32% of at-risk communities, a decrease from 2019 when 52% of at-risk communities reported no trachoma [133].

If left untreated, trachoma can cause scarring of the eyelid and in-turned eyelashes that lead to blindness (trichiasis) [133]. In 2020, screening in at-risk communities in Qld, WA, SA and the NT detected trichiasis in 0.10% of Indigenous adults aged 15 years and over and 0.16% of adults 40 years and over. A total of 15 cases of trichiasis were detected in 113 screened communities; an increase from 2019 when 11 cases were detected in 127 screened communities [125].

Hospitalisation

In 2020-21, there were 6,139 hospital separations for diseases of the eye and adnexa among Aboriginal and Torres Strait Islander people in Australia [49], accounting for 1.9% of all separations (excluding dialysis) (Derived from [49]).

Hospitalisation data are available for 2017-19 [134]. In this period, there were 9,681 hospitalisations for diseases of the eye (by principal diagnosis) among Aboriginal and Torres Strait Islander people at a crude rate of 5.8 per 1,000 population. Most hospitalisations (5,826: 60%) were for disorders of the lens (primarily refers to cataracts) at a crude rate of 3.5 per 1,000. Crude hospitalisation rates for diseases of the eye for Aboriginal and Torres Strait Islander people aged 45 years and over increased with age from 6.5 per 1,000 in the 45-54 years age-group to 76 per 1,000 in the 75 years and over age-group. The age-standardised hospitalisation rates by jurisdiction ranged from 7.1 per 1,000 in the ACT to 13 per 1,000 in WA. Age-standardised hospitalisation rates increased with remoteness, from 9.5 per 1,000 in major cities to 13 per 1,000 in remote/very remote areas.

For 2017-19, detailed information is available for hospitalisation rates for eye diseases (by principal diagnosis) by the Roadmap to Close the Gap for Vision[52] project's Indigenous Regions [134]. Crude hospitalisation rates ranged from 12 per 1,000 in the Pilbara (WA) to 1.9 per 1,000 in Western Metropolitan Sydney (NSW). The highest hospitalisation rates after the Pilbara were South-West Qld (12 per 1,000), Ngaanyatjarra Lands (WA) (11 per 1,000), East Gippsland (Vic) (10 per 1,000) and Barkly (NT) and Central NT (both 9.8 per 1,000). The lowest rates after Western Metropolitan Sydney were in Northern Metropolitan Sydney (2.3 per 1,000), the ACT (2.4 per 1,000), Limestone Coast (SA) (2.5 per 1,000) and South-West Metropolitan Sydney (2.7 per 1,000).

In 2017-19, there were 2,019 hospitalisations for eye injury among Aboriginal and Torres Strait Islander people (crude rate of 1.2 per 1,000), with the highest number (664) being for an open wound of the eyelid and periocular area (eye socket) (crude rate 0.4 per 1,000) [134]. When comparing males with females in all

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[51] In 2020, there were no communities appointed at risk.

[52] The Roadmap to Close the Gap for Vision project was undertaken by the University of Melbourne's Indigenous Eye Health Unit to review health services and develop a model of care to improve eye care for Indigenous people. The 64 Roadmap regions provide assistance at a community level [124].

age-groups from 0 years of age, crude hospitalisation rates for eye injury were highest among Aboriginal and Torres Strait Islander males across all age-groups except the 25-34 years and 75 years and over age-groups. The highest rate for males was in the 35-44 years age-group at 2.5 per 1,000, and for females in the 25-34 years and 35-44 years age-groups, at 2.2 per 1,000 for both. The age-standardised hospitalisation rates by jurisdiction ranged from 0.6 per 1,000 in Vic/Tas to 3.8 per 1,000 in the NT. Age-standardised hospitalisation rates increased with remoteness, from 0.9 per 1,000 in major cities to 3.0 per 1,000 in remote/very remote areas.

Burden of disease

In 2018, hearing and vision disorders[53] accounted for approximately 2.4% of the total burden of disease among Aboriginal and Torres Strait Islander people [64]. Similar levels of overall burden from hearing and vision loss disorders were found among males (49%) and females (51%). Due to higher life expectancy for females, the overall burden for females was higher for refractive errors (53%) and cataracts and other lens disorders (54%) compared with males (47% and 46% respectively).

Ear health and hearing

Otitis media (OM) is the medical term for all forms of inflammation and infection of the middle ear [135]. OM can be caused by viruses or bacteria or both, and often occurs as a result of another illness, such as a cold [136]. The main cause of hearing loss in Aboriginal and Torres Strait Islander children is OM and its complications, including OM with effusion (glue ear) and chronic suppurative OM (CSOM) (persistent discharge through a hole in the eardrum) [135, 137].

The hearing loss associated with OM can cause speech, language and psychosocial delays, and impact on education and employment outcomes [136, 138-143]. Underdetection of hearing problems further exacerbates these outcomes [144]. 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 [145].

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 [146, 147]. A reduced risk of OM has been found for children who were breastfed [146, 148].

Extent of ear disease among Aboriginal and Torres Strait Islander people

Prevalence

In 2022, the AIHW released a report that, for the first time, took a national approach to measuring and reporting on the ear and hearing health of Aboriginal and Torres Strait Islander people [149]. The report, which included identification of ear/hearing data gaps, found that no national data currently exists on measured hearing loss among Indigenous children aged 0-6 years or on the prevalence of OM.

High levels of ear disease and hearing loss have been reported for many years in Aboriginal and Torres Strait Islander remote communities [136]. 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 [150-153]. The levels of chronic OM among children living in some communities in northern and central Australia are higher than the WHO classification identified as being 'a massive public health problem' requiring 'urgent attention' [154, p.2].

The prevalence of hearing loss among Aboriginal and Torres Strait Islander people aged seven years or older comes from the 2018-19 NATSIHS, which included a voluntary hearing loss test for participants [155]. Of the 46% of NATSIHS participants who took a hearing test [149], 43% had hearing loss in one or both ears[54] [155]. The prevalence of measured hearing loss was similar among males (43%) and females

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[53] Vision disorders include vision loss as a result of refractive error, cataract, glaucoma and age-related macular degeneration, as well as vision loss and visual disturbance due to other causes such as eye injuries [64].

[54] Hearing loss measured may not always relate to a long-term hearing problem. Hearing loss can result from short-term congestion

(42%). Prevalence increased with age, from 29% among children aged 7-14 years to 82% among those aged 55 years and over. Prevalence was highest in the NT (60%) and lowest in Vic (33%) [149]. Prevalence was higher in remote areas (59%) than non-remote areas (39%) [155]. Nearly 4 in 5 participants who had measured hearing loss (79%) did not self-report having ear/hearing problems, meaning that levels of hearing impairment among Aboriginal and Torres Strait Islander people are under-reported.

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 Government[55] [156]. Of the 1,987 Aboriginal and Torres Strait Islander people aged under 21 years who received a service through the program in 2021, 56% were diagnosed with at least one type of ear condition at their latest visit. The prevalence of ear conditions ranged from 46% among those aged 16-20 years to 68% among those aged 0-2 years. Among children and young people who had an ear condition, the most common diagnoses were eustachian tube dysfunction[56] and OM with effusion (both 22%), followed by CSOM without discharge (11%) and CSOM with discharge (6%). Of the children who received an audiology service, 39% were found to have some hearing loss in one or both ears.

Information about the ear health and hearing status of young Aboriginal and Torres Strait Islander people in Qld is collected from the Deadly Ears program, which provides clinical services across rural and remote locations[57] [157]. Of the 2,586 Aboriginal and Torres Strait Islander people aged under 18 years[58] who attended an ear, nose and throat clinic service between 2015 and 2019, 64% had an ear condition at their first visit. The prevalence of ear conditions ranged from 54% among those aged 10-17 years to 71% among those aged 0-4 years. Among children and young people who had an ear condition, the most common diagnosis was OM with effusion (21%), followed by retraction (14%), eustachian tube dysfunction (11%), dry perforation (7.2%) and CSOM (5.7%). Of the children who received an audiology service through the program in 2015-2019, 41% were found to have some hearing loss in one or both ears.

Hospitalisation

There were 3,355 ear-related hospitalisations in 2020-21 [49], representing 1.0% of all hospitalisations (excluding dialysis) of Aboriginal and Torres Strait Islander people (Derived from [49]).

In 2018-20, there were 6,950 hospitalisations of Aboriginal and Torres Strait Islander people with a principal diagnosis related to ear health or hearing (crude rate 4.1 per 1,000) [149]. Crude hospitalisation rates were similar for males (4.2 per 1,000) and females (4.0 per 1,000). Children aged 0-14 years were hospitalised at the highest rate (8.1 per 1,000) and young people aged 15-24 years at the lowest rate (1.3 per 1,000). Rates were highest in very remote areas (6.0 per 1,000) and lowest in outer regional areas (3.4 per 1,000). Rates were highest in the NT (5.1 per 1,000) and lowest in Tas (2.8 per 1,000). The most common reasons for hospitalisation were middle ear disease/s (73% of ear/hearing related hospitalisations), inner ear disease/s (8.2%), otitis externa (7.1%) and hearing loss (6.0%) (Derived from [149]). When ear/hearing problems as an additional diagnosis were included in numbers/rates, there were 11,916 hospitalisations of Aboriginal and Torres Strait Islander people related to ear health or hearing in 2018-20 (crude rate 7.0 per 1,000).

Burden of disease

In 2018, the non-fatal rate of burden for ear and hearing related disorders was 6.3 years lived with disability (YLD) per 1,000 [149]. The majority of non-fatal burden from ear/hearing disorders (91%) was caused by hearing loss. Among children aged 0-14 years, the majority was caused by OM (52%). Hearing loss was the 13th leading specific cause of total burden among Aboriginal and Torres Strait Islander people [97].

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or conditions in which the test was taken, including environmental noise [155].

[55] Population is not a random sample and is not representative of all Aboriginal and Torres Strait Islander children and young people in the NT [156].

[56] Blocking of the tubes that run between the middle ear and the upper throat.

[57] Population is not a random sample; children and young people with worse ear and hearing health are more likely to be captured in data collection [157].

[58] A small number of adults are included in these data [157].

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 sugars[59]. 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

Child oral health

The 2012-2014 National Child Oral Health Study (NCOHS), which included a clinical examination component, 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 surfaces[60] 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.
- 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.

Dental services in the NT have been provided to Aboriginal and Torres Strait Islander children aged 0-15 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 2021, among the 3,254 recipients for whom complete data are available, tooth decay prevalence was highest among children aged 8 years (85% of children) and lowest among children aged 1-3 years (39% of children)[61]. Children aged 7 years had the highest average number of decayed, missing or filled primary teeth (5.1 teeth), and children aged 15 years had the highest average number of decayed, missing or filled permanent teeth (3.3 teeth).

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

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

[61] 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.

Adult oral health

The 2017-18 National Study of Adult Oral Health (NSAOH), which included a clinical examination component, found that 7.1% of Aboriginal and Torres Strait Islander people aged 15 years and over had complete tooth loss [163]. Of those who still had some natural teeth, 13% did not have adequate natural dentition (enough natural teeth[62] to chew or function properly) and 11% wore dentures. Over half (55%) had one or more filled teeth. For those who still had some natural teeth:

- the average number of missing teeth[63] was 5.7
- the average number of decayed, missing or filled teeth was 7.5
- the average number of decayed, missing or filled tooth surfaces was 18.7.

Of those people who still had some natural teeth, 35% said they experienced toothache and 29% rated their oral health as fair or poor [163]. Of all Aboriginal and Torres Strait Islander people aged 15 years and over, 45% said they were uncomfortable about their dental appearance and 36% said they avoided foods due to dental problems.

Dentist visits and hospitalisation

In the 2018-19 NATSIHS, 44% of Aboriginal and Torres Strait Islander people aged two years and over reported having seen a dentist or dental professional in the 12 months prior to the survey [60]. The proportion of young people (aged 2-17 years) who had made a dental visit (57%) was higher than the proportion of adults (36%). The proportion of people who had made a dental visit was highest in Vic (51%) and lowest in WA (40%). People in remote areas were about as likely to have made a dental visit as people in non-remote areas (41% and 44% respectively).

In the 2017-18 NSAOH, 51% of Aboriginal and Torres Strait Islander people aged 15 years and over reported having seen a dentist in the 12 months prior to the survey [163]. The proportion decreased in older age groups from 63% for 15-34 years to 41% for 55-74 years. The proportion of people whose last dental visit was five or more years ago was 14%.

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 2018-19, there were 3,773 potentially preventable hospitalisations for dental conditions for Aboriginal and Torres Strait Islander people [51]. The crude hospitalisation rate was 4.5 per 1,000. In 2015-17, the crude rate of hospitalisation for dental problems was similar for males (2.6 per 1,000) and females (2.5 per 1,000) [37]. Age-specific rates were much higher for children aged 0-4 and 5-14 years (around 6 per 1,000) than for all other age-groups (all less than 1.0 per 1,000).

In 2019-20, the age-standardised hospitalisation rate for acute dental conditions for Aboriginal and Torres Strait Islander people was 3.7 per 1,000 [84]. Rates were highest in the NT (5.2 per 1,000) and lowest in Tas (2.8 per 1,000).

In 2016-18, the crude rate of hospitalisation for potentially preventable dental conditions was highest in remote and very remote areas (6.3 per 1,000) and lowest in major cities (3.4 per 1,000) [51].

In 2015-17, the crude rate of hospitalisation for periodontal diseases for Aboriginal and Torres Strait Islander people was 1.1 per 1,000. Males and females were hospitalised at similar rates (1.1 per 1,000 and 1.2 per 1,000 respectively) [37]. Age-specific rates for periodontal hospitalisation were highest for 25-34 year olds (1.7 per 1,000) and lowest for those aged 65 and over (0.3 per 1,000).

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[62] Twenty natural teeth are considered sufficient for chewing function [163].

[63] Missing for any reason.

Burden of disease

In 2018, oral disorders[64] accounted for 2.1% of total disease burden and 3.9% of non-fatal burden among Aboriginal and Torres Strait Islander people [64]. The majority of burden due to oral disorders was caused by dental caries (63%), followed by periodontal disease (22%) and severe tooth loss (15%). Almost all oral disorder burden was non-fatal.

Disability

The word 'disability' does not have a direct translation in Aboriginal or Torres Strait Islander languages [164]. In medical literature, disability is often defined as a limitation, restriction or impairment which has lasted, or is likely to last, for at least six months and restricts the everyday activities of an individual [165]. 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 [38, 166].

Understandings of disability by Aboriginal and Torres Strait Islander people are likely to focus on body function and be interwoven with the experience of disability, viewed within the context of their beliefs, attitudes and experiences of disability, and historic, social and economic disadvantages [51, 164, 167].

The burden of disability experienced by Aboriginal and Torres Strait Islander people is often associated with poorer physical and mental health, increased exposure to risk factors and higher levels of socioeconomic disadvantage [38, 74, 167].

The main source of information about the status of disability at a population level in Australia is the periodic Survey of Disability, Ageing and Carers (SDAC), which collects information about the prevalence of disability as well as people's need for assistance with core activities by primary carers [165]. 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 (self-care, mobility, or communication). Information about disability within Aboriginal and Torres Strait Islander communities, at a population level, is usually collected in Australia's five-yearly censuses [20] and among Aboriginal and Torres Strait Islander people-specific surveys such as the National Aboriginal and Torres Strait Islander Social Survey (NATSISS) [167] and the NATSIHS [60].

Extent of disability among Aboriginal and Torres Strait Islander people

Prevalence

The 2021 Census provided information on assistance for Australians with a profound or severe disability [20]. In 2021, 8.2% of Aboriginal and Torres Strait Islander people reported a need for assistance with either self-care, mobility, or communication. For an additional 4.7% of respondents, a need for assistance was not stated. Overall, Aboriginal and Torres Strait Islander males (8.7%) reported more need for assistance compared with females (7.6%).

It was reported in the 2018-19 NATSIHS that 38% of Aboriginal and 35% of Torres Strait Islander people aged 15 years and over had a disability or restrictive long-term health condition [60]. The proportion for Aboriginal and Torres Strait Islander males was 39% and for females 37%. Disability was reported at similar proportions in non-remote settings (38%) and remote settings (37%). The survey also found that 8.2% of Aboriginal people and 8.3% of Torres Strait Islander people reported a profound or severe disability: the proportion for Aboriginal and Torres Strait males was higher (8.6%) than that for females (7.6%). A profound/severe disability was reported more often in non-remote areas (8.6%) than in remote areas (5.7%).

In 2018-19, for Aboriginal and Torres Strait Islander people with a disability or restrictive long-term health condition, the most reported disability types were physical (63%), sensory (47%), psychological (23%), intellectual (18%) and head injury, stroke or brain damage (3.4%), with 30% classified as 'other' [37].

In the 2018 SDAC, the total number of Aboriginal and Torres Strait Islander people who reported living

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[64] Excluding injury (to the jaw/oral cavity) and cancers (of the mouth/oral cavity) [64].

with a disability [65] was 139,700 (24%) [168]. Of these, approximately 69% reported needing assistance with at least one daily activity. The age-group reporting the highest level of living with a disability was 55 years and over (54%). The proportion of people with disability varied by remoteness, with the highest proportion in inner regional areas (30%), followed by major cities (24%), outer regional areas (22%), and the lowest in remote areas (18%).

Among Aboriginal and Torres Strait Islander people in the 2018 SDAC, 8.8% had a profound or severe limitation [168]. The highest reported areas of need were with cognitive and emotional tasks (40%), health care (29%), mobility (27%), transport (21%), property maintenance (20%) and self-care (18%).

General practitioner (GP) visits and hospitalisation

The 2018-19 NATSIHS provided information for health service use (GP, specialist and hospital admissions) among Aboriginal and Torres Strait Islander people with a disability or restrictive long-term health condition [60]. In the last 12 months, prior to the survey, 94% saw a GP or specialist and 27% were admitted to hospital.

Communicable diseases

Communicable diseases (caused by infectious agents including bacteria, viruses, parasites, fungi, or their toxic products) can be transmitted from a person or an animal to another [118]. Disease transmission may occur directly (e.g. via contact with blood or bodily fluids), indirectly (e.g. by sharing a drinking glass), or through vectors (e.g. mosquitoes). While illnesses caused by communicable disease are often mild and brief (e.g. a common cold) and do not require medical care, risk factors may 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 [118, 169].

Sexually transmissible infections

Sexually transmissible infections (STIs) include bacterial, viral and parasitic infections that are primarily transmitted through sexual contact [170]. Young people are particularly vulnerable to STIs. 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 symptoms mainly consist of an inflamed urethra, causing discharge for males and pain during urination and intermenstrual bleeding for females [171]. However, chlamydia is asymptomatic (showing no symptoms) in about 80% of cases. Chlamydia can also lead to reproductive issues for females such as infertility, pelvic inflammatory disease and ectopic pregnancies.

In 2020, there were 7,030 notifications[66] of chlamydia for Aboriginal and Torres Strait Islander people [172]. The age-standardised notification rate[67] for chlamydia among Aboriginal and Torres Strait Islander people was 1,111 per 100,000. In 2020, the rate among females (1,435 per 100,000) was 1.8 times higher than for males (802 per 100,000) [172]. There was an 8.1% decrease in the chlamydia notification rate for Aboriginal and Torres Strait Islander males from 873 per 100,000 in 2016 to 802 per 100,000 in 2020. For females, there was a 7.3% decrease in the notification rate from 1,565 per 100,000 in 2016 to 1,435 per 100,000 in 2020.

In 2020, the highest notification rate was among Aboriginal and Torres Strait Islander people aged 20-24 years (4,264 per 100,000), followed by 15-19 years (4,252 per 100,000), with the lowest rate for 0-14 years (118 per

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[65] The SDAC does not include Aboriginal and Torres Strait Islander people living in cared accommodation, discrete Indigenous communities and very remote areas [168].

[66] Chlamydia notifications include notifications that have evidence of recent infections, and unspecified that have no evidence of recent infection.

[67] Notification rates by Aboriginal and Torres Strait Islander status are only included if data provided by jurisdictions where Aboriginal and Torres Strait Islander status was reported for ≥50% of diagnoses for each of the reported years. For chlamydia this included Qld, WA, SA , the ACT and the NT [172].

100,000) (Table 24) [172]. Between 2016-2019, the chlamydia notification rate among Aboriginal and Torres Strait Islander people aged 15 to 19 years decreased by 16%, from 5,531 per 100,000 to 4,663 per 100,000 [172, 173]. For those aged 30 to 39 years and 40 years and over, the notification rate increased by 13% (1,345 per 100,000 to 1,517 per 100,000) and 31% (209 per 100,000 to 262 per 100,000) respectively. For Aboriginal and Torres Strait Islander people aged 20-24 years and 25-29 years, the chlamydia notification rate remained stable between 2016 and 2019. There were decreases among all age groups between 2019 and 2020.

Table 24. Notification rates of chlamydia for Aboriginal and Torres Strait Islander people by age-group, Qld, WA, SA, the ACT and the NT, 2016-2020

Age-group (years)	2016	2017	2018	2019	2020
0-14	163	145	159	160	118
15-19	5,531	5,266	5,095	4,663	4,252
20-24	4,641	4,913	5,010	4,675	4,264
25-29	2,832	2,677	2,811	2,930	2,600
30-39	1,345	1,273	1,398	1,517	1,423
40+	209	210	248	274	262
All ages	1,211	1,186	1,229	1,215	1,111

Notes:

1 Rates per 1,000,000 population.

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

Source: Kirby Institute, 2022 [172]

In 2020, the notification rate for chlamydia increased with remoteness from 667 per 100,00 in major cities, 1,195 per 100,000 in regional areas, to 1,600 per 100,000 in remote areas [172].

Gonorrhoea

Gonorrhoea is an infection caused by the bacterium *Neisseria gonorrhoeae* and displays similar symptoms to chlamydia [171]. Gonorrhoea is also largely asymptomatic in approximately 80% of female cases and 50% of male cases, and can lead to reproductive issues if left untreated [171, 174].

In 2020, there were 4,237 gonorrhoea notifications[68] for Aboriginal and Torres Strait Islander people [172]. The age-standardised notification rate[69] for Aboriginal and Torres Strait Islander people was 446 per 100,000.

In 2020, the notification rate for gonorrhoea among females (474 per 100,000) was 1.1 times higher than for males (421 per 100,000) [172]. There was a 3.5% increase in the gonorrhoea notification rate for Aboriginal and Torres Strait Islander males from 407 per 100,000 in 2016 to 421 per 100,000 in 2020, however, between 2016 and 2018 there was a 17% increase and a decrease between 2018 and 2019 of 14%. For females, there was a 9.6% increase in the gonorrhoea notification rate from 433 per 100,000 in 2016 to 474 per 100,000 in 2020, however, between 2016 and 2018 there was a 25% increase and a decrease between 2018 and 2019 of 14%.

In 2020, the highest gonorrhoea notification rate was among Aboriginal and Torres Strait Islander people aged 20-24 years (1,240 per 100,000) followed by 15-19 years (1,221 per 100,000), with the lowest rate for 0-14 years (44 per 100,000) (Table 25) [172]. There were increases in the notification rate among Aboriginal and Torres Strait Islander people for the 2016-2019 period: 10% in the 20-24 years age-group (1,168 per 100,000 to 1,283 per 100,000), 11% in the 25-29 years age-group (981 per 100,000 to 1,092 per 100,000) and 18% in the 30-39 years age-group (663 per 100,000 to 782 per 100,000) [173]. In the same period, for Aboriginal and Torres Strait Islander people aged 15-19 years, the notification rate decreased by 20%, from 1,482 per 100,000 to 1,181 per 100,000. Between 2019 and 2020, the notification rate remained stable across all age groups.

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[68] Gonorrhoea notifications include notifications that have evidence of recent infections, and unspecified that have no evidence of recent infection.

[69] Notification rates by Aboriginal and Torres Strait Islander status are only included if data provided by jurisdictions where Aboriginal and Torres Strait Islander status was reported for ≥50% of diagnoses for each of the reported years. For gonorrhoea this included all jurisdictions [172].

Table 25. Notification rates of gonorrhoea for Aboriginal and Torres Strait Islander people by age-group, all jurisdictions, 2016-2020

Age-group (years)	2016	2017	2018	2019	2020
0-14	80	59	59	53	44
15-19	1,482	1,489	1,427	1,181	1,221
20-24	1,168	1,413	1,472	1,283	1,240
25-29	981	1,096	1,271	1,092	1,146
30-39	663	734	940	782	835
40+	135	123	167	141	151
All ages	418	447	507	431	446

Notes:

1 Rates per 1,000,000 population.

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

Source: Kirby Institute, 2022 [172]

In 2020, the notification rate for gonorrhoea was highest in remote areas at 1,287 per 100,000, 4.8 times higher than in regional areas at 270 per 100,000, and 4.6 times higher than in major cities at 279 per 100,000 [172].

Syphilis

Syphilis is an infection caused by the bacterium *Treponema pallidum* which can be contracted through sexual contact, blood-to-blood contact and from mother to child during pregnancy [171, 175]. If a fetus contracts syphilis during pregnancy it is called congenital syphilis, and often results in the fetus dying if left untreated. The primary symptom of syphilis is a painless ulcer located at the area of infection, which appears within the first couple of weeks after infection, followed by a rash, which usually appears on the palms of the hands or soles of the feet if left untreated and progresses into what is termed secondary syphilis. Following the secondary stage, the infection is asymptomatic.

From 2011, there has been an ongoing outbreak of syphilis recorded among young Aboriginal and Torres Strait Islander people, which began in Qld, followed by the NT, WA and SA [176].

In 2020, there were 883 syphilis notifications[70] for Aboriginal and Torres Strait Islander people [172]. The age-standardised notification rate[71] for Aboriginal and Torres Strait Islander people was 102 per 100,000. The rate among males (106 per 100,000) was higher than for females (98 per 100,000).

For 2016-2019, there was a 70% increase in the infection syphilis notification rate for Aboriginal and Torres Strait Islander people (before a decrease in 2020), from 72 per 100,000 in 2016 to 122 per 100,000 in 2019 [172]. The highest increase (95%) was among females, from 61 per 100,000 in 2016 to 120 per 100,000 in 2019. For males, the increase (50%) was from 84 per 100,000 in 2016 to 125 per 100,000 in 2019. The decrease between 2019 and 2020 was 18% among females and 15% among males.

In 2020, the highest syphilis notification rate was among Aboriginal and Torres Strait Islander people aged 15-19 years (235 per 100,000) followed by 30-39 years (197 per 100,000) (Table 26) [172]. Between 2016 and 2019, the notification rate increased by 87% for those aged 20-24 years (127 per 100,000 to 238 per 100,000), 81% for those aged 15-19 years (139 per 100,000 to 253 per 100,000), 80% for those aged 30-39 years (129 per 100,000 to 231 per 100,000), 74% for those aged 40 years and over (49 per 100,000 to 86 per 100,000) and 28% for those aged 25-29 years (187 per 100,000 to 239 per 100,000) [173]. There were decreases among all age groups between 2019 and 2020.

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[70] Syphilis notifications include notifications that have evidence of recent infections, and unspecified that have no evidence of recent infection. They only include infection syphilis and not congenital syphilis.

[71] Notification rates by Aboriginal and Torres Strait Islander status are only included if data provided by jurisdictions where Aboriginal and Torres Strait Islander status was reported for ≥50% of diagnoses for each of the reported years. For infectious syphilis this included all jurisdictions [172].

Table 26. Notification rates of syphilis for Aboriginal and Torres Strait Islander people by age-group, all jurisdictions, 2016-2020

Age-group (years)	2016	2017	2018	2019	2020
0-14	6.2	8.3	2.5	10	5.6
15-19	139	179	162	253	235
20-24	127	202	227	238	189
25-29	187	201	219	239	187
30-39	129	198	184	231	197
40+	49	68	70	86	72
All ages	72	99	98	122	102

Notes:

1 Rates per 1,000,000 population.

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

Source: Kirby Institute, 2022 [172]

In 2020, the notification rate for syphilis increased with remoteness from 67 per 100,00 in major cities, 70 per 100,000 in regional areas, to 266 per 100,000 in remote areas [172].

Human immunodeficiency virus (HIV)

The human immunodeficiency virus (HIV) can be transmitted through certain body fluids such as blood, vaginal fluid, semen and breast milk [177]. It can also be transmitted during pregnancy or birth from mother to child. HIV affects a person's immune system and over time prevents their body's ability to overcome infections and illnesses. If untreated, HIV can progress to acquired immune deficiency syndrome (AIDS) [171].

The risk factors associated with contracting HIV include engaging in unprotected sex (anal, oral or vaginal), having an STI, sharing injecting equipment, using unsterile piercing and tattooing equipment or accidental needle stick injuries [177, 178].

HIV symptoms often vary and develop over time, meaning it is common for people who are infected to be unaware they are HIV positive until the later stages of infection [177]. However, the most infectious time period is the first few months after infection.

In 2021, there were 552 notifications of HIV infection in Australia, of which 17 (3.1%) were among Aboriginal and Torres Strait Islander people [179]. Together with 2020 (17), this is the lowest number of HIV notifications recorded among Aboriginal and Torres Strait Islander people in the last ten years. The median age of diagnosis in 2021 was 38.0 years. The age-standardised rate of HIV diagnosis for Aboriginal and Torres Strait Islander people was 2.3[72] per 100,000 population in 2021.

In 2021, Aboriginal and Torres Strait Islander males accounted for all new cases of HIV among Aboriginal and Torres Strait Islander people [179]. Further information is available for the period 2016-2020 [173]. Between 2016 and 2019 the HIV notification rate declined by 55% from 12 per 100,000 to 5.2 per 100,000 among males. For females, the notification rate was between 1.0 per 100,000 and 2.1 per 100000 for 2016-2018, and then 1.3 per 100,000 in 2019. The HIV notification rate declined among Aboriginal and Torres Strait Islander males and females between 2019 and 2020 and was 4.3 per 100,000 and 0.6 per 100,000 in 2020 respectively.

For 2016-2020, there was a decrease in the HIV notification rate among Aboriginal and Torres Strait Islander people living in both regional and remote areas [179]. For major cities, there was a decrease between 2016-2019 before an increase in the 2019-2020 year.

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[72] HIV notification rates are based on small numbers, so should be interpreted with caution [179].

Hepatitis

Hepatitis is an inflammation of the liver which can be caused by viral infections [38].

Hepatitis C

Transmission of hepatitis C virus (HCV) mainly occurs via blood contact from mother to newborn [171] and through injecting drug use [172]. Treatment for HCV using direct-acting antiviral (DAA) therapies has been found to be highly effective. There is no vaccine to protect people against HCV, but due to the efforts to increase access to DAAs over recent years, Australia is predicted to eliminate HCV by 2030 [180, 181].

In 2020, of the 7,990[73] newly notified HCV infections[74], 1,106 (14%) were identified as Aboriginal and Torres Strait Islander [182]. The age-standardised rate for newly notified HCV was 167 per 100,000 population[75]. The rate for males was 2.2 times higher than for females (228 per 100,000 and 105 per 100,000 respectively) (Derived from [182]). Across all age-groups, from 0 years of age and above, the highest rates were in the 25-39 years age-group (346 per 100,000) followed by the 15-24 years age-group (250 per 100,000) [182]. Rates decreased by remoteness from 239 per 100,00 in major cities to 207 per 100,000 in regional areas and 39 per 100,000 in remote areas [182], with the rate in major cities 6.1 times that in remote areas (Derived from [182]).

Hepatitis B

Transmission of hepatitis B virus (HBV) may be from blood or sexual contact or from mother to child at birth [171].

In 2020, of the 5,106[76] newly notified HBV infections[77], 151 (3.0%) were identified as Aboriginal and Torres Strait Islander [182]. The age-standardised rate for newly notified HBV was 31 per 100,000 population[78]. The rate for males was 1.5 times higher than that for females (37 per 100,000 and 25 per 100,000 respectively) (Derived from [182]). Across all age-groups, from 0 years of age and above, the highest rates were in the 35-39 years age-group (66 per 100,000) followed by the 40 years and over age-group (48 per 100,000) [182]. Rates increased by remoteness from 24 per 100,000 in major cities to 25 per 100,000 in regional areas and 49 per 100,000 in remote areas.

For 2018-19, the crude hospitalisation rate for acute HBV across all jurisdictions was 2.5 per 100,000 [51].

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 [183]. Pneumococcal disease is most common in very young children and the elderly [184].

Nationally-funded vaccination for pneumococcal disease is available for Aboriginal and Torres Strait Islander infants and children, and adults aged 50 years and over [185]. Funded under the National Immunisation Program (NIP), all Aboriginal and Torres Strait Islander children receive a single dose at ages 2, 4 and 12 months, and children living in Qld, WA, SA and the NT receive an additional dose at 6 months of age [185, 186].

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[73] 3,434 (43%) of the 7,990 notifications had Aboriginal and Torres Strait Islander status 'not reported'.

[74] Newly notified is a person previously not known to have HCV who now has been tested and found to have HCV.

[75] Notification rates by Aboriginal and Torres Strait Islander status are only included if data provided by jurisdictions where Aboriginal and Torres Strait Islander status was reported for ≥50% of diagnoses for each of the reported years. This included Qld, WA, SA, Tas, the ACT and the NT for newly notified HCV.

[76] 2,472 (48%) of the 5,106 notifications had Aboriginal and Torres Strait Islander status 'not reported'.

[77] Newly notified is a person previously not know to have HBV who now has been tested and found to have HBV.

[78] Notification rates by Aboriginal and Torres Strait Islander status are only included if data provided by jurisdictions where Aboriginal and Torres Strait Islander status was reported for ≥50% of diagnoses for each of the reported years. This included Qld, WA, SA, Tas, the ACT and the NT for newly notified infections.

Data are available for 2017-2021 when there were 1,207 notifications (14% of the total notifications of 8,578) of invasive pneumococcal disease (IPD) for Aboriginal and Torres Strait Islander people [187]. This consisted of 628 cases for males and 579 cases for females. By clinical presentation, the highest case numbers were for pneumonia (705 cases) and bacteraemia (251 cases).

Age-specific data are available for 2016-2018. During this period there were 626 notifications (12% of the total notification of 5,192) of IPD for Aboriginal and Torres Strait Islander people [37]. By clinical presentation, the highest case numbers were for pneumonia (410 cases) and bacteraemia (143 cases). Age-specific data indicated that the age-groups most affected by IPD were 65 years and over (67 per 100,000); 55-64 years (63 per 100,000); 45-54 years (47 per 100,000); 35-44 years (38 per 100,000) and 0-4 years (33 per 100,000).

For 2016-17, Aboriginal and Torres Strait Islander children aged 0-4 years living in NSW, Vic, Qld, WA, SA and the NT were hospitalised (23 hospital separations) for IPD at an age-standardised rate of 0.3 per 100,000 [37].

Meningococcal disease

Meningococcal disease is caused by the bacterium *Neisseria meningitidis* (also known as meningococcus) [183]. The most common clinical presentations of invasive meningococcal disease (IMD) are septicaemia and/or meningitis. Meningococcal disease is more common in infants, adolescents and adults aged over 45 years [188].

The most common serogroups[79] of meningococcus found in Australia are B, C, W and Y [188]. The MenACWY vaccination is now funded under the NIP as a single dose for all children aged 12 months and for adolescents aged 14 to 16 years via school-based immunisation and/or primary care providers [189]. This funding covers specific populations, including Aboriginal and Torres Strait Islander people. A vaccine for serogroup B[80] (also funded under the NIP) is available Australia-wide for Aboriginal and Torres Strait Islander infants aged from six weeks; a catch-up vaccine is also available until June 2023 for children aged up to 23 months [189, 190].

For 2017-2021, 178 (17%) of the 1,025 notified cases of IMD were identified as Aboriginal and Torres Strait Islander [191]. This consisted of 90 cases among males, 87 cases among females and one case of unknown sex. The highest recorded numbers were for serogroup W with 90 cases and serogroup B with 62 cases.

Tuberculosis

Tuberculosis (TB) is primarily a lung infection caused by *Mycobacterium tuberculosis* bacteria [183]. With high incidence rates in the NT and Far North Qld among Aboriginal and Torres Strait Islander people, the National Tuberculosis Advisory Committee recommends neonates in high incidence communities receive the Bacille Calmette-Guérin (BCG) vaccine.

In 2020, the notification rate for TB among Aboriginal and Torres Strait Islander people was 3.0 per 100,000 [192]. There was a 38% reduction in cases in 2020 compared with 2015.

In 2018, of the 1,438 notifications of TB in Australia, 29 (2.0%) were identified as Aboriginal and/or Torres Strait Islander [193]. It was reported that 29 (18%) of the 161 notifications of TB among Australian-born people in Australia in 2018 were identified as Aboriginal and Torres Strait Islander (Derived from [193]). The notification rate for TB among Aboriginal and Torres Strait Islander people was 3.6 per 100,000. The rate of TB for Aboriginal and Torres Strait Islander people was highest in the 35-44 years and 65 years and over age-groups (10 per 100,000 and 12 per 100,000 respectively). By jurisdiction, the rate was highest for SA (7.1 per 100,000 population), followed by Qld (6.3 per 100,000 population) and the NT (5.4 per 100,000).

In 2018-19, Aboriginal and Torres Strait Islander people were hospitalised for TB at a crude rate of 8.8 per 100,000 [51]. For 2016-18, hospitalisation rates were highest for Aboriginal and Torres Strait Islander people in the 65 years and over age-group (26 per 100,000), followed by the 45-64 years age-group (23 per 100,000)[81]. The lowest hospitalisation rate for Aboriginal and Torres Strait Islander people during the same period was reported for the 15-24 years age-group (2.2 per 100,000).

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[79] A serogroup is a group of bacteria containing a common antigen.

[80] SA provides free vaccination for eligible children and young people.

[81] Rates were not available for the 0-14 year age-group.

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 [183]. Children are particularly susceptible to Hib, which is serious in its invasive form [194]. 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. In 2018, it was estimated that 93% of Aboriginal and Torres Strait Islander children were vaccinated against Hib at one year of age [51].

For 2000-2017, 76 (22%) of the 345 cases of invasive Hib disease notified in all jurisdictions were identified as Aboriginal and/or Torres Strait Islander [195]. The median age at notification was 14 months. For 2014-2016, 17% of Hib notifications were among Aboriginal and Torres Strait Islander people [196].

Skin health

Common skin infections affecting Aboriginal and Torres Strait Islander children in remote northern Australia are scabies and impetigo [197, 198]. Scabies is a skin disease caused by the mite *Sarcoptes scabiei* that produces skin inflammation and itching [199]. Scratching in response to a scabies infestation can result in impetigo[82], a bacterial infection of the skin [199, 201]. Impetigo in Aboriginal and Torres Strait Islander communities commonly involves GAS, which brings a risk of severe complications including kidney disease and, possibly, ARF [202-207].

Risk factors for skin infections include perinatal risk factors (such as male sex and LBW) [208], low family income, overcrowding, quality of water supply and housing, access to affordable healthy food, poor hygiene and non-adherence to antibiotic treatments [209, 210]. Aboriginal and Torres Strait Islander children living in the high-rainfall, humid areas of northern Australia are also vulnerable to a variety of other fungal and bacterial infections [211]. Resource-poor environments [212, 213] and the ‘normalisation’ of infections in communities [209, 214, 215] are associated with increased skin disease burden.

Prevalence

Scabies is endemic in some remote central and northern Aboriginal and Torres Strait Islander communities, affecting both adults and children [216, 217]. Most available prevalence data are for children, with research indicating that the most frequent age of the first infection for both impetigo and scabies is at three to four months of age [218] and that children presenting with one of these conditions are more likely to also have the other condition [197, 219].

A systematic review (published in 2019) of the childhood population prevalence of impetigo found that the median prevalence[83] of impetigo among remote-living Aboriginal and Torres Strait Islander children in northern Australia was 45% [220, 221]. Up to about one-third of remote-living Aboriginal children were estimated to have scabies [213] [220].

The 2018-19 NATSIHS provides some data for diseases of the skin and subcutaneous tissue[84] [60]. 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 years age-group to 4.7% in the 25-34 years age-group.

Hospitalisation

There were 12,707 hospital separations with a principal diagnosis of ‘diseases of the skin and subcutaneous tissue’ among Aboriginal and Torres Strait Islander people in 2020-21, representing 3.9% of all Aboriginal and Torres Strait Islander hospital separations (excluding dialysis) (Derived from [49]). The age-standardised hospitalisation rate was 17 per 1,000 [49].

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[82] Impetigo is also referred to as skin sores, or the broader term, pyoderma, and these terms are commonly used interchangeably [200].

[83] Median prevalence reported from ten available community studies over two decades [220].

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

In 2018-19, there were 1,230 hospitalisations of Aboriginal and Torres Strait Islander children aged 0-4 years, with a principal diagnosis of 'diseases of the skin and subcutaneous tissue', representing 4.0% of total hospitalisations for this age-group [51]. Data from 2016-18 show that rates increased with remoteness, from 7.7 per 1,000 in major cities to 37 per 1,000 in remote and very remote areas.

Burden of disease

In 2018, skin disorders[85] accounted for 1.4% of total burden from all diseases, 0.3% of fatal burden (premature death) and 2.4% of non-fatal burden (living with illness or disability) among Aboriginal and Torres Strait Islander people [64]. Of total skin disorder burden, 9% was fatal and 91% was non-fatal. The majority of skin disorder burden was caused by dermatitis and eczema (34%), acne (25%) and psoriasis (17%). Among children aged less than 5 years, scabies caused 27% of total skin disorder burden.

Factors contributing to Aboriginal and Torres Strait Islander health

Selected health risk and protective factors

To support a better quality of life and the health of Aboriginal and Torres Strait Islander people, reducing economic and social disadvantage is essential, alongside modifiable and non-modifiable risk and protective factors, which can reduce the burden of disease and improve health outcomes [222]. Generally, risk factors are the behaviours, characteristics or exposures that may increase the likelihood of developing a particular condition, or interfere with the treatment of an existing health condition [147]. Behavioural risk factors can be modified and include poor diet, obesity, excessive alcohol consumption, tobacco smoking and physical inactivity [118]. Age, genetics and intergenerational influences such as psychological and physical makeup are non-modifiable factors that can also contribute to health risk [223]. Conversely, protective factors are health determinants that can influence health risks and/or outcomes in positive ways, such as a healthy diet, maintaining a healthy body weight and regular exercise, which can assist in managing health conditions.

The selected health risk and protective factors summarised in the following sections are generally related to individual behaviours. However, factors contributing to the health status of Aboriginal and Torres Strait Islander people should be seen within the broader context of the social and cultural determinants of health [8, 147, 222]. The WHO defines the social determinants of health as the conditions in which people are born, grow, live, work and age [224]. The cultural determinants of health have been described as originating from, and promoting perspectives that are strengths based, acknowledging that stronger connections to Country and culture build stronger individual and collective identities [222]. These stronger connections also help build resilience, self-esteem and improved outcomes in education, community safety and economic stability and other health determinants.

For Aboriginal and Torres Strait Islander people, social determinants of colonisation, education level, employment status and income, housing, and child protection and justice systems [118], alongside cultural determinants of family and community, Country and place, cultural identity and self-determination can contribute as risk and/or protective factors for health and wellbeing [11]. A life course approach to health and the risk of disease, known as life course epidemiology, integrates theories around the social determinants of health, fetal and developmental origins of disease, and the impact of lifestyle and individual behaviour on later life health and disease risk [225]. The social, cultural and other determinants of health, some of which are discussed in the *Social and cultural concepts* section of this *Overview*, are further shaped by a wider set of forces and systems, including policies, political systems and social norms [226, 227].

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[85] Chronic and acute skin conditions including skin infections but excluding skin neoplasms.

Nutrition, including breastfeeding

The diets of Aboriginal and Torres Strait Islander people have generally 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 [228]. 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 which can include culture (traditional foods), society (racism and accessibility), community (affordability and housing), relationships (food for the family) and individuals (skills to cook) [229]. Poor diet is an important factor contributing to being overweight and obese, malnutrition, CVD, type 2 diabetes and tooth decay [229, 230]. The *Australian Dietary Guidelines* recommend that adults eat fruit and plenty of vegetables every day, selected from a wide variety of types and colours [230]. 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'[86] foods and drinks.

Fruit consumption

In the 2018-19 NATSIHS, in which 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 recommended fruit intake guidelines (at least two serves per day) [60]. Females were more likely than males to have eaten an adequate amount of fruit (44% and 35% respectively). The guidelines for daily fruit intake were met by 69% of children aged 2-14 years and 92% of children aged 2-3 years. A slightly higher proportion of Aboriginal and Torres Strait Islander people (aged 15 years and over) living in remote areas usually met the guidelines for daily serves of fruit compared with non-remote areas (42% and 39% respectively). For children aged 2-17 years, this was reversed (61% remote and 66% non-remote).

Vegetable consumption

In the 2018-19 NATSIHS, in which 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 [60]. Females were more likely than males to have eaten an adequate quantity of vegetables (6.3% and 1.7% respectively). The guidelines for daily vegetable intake were met by 6.5% of children aged 2-14 years and 23% of 2–3-year-olds. Similar proportions of Aboriginal and Torres Strait Islander people (aged 15 years and over) living in non-remote and remote areas usually met the guidelines for daily serves of vegetables (4.3% and 3.6% respectively). For children aged 2-17 years, this was also the case (6.2% and 5.6% respectively).

Discretionary foods

According to the 2012-13 National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey (NATSINPAS), discretionary foods were consumed by a large proportion of Aboriginal and Torres Strait Islander people (aged 2 years and over) in the 24 hours prior to the survey, including confectionery (25%), snack foods (20%) and alcoholic beverages (11%) [231]. On average, participants 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 pastries), and 6.9% of daily energy as non-alcoholic beverages (such as soft drinks) [232]. Aboriginal and Torres Strait Islander children aged 2-3 years recorded a lower energy intake (32%) from discretionary foods than all other age-groups. Similar proportions of females and males consumed all discretionary foods except for alcoholic beverages, which twice as many males as females reported consuming (15% and 7.7% respectively) [231]. Participants in non-remote areas were more likely to consume all discretionary foods types than those in remote areas.

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 [60]. For children (aged 2-14 years), 20% usually consumed sugar sweetened drinks daily and 1.5% consumed

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[86] Foods that are energy dense but do not provide many/any nutrients and that typically contain high levels of sugar, salt and fat [230].

diet drinks daily; 63% usually consumed sugar sweetened drinks or diet drinks at least once a week. The proportion of people (aged 15 years and over) 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 81% for people aged 18 to 24 years.

Sugar consumption

The WHO recommends that both adults and children consume less than 10% of their daily dietary energy from free sugars[87] [234]. According to the 2012-13 NATSINPAS, Aboriginal and Torres Strait Islander people (aged 2 years and over) consumed 111 grams (g) of total sugars per day on average [233]. 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 [233]). 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. Most 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 (aged 2 years and over) was 2,379 milligrams (mg) (approximately one teaspoon of salt) [232]. This excluded salt added by people 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 aged 51 years and over, 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 [231]. Aboriginal and Torres Strait Islander people (aged 2 years and over) in remote areas were more likely than those in non-remote areas 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). A study conducted from October 2017 to February 2018 in one remote community in the Top End of the NT described the frequency with which children consumed traditional food, including as the introduction to solids, as a positive practice [235].

Biomarkers of nutrition

The 2012-13 AATSIHS collected information on biomarkers of nutrition, including vitamin D, anaemia and iodine [107]. 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 males and females across all age-groups (ranging from 25% to 29%). Vitamin D deficiency was more common among those 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.

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[87] Free sugars are added sugars plus those naturally occurring in honey, fruit juice and fruit concentrate [233].

Food security

The 2012-13 NATSINPAS addressed the issue of food security by asking respondents if they had run out of food and could not afford to buy more in the last 12 months [236]. This had been a problem for 22% of respondents; 7.0% 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).

Breastfeeding

Sustained breastfeeding was practiced by Aboriginal and Torres Strait Islander women prior to colonisation [237-240]. Descriptions of traditional practices align with the WHO and United Nations International Children's Emergency Fund (UNICEF) recommendations of exclusive breastfeeding for six months followed by complementary feeding with continued breastfeeding for up to two years or beyond [241]. The *Australian Dietary Guidelines*' recommendation is to 'encourage, support and promote breastfeeding' [230].

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 [230, 241]. Breastfeeding promotes sensory and cognitive development, contributes to the development of the baby's microbiome and protects the baby against OM, sudden infant death syndrome (SIDS), asthma, obesity, infectious diseases and some chronic diseases later in life [241, 242]. Exclusive breastfeeding aids a quicker recovery from illness and reduces infant deaths from common childhood illnesses such as pneumonia and diarrhoea. Where housing conditions are poor and do not support the sterilising of bottles, breastfeeding is additionally protective [37]. Breastfeeding contributes to the health of the mother by improving metabolic health, reducing the risk of ovarian and breast cancers and reducing maternal depression [237, 241, 242].

In the 2018-19 NATSIHS, it was reported that 87% of Aboriginal and Torres Strait Islander children aged 0-2 years had been breastfed [37]. The NATSIHS found that 13% of Aboriginal and Torres Strait Islander children aged 0-2 years had never been breastfed. Of those who had been breastfed, 30% of Aboriginal and Torres Strait Islander babies had been breastfed for 1 to less than 6 months and 12% for 6 to less than 12 months. It was reported that 7.0% of Aboriginal and Torres Strait Islander babies were breastfed for 12 months or more.

In 2018-19, the proportion of Aboriginal and Torres Strait Islander children aged 0-2 years who had been breastfed ranged across jurisdictions: 97% in Qld, 87% in the NT, 85% in NSW, 84% in WA, 79% in SA, 77% in Tas, 71% in the ACT and 64% in Vic [37]. Breastfeeding proportions for Aboriginal and Torres Strait Islander children were higher in remote areas (91%) compared with major cities (84%).

Recent jurisdictional data on breastfeeding initiation or at discharge as recorded by health professionals, are available from NSW and the NT only. In the 2020 NSW Perinatal Data Collection[88], 59% of liveborn babies born to Aboriginal or Torres Strait Islander mothers were fully breastfed at discharge; 14% were partially breastfed and 25% received infant formula only [243]. In NSW Local Health Districts, rates of full breastfeeding by residence varied from 50% in South-Western Sydney to 77% in Northern Sydney. In the 2019 Northern Territory Midwives' Collection, full-term singleton babies born in hospital to primipara (first baby) Aboriginal mothers were exclusively breastfed at a rate of 87% [244]. For all Aboriginal mothers of full-term singleton babies, 88% exclusively breastfed at discharge, 9.4% partially breastfed, 1.0% initiated breastfeeding but used formula at discharge and 2.0% never breastfed.

Two systematic reviews published in 2022 found from the studies analysed that:

- The prevalence of the initiation of breastfeeding among Aboriginal and Torres Strait Islander women was 78% (range of 50%-100%). Exclusive rates, up to six months were between 5%-33% and rates of non-exclusive breastfeeding were between 12%->95%. Maintaining breastfeeding ranged from one week to 36 months [245].
- The protective factors that encouraged breastfeeding and its continued practice included living in a remote setting, attending an Aboriginal specific health care service, attending a regional service, achieving a higher level of education, being an older mother, living in a large household, having a partner and experiencing stressful life events [246].

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[88] The NSW Perinatal Data Collection covers all births including public and private hospitals and home births [243].

Burden of disease

All dietary factors were the fifth leading risk factor contributing to the total burden of disease among Aboriginal and Torres Strait Islander people in 2018 (responsible for 6.2%) [64]. Dietary factors contributed to 2.1% of non-fatal burden and 11% of fatal burden.

Physical activity

Physical activity is important for maintaining good overall health and wellbeing [247]. Physical activity is considered a protective factor against disease and, by contrast, physical inactivity is considered a risk factor for ill-health and reduced life expectancy [51]. Regular physical activity reduces the risk of many health problems, such as CVD, type 2 diabetes, anxiety, depression and some cancers [248].

Australia's physical activity and sedentary behaviour guidelines for adults recommend a combination of moderate and vigorous intensity physical activity on most, preferably all, days of the week to improve health and reduce the risk of chronic disease and other conditions [248]. However, the health benefits of being physically active are cumulative so doing some physical activity is better than doing none at all [249].

In the 2018-19 NATSIHS, data are available for Aboriginal and Torres Strait Islander people living in non-remote areas. Eleven percent (11%) of Aboriginal and Torres Strait Islander people living in non-remote areas, aged 15 years and over, reported they had met the guidelines'[89] 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 [60]. 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 living in non-remote areas aged 15 years and over reported that they had not met the guidelines, and 22% had not participated in any physical activity in the week prior to the survey [60]. Prevalence varied across all states and territories for those people who did not meet the guidelines, with the highest proportions being in the NT (93%) and WA (92%) compared with the lowest proportion in the ACT (79%).

Among Aboriginal and Torres Strait Islander adults (18 years and over) living in non-remote areas, a higher proportion of males than females met the guidelines (13% compared with 10% respectively) and had completed strength or toning activities on two or more days in the week prior to the survey (24% compared with 15% respectively) [60]. The proportion of Aboriginal and Torres Strait Islander adult males who participated in strength or toning activities on three or more days was 18%, while the proportion for adult females was 12%.

For Aboriginal and Torres Strait Islander adults living in non-remote areas, 12% had met the guidelines [60]. A larger proportion of these adults (20%) had completed strength or toning activities on two or more days in the week prior to the survey.

In the 2014-15 NATSISS, 75% of Aboriginal and Torres Strait Islander children (aged 5-14 years) were physically active for at least one hour per day, every day of the week [51]. Almost half of all children (49%) had played or trained for an organised sport in the previous year. The most common physical activities among Aboriginal and Torres Strait Islander children aged 5-17 years living in non-remote areas in 2012-13 were active play and children's games (57%) and swimming (18%) [247]. This age-group spent an average of two hours per day participating in physical activity (exceeding the recommendation of one hour per day). Among children aged 5-17 years living in remote areas, 82% were physically active for more than 60 minutes per day. The most common physical activities among this group were walking (82%), running (53%) and playing football or soccer (33%).

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[89] 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.

Bodyweight

The most common measure for classifying a person's weight status is body mass index (BMI) or by measuring their waist circumference (WC) [250]. Being overweight (BMI of 25-29) or obese (BMI of 30 or more) [250] increases a person's risk for CVD, type 2 diabetes, certain cancers, CKD and some musculoskeletal conditions [251]. 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 [230, 252]. Being underweight (BMI of less than 18.5) [74] can also have adverse health consequences, including lower immunity (leading to increased susceptibility to some infectious diseases) and osteoporosis (bones becoming weak and brittle) [230].

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) [253].

Obesity and abdominal obesity, as measured by BMI and WC, have been shown to be risk factors for hypertension [254] and type 2 diabetes in Aboriginal and Torres Strait Islander people [255]. 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 type 2 diabetes and cardiovascular risk [256-258]. It has been suggested that a BMI of 22 might be more appropriate than 25 as a measure of acceptable BMI for Aboriginal people [258]. 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 resistance[90], height, weight, age and sex for use in the clinical assessment and management of obesity [259].

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%) [60]. For participants 15 years and over, 29% were overweight and 43% were obese. A further 25% 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).

In 2018-19, 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 for those aged 55 years and over: 82% [60].

In 2018-19, 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%) [60]. The NT reported the highest proportion of people who were underweight/normal weight (41%), followed by Qld (30%) and Tas (24%).

For respondents aged 15 years and over, those living in inner regional areas were most likely to be classified as overweight or obese based on their BMI (76%), followed by major cities (73%), with the overall proportion higher for non-remote areas (73%) compared with remote areas (64%) [60]. People living in remote areas were more likely to be underweight or have a normal BMI (36%) compared with non-remote residents (27%).

WC is used to determine if a person is of a healthy weight. Measurements of WC were taken by participants in the 2018-19 NATSIHS to help determine levels of risk for developing certain chronic diseases, such as type 2 diabetes and heart disease [60]. 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 at 86%.

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90 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.

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 [60]. For males, the highest proportion of participants reported as overweight/obese was 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-group (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 were in the 4-8 years age-group (14%) and for females in the 14-17 years age-group (11%).

Immunisation

Immunisation is the process of becoming immune to a disease as a result of a vaccine [260]. Vaccines work by producing an immune response in the body without causing illness. In recent decades, immunisation has been very successful in contributing to improvements in Aboriginal and Torres Strait Islander health and child survival [183].

The vaccines recommended for Aboriginal and Torres Strait Islander people at different stages of life are set out by the NIP Schedule [261]. Vaccines on the NIP Schedule are funded by the Australian Government and are free to Aboriginal and Torres Strait Islander people.

Vaccines given to people of all ages in Australia from birth to death are recorded on the Australian Immunisation Register (AIR) [262]. AIR data are used to calculate vaccination coverage for children [263], and, as the register grows, for adolescents and adults [264].

Childhood vaccination

Australia's national childhood immunisation target is 95% immunisation coverage for children aged 1, 2 and 5 years [265]. Vaccinations set out in the NIP Schedule for Aboriginal and Torres Strait Islander children include HBV, diphtheria, tetanus, pertussis (whooping cough), polio, Hib, rotavirus, pneumococcal disease, meningococcal B[91], meningococcal ACWY, measles, mumps and rubella (MMR), varicella (chickenpox) and hepatitis A[92] [267].

As at September 2022, the proportion of Aboriginal and Torres Strait Islander children aged 5 years who were fully immunised exceeded the national target, but the proportion of children aged 1 and 2 years did not (Table 27) [263].

Table 27. Percentage (%) of Aboriginal and Torres Strait Islander children assessed as fully immunised, by age, as at 30 September 2022

Age (years)	1	2	5
Percentage assessed as fully immunised	91.4%	89.5%	96.2%

Note: Proportion expressed as percentages rounded to one decimal point.

Source: Australian Government Department of Health, 2022 [263]

The percentage[93] of Aboriginal and Torres Strait Islander children who were fully immunised at 30 September 2022 varied by state [263]:

- from 86.8% in WA to 96.9% in Tas for those aged 1 year
- from 82.9% in WA to 93.9% in Tas for those aged 2 years
- from 94.6% in WA to 98.1% in Tas for those aged 5 years.

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[91] Not included in definition of 'fully immunised' for purposes of calculating childhood immunisation coverage [266].

[92] For children in Qld, WA, SA and the NT [267]; not included in definition of 'fully immunised' for purposes of calculating childhood immunisation coverage [266].

[93] Proportion expressed as percentages rounded to one decimal point.

Adolescent vaccination

Vaccinations set out in the NIP Schedule and provided through school programs for Aboriginal and Torres Strait Islander adolescents include those for human papillomavirus (HPV), diphtheria, tetanus, pertussis and meningococcal ACWY [267].

In 2020, coverage for the adolescent booster dose of the diphtheria-tetanus-acellular pertussis vaccine by 15 years of age was 79.1% for Aboriginal and Torres Strait Islander adolescents [264]. Coverage for meningococcal ACWY vaccine by 17 years of age was 68.1%. HPV vaccination course completion by 15 years of age was 75.0% for girls and 68.0% for boys.

Adult vaccination

Vaccinations set out in the NIP Schedule for Aboriginal and Torres Strait Islander adults include pneumococcal, shingles and pertussis [267].

In 2020, zoster (shingles) vaccine coverage in Aboriginal and Torres Strait Islander adults aged 70 was 31.7%[94] [264]. In the 2018-19 NATSIHS, the proportion of Aboriginal and Torres Strait Islander adults aged 50 years and over who reported being vaccinated against IPD in the last five years was 32% [37].

Seasonal vaccination

Seasonal influenza vaccination is recommended annually for Aboriginal and Torres Strait Islander people aged six months or older [267]. Influenza vaccination coverage[95] for Aboriginal and Torres Strait Islander people aged six months or older during the 2022 influenza season was 28.1% at 31 August 2022 [268]. Coverage was highest in the NT (38.7%) and lowest in Qld (24.4%).

COVID-19 vaccination

COVID-19 vaccination is recommended for all Australians aged 5 years or older [269]. As at 1 December 2022, for eligible Aboriginal and Torres Strait Islander people[96]:

- 85.5% aged 16 years and over had received at least one dose
- 82.3% aged 16 years and over had received at least two doses
- 56.5% aged 16 years and over had received at least three doses
- 34.6% aged 30 years and over had received at least four doses
- 65.5% aged 12-15 years had received at least one dose
- 56.7% aged 12-15 years had received at least two doses [270].

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 [37]. Tobacco use is also a risk factor for complications during pregnancy and is associated with preterm birth, LBW and perinatal death. Environmental tobacco smoke (second-hand smoke or passive smoking) is of concern to health, with children especially susceptible to resultant problems that include exacerbation of middle ear infections, asthma and increased risk of SIDS. Third-hand smoke (the residue left from second-hand smoke on surfaces and in indoor dust) is also of concern to health, particularly for children due to spending more time near the floor and putting contaminated objects in their mouths [271]. Third-hand smoke can interact with other chemicals in the environment that can form new carcinogens and toxic substances that can stay on surfaces for months or years.

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[94] This percentage probably reflects under-reporting, with true coverage likely to be higher.

[95] Coverage calculated using doses given 1 March–31 Aug 2022 using AIR data as at 4 September 2022.

[96] Data not available for Aboriginal and Torres Strait Islander children aged 5-11 years.

Extent of tobacco use among Aboriginal and Torres Strait Islander people

Prevalence

The 2018-19 NATSIHS found 37% of Aboriginal and Torres Strait Islander people aged 15 years and over reported they were current daily smokers [60], a reduction from levels reported in the 2012-13 AATSIHS (41%). This is consistent with findings from the National Drug Strategy Household Survey 2019 (NDSHS), which found 25% of Aboriginal and Torres Strait Islander people aged 14 years and over reported smoking daily, declining from 27% in 2016 and 32% in 2013 [272]. The *National Preventive Health Strategy 2021-2030* set a target to reduce daily smoking rates among Aboriginal and Torres Strait Islander people aged 15 years and over to 27% or less by 2030 [273].

When comparing smoking prevalence between the 2018-19 NATSIHS and the 2012-13 AATSIHS, the highest reductions in daily smoking were found in the younger age-groups [60]. Daily smoking prevalence among the 15-17 years age-group decreased from 18% in 2012-13, to 9.7% in 2018-19. Similarly, in the same period there was a reduction in daily smoking prevalence among the 18-24 years age-group (decreasing from 42% to 36%) and the 25-34 years age-group (decreasing from 52% to 44%). A 2017 survey among Aboriginal and Torres Strait Islander students aged 12-17 years found that 10% had reported smoking tobacco in the past week, declining from 21% in 2005 [274]. It also found that 70% of the students had never smoked tobacco, a significant increase from 49% in 2005.

In 2018-19, the proportion of Aboriginal and Torres Strait Islander males aged 15 years and over who were current daily smokers (39%) was higher than the proportion for females (36%) [60]. 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% for males compared with 41% for 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%) aged 15 years and over compared with those living in non-remote areas (35%) [60]. While there was a decrease in current daily smoking prevalence for non-remote areas between 2012-13 and 2018-19 (down from 39% to 35%), the overall proportion of current daily smokers in remote areas had only a minor decrease (from 50% in 2012-13 to 49% in 2018-19). Smoking prevalence varied greatly between regions. By Indigenous Region, the lowest daily smoking prevalence in 2018-19 was in the ACT (25%), while the highest was in Nhulunbuy, NT (55%) [275]. Smoking prevalence is influenced by the broader social determinants of health in regions. Seven of the eight Indigenous Regions with a daily smoking prevalence of over 50% in 2018-19, were the same regions in the lowest quintiles for education and employment outcomes in the Closing the Gap targets.

In 2020, 43% of Aboriginal and Torres Strait Islander mothers reported smoking during pregnancy (down from 49% in 2010) [26]. This decrease in smoking reported by pregnant women was evident in all areas of remoteness, with the exception of very remote areas, where there were similar proportions in smoking during pregnancy: 53% in 2012 and 54% in 2020 [26, 276]. In 2020, approximately 1 in 10 Aboriginal and Torres Strait Islander mothers quit smoking during pregnancy (41% reported smoking in the first 20 weeks of pregnancy and 37% reported smoking after 20 weeks) [26].

In 2018-19, the NATSIHS found 57% of Aboriginal and Torres Strait Islander children aged 0-14 years lived in households with a daily smoker, of which 15% reported someone smoked at home indoors [37]. Overall, 8.6% of Aboriginal and Torres Strait Islander children aged 0-14 years reported living in households where someone smoked indoors.

The Tackling Indigenous Smoking (TIS) program is an Australia-wide initiative to reduce smoking rates among Aboriginal and Torres Strait Islander people through a population health approach. A 2021 study, including 8,549 Aboriginal and Torres Strait Islander participants (aged 16 years and over), sought to examine differences in smoking-related attitudes and behaviours among people residing in TIS-funded areas of Australia compared with those in non-TIS funded areas [277]. The study found that there was a 15% lower prevalence of smoking inside the home in TIS-funded areas compared with non-TIS areas. Among people who currently smoked, there was a significantly lower prevalence in TIS-funded areas compared with non-TIS funded areas of smoking 21 or more cigarettes per day and smoking a cigarette within five minutes of waking (both of which are indicators of nicotine dependence).

Mortality

In 2018, 835 deaths (23% of all deaths among Aboriginal and Torres Strait Islander people) were attributable to tobacco use [64].

A 2021 prospective study conducted among 1,388 Aboriginal and Torres Strait Islander people in NSW determined that smoking was the cause of 50% of deaths for people aged 45 years and over, and 37% of deaths among all ages [278]. However, it was found that quitting smoking at any age was beneficial compared with continuing to smoke. The study is the first to give direct estimates of deaths attributable to smoking for Aboriginal and Torres Strait Islander people by analysing linked questionnaire and mortality data from 2006-2009 to mid-2019. The Aboriginal and Torres Strait Islander participants were part of a larger longitudinal study tracking the health of 267,153 people from the NSW general population.

Burden of disease

In 2018, tobacco use was the overall leading risk factor contributing to the burden of disease among Aboriginal and Torres Strait Islander people, responsible for 12% of the total burden of disease (11.5% directly from tobacco use and 0.4% from second-hand smoke) [64]. It was the leading risk factor contributing to the burden of disease among people aged 45 years and over. In the same year, 5.5% of non-fatal burden and 19% of fatal burden among Aboriginal and Torres Strait Islander people was attributable to tobacco use. Tobacco use was the leading risk factor contributing to the fatal burden of disease for both males and females [97]. The use of tobacco contributed to the total burden of the following disease groups: respiratory diseases (47%), cancer and other neoplasms (37%), CVD (34%), infectious diseases (13%), endocrine disorders (10%), musculoskeletal conditions (4.5%), neurological conditions (2.5%), gastrointestinal disorders (1.0%), and hearing and vision disorders (0.4%) [64].

E-cigarette use (vaping)

E-cigarette use (also known as vaping) is an emerging global issue in tobacco control [279]. E-cigarettes have been associated with a range of health impacts including injuries (poisoning, burns and seizures), lung injury, nicotine addiction, dual use with tobacco smoking, and increased uptake of tobacco smoking among non-smokers.

In the 2018-19 NATSIHS, 8.1% of Aboriginal and Torres Strait Islander adults self-reported having ever used e-cigarettes and 1.3% reported that they were currently using e-cigarettes either daily or weekly [280].

The highest proportion of current e-cigarette users in the 2018-19 NATSIHS were younger Aboriginal and Torres Strait Islander adults [280]. Among the 18-24 years age group, 2.0% were current e-cigarette users, followed by the 25-44 years age-group (1.6%), and the 45 years and over age-group (0.6%). Similarly, ever use of e-cigarettes was also highest among the younger age-groups (18-24 years age group: 14%, 25-44 years age-group: 8.6%, 45 years and over age-group: 4.2%). A study conducted from 2013 to 2014 among Aboriginal and Torres Strait Islander people who smoked tobacco, found that 21% had also used e-cigarettes [281]. In the 2017 Australian Secondary Students' Alcohol and Drug (ASSAD) Survey conducted among students aged 12-17 years, of the 1,097 Aboriginal and Torres Strait Islander respondents, 22% self-reported having ever used an e-cigarette [282]. Among those who had ever used e-cigarettes, 72% had also tried smoking tobacco, while 28% had never smoked.

Self-reported current e-cigarette use in the 2018-19 NATSIHS was similar for both male and female adults in 2018-19 (males: 1.9%, females: 0.8%), as was ever use (males: 9.7%, females: 6.5%) [280]. In the 2017 ASSAD Survey, a higher proportion of males aged 12-17 years self-reported having ever used an e-cigarette (26%) compared with females (18%) [282].

The prevalence of ever having used an e-cigarette among Aboriginal and Torres Strait Islander adults in 2018-19 was higher in major cities (10%) and regional areas (8.7%) of Australia compared to remote areas (2.6%) [280].

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 [272, 283]. This affects individuals, families and the wider community. Many factors influence why people may drink too much alcohol, for example, socioeconomic disadvantage, stress and negative early life experiences [284, 285]. With regard to Aboriginal and Torres Strait Islander people, as noted elsewhere in the *Overview*, it is important to understand the historical and social contexts of colonisation, the effects of dispossession of land and culture, economic exclusion and how these factors have influenced alcohol use [283, 286, 287].

Extent of alcohol use among Aboriginal and Torres Strait Islander people

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 [37, 288].

Assessing risks from use of alcohol

The 2020 NHMRC *Australian guidelines to reduce health risks from drinking alcohol* provide recommendations on reducing the risk of alcohol-related harm for adults, children and people under 18 years of age, and women who are pregnant or breastfeeding [289]:

- Guideline 1 recommends that to reduce the risk from alcohol-related disease or injury, men and women should drink no more than 10 standard drinks a week and no more than four standard drinks on any one day. Drinking less, lowers the risk of harm from alcohol.
- Guideline 2 recommends that to reduce the risk of alcohol-related harm and injury, children and people aged under 18 years should not drink alcohol.
- Guideline 3 recommends that to prevent alcohol-related harm to an unborn child, women who are planning a pregnancy, or who are pregnant, should not drink alcohol. For women who are breastfeeding, not drinking alcohol is the safest option for their baby.

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 reported they had never drank alcohol or had not done so for more than 12 months (26% of Aboriginal people and 23% of Torres Strait Islander people) [60]. The proportion was higher for females (31%) than males (19%). The proportion was lowest in younger age-groups, 18-24 years (19%) and 25-34 years (18%), and highest in people aged 55 years and over (42%). Across the jurisdictions, the proportion of respondents who had not consumed alcohol in the past 12 months ranged from 44% in the NT, followed by SA (28%), WA and Qld (both 25%), with the lowest proportion in the ACT (10%). It was higher for people living in very remote areas (43%) than major cities (19%).

Single occasion risk

In the 2018-19 NATSIHS[97], 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 occasion[98] [60]. Just over half (54%) of Aboriginal and Torres Strait Islander people reported exceeding the single occasion risk guideline, a decrease from 57% since the 2012-13 survey [60, 106]. In 2018-19, a greater proportion of males (65%) exceeded the guideline than females (43%). A higher proportion of respondents in the younger age-groups exceeded the guideline (18-24 years: 65% and 25-34 years: 62%) than those in older age-groups, and the 55 years and over age-group had the lowest proportion of respondents who exceeded the guideline (34%). In 2018-19, WA reported the highest proportion of respondents exceeding the

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[97] The 2018-19 NATSIHS assessed a person's alcohol consumption for single occasion and lifetime risk using the previous NHMRC's 2009 guidelines [60].

[98] Four or less standard drinks on a single day for both males and females [60].

guideline (61%) and the NT the lowest (42%) [60]. The proportion exceeding the guideline was similar for people living in remote areas (53%) and non-remote areas (54%).

Lifetime risk

In the 2018-19 NATSIHS, 26% of Aboriginal and Torres Strait Islander people aged 18 years and over reported not exceeding the 2009 guideline for drinking at lifetime risk[99] (Aboriginal people: 26% and Torres Strait Islander people: 21%) [60]. In the survey, 20% of Aboriginal people and 24% of Torres Strait Islander people reported exceeding the guideline. The proportion of Aboriginal and Torres Strait Islander males exceeding the guideline for lifetime risk (30%) was higher than that of females (10%), and was higher across all age-groups. Qld reported the highest proportion of people exceeding the guideline (25%) among the jurisdictions and the NT the lowest (13%). The proportion was higher in non-remote areas (21%) compared with remote areas (17%).

The 2019 NDSHS reported that between 2010 and 2019 there was a decline (from 32% to 19%)[100] in the proportion of Aboriginal and Torres Strait Islander people aged 14 years and over exceeding the 2009 guideline for lifetime risk[101] [272].

In 2020-21, 18% of people aged 10 years and over accessing publicly funded AOD treatment services for their own substance use identified as being Aboriginal and/or Torres Strait Islander [290]. Alcohol was the main drug of concern for 34% of Aboriginal and Torres Strait Islander clients who were seeking treatment for their own AOD use. A study conducted in 2019 among 775 Aboriginal and Torres Strait Islander people in SA (aged 16 years and over) found that 2.2% were likely dependent on alcohol (self-reported two or more dependence symptoms via the Grog Survey App) [291].

Alcohol and pregnancy

Drinking alcohol in pregnancy may affect the unborn baby leading to Fetal alcohol spectrum disorder (FASD), a diagnostic term that describes a range of conditions including central nervous system dysfunction, poor growth, characteristic facial features and developmental delay [292, 293]. In 2018-19, 90% of mothers of Aboriginal and Torres Strait Islander children aged 0-3 years self-reported they did not consume alcohol during their pregnancy [37]. In 2020, 92% of pregnant Aboriginal and Torres Strait Islander women self-reported not consuming alcohol during the first 20 weeks of pregnancy [26]. After 20 weeks of pregnancy, this increased to 96% of women.

Hospitalisation

In 2016-18, the crude alcohol-related hospitalisation rate for Aboriginal and Torres Strait Islander people was 7.6 per 1,000 [51]. The rate was higher for males than females (8.4 per 1,000 and 6.8 per 1,000 respectively). The highest crude rate of hospital separations related to alcohol use for Aboriginal and Torres Strait Islander people was for mental and behavioural disorders at 6.4 per 1,000 (males: 7.1 per 1,000 and females: 5.6 per 1,000).

The crude rate of hospital separations related to alcohol use due to acute intoxication for Aboriginal and Torres Strait Islander people in 2018-19 was 4.3 per 1,000 [51]. Hospital separation rates due to acute intoxication in 2016-18 varied by level of remoteness. Aboriginal and Torres Strait Islander people living in remote and very remote areas (combined) had the highest crude rate of hospitalisation due to acute intoxication (11 per 1,000) while people in major cities had the lowest (2.4 per 1,000) [51].

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99 No more than two standard drinks on any single day [60].

100 The calculation of drinking status and alcohol risk variable was updated for all years in 2019 [272].

101 Estimate should be interpreted with caution due to the small sample size [272].

Mortality

In 2018, 350 deaths among Aboriginal and Torres Strait Islander people (9.7% of all deaths) were attributable to alcohol use [64]. For 2015-2019 in NSW, Qld, WA, SA and the NT, the Aboriginal and Torres Strait Islander crude rate for deaths related to alcohol use was 13 per 100,000 [37]. The alcohol-related death rate for Aboriginal and Torres Strait Islander males was 2.1 times higher compared with females (17 per 100,000 and 8.1 per 100,000 respectively). The main cause of alcohol-related deaths was from alcoholic liver disease with a crude rate of 8.0 per 100,000.

Burden of disease

In 2018, alcohol use was the second leading risk factor contributing to the total burden of disease among Aboriginal and Torres Strait Islander people, accounting for 11% of the burden of disease [64]. For non-fatal burden of disease among Aboriginal and Torres Strait Islander people, 9.2% was attributable to alcohol use, the most of any risk factor.

Alcohol use disorders were the fourth leading group of diseases causing burden among Aboriginal and Torres Strait Islander people in 2018 (4.4% of total DALY) [64]. Alcohol was a key contributor to burden of disease among males in particular, with alcohol use disorders ranked as the third leading cause of total burden, accounting for 6.2% of total DALY. Alcohol use was the leading risk factor contributing to the burden of disease for males in both the 15-24 years and 25-44 years age-groups, accounting for 26% and 23% of total disease burden respectively. For females, alcohol use disorders ranked 10th among the causes of total burden (2.4% of total DALY). Alcohol use disorders were the leading cause of total burden among Aboriginal and Torres Strait Islander people aged 25-44 years (8.4% of total DALY) and the second leading cause among those aged 15-24 years (9.9% of total DALY).

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 [283, 294]. 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 [119, 171, 295].

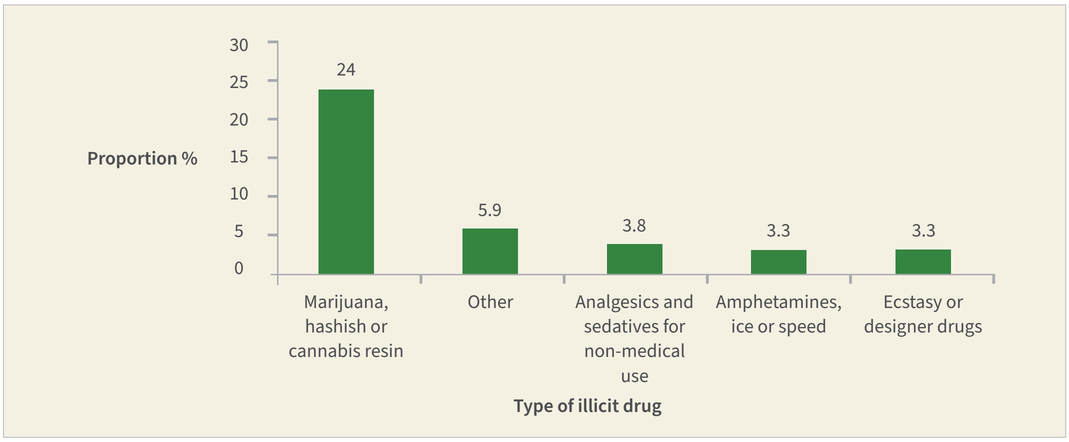
Extent of illicit drug use among Aboriginal and Torres Strait Islander people

Surveys consistently show that most Aboriginal and Torres Strait Islander people report they do not use illicit drugs [60, 167, 272]. The two most recent national surveys to collect this data, the 2018-19 NATSIHS and the 2019 NDSHS, found that 70% of Aboriginal and Torres Strait Islander people aged 15 years and over (NATSIHS) and 77% aged 14 years and over (NDSHS) reported either they had never used illicit drugs or had not used illicit drugs in the last 12 months (Derived from [60, 272]).

The 2018-19 NATSIHS found that 28% of Aboriginal and Torres Strait Islander people aged 15 years and over reported using illicit drugs in the last 12 months [60]. Similar proportions were reported in the 2019 NDSHS, which found 23% of Aboriginal and Torres Strait Islander people aged 14 years and over reported using illicit drugs in the last 12 months [272].

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 [60]. Slightly lower proportions were found in the NDSHS, which reported 16% of Aboriginal and Torres Strait Islander respondents used cannabis in the last 12 months [272]. The NATSIHS reported that, after cannabis, the most commonly used illicit drugs were ‘other drugs’ (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 2) [60].

Figure 2. Proportion of Aboriginal and Torres Strait Islander people who reported illicit drug use in the last 12 months, 2018-19



Notes:

1 Marijuana, hashish or cannabis resin.

2 'Other' includes heroin, cocaine, petrol, LSD/synthetic hallucinogens, naturally occurring hallucinogens, kava, methadone and other inhalants.

3 Analgesics and sedatives for non-medical use.

4 Amphetamines, ice or speed.

5 Ecstasy or designer drugs.

Source: ABS, 2019 [60]

In 2018-19, a greater proportion of Aboriginal and Torres Strait Islander males reported having used an illicit drug in the previous 12 months compared with females (37% and 21% respectively) [60]. 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 with 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% respectively).

In 2020-21, 18% of clients accessing treatment for their own alcohol and drug use from general AOD treatment services were Aboriginal and Torres Strait Islander people aged 10 years and over [290]. After alcohol, the most common principal drugs of concern that Aboriginal and Torres Strait Islander people sought treatment for were amphetamines (25% of clients), cannabis (24% of clients) and heroin (4.5% of clients).

Use of amphetamines is associated with risky behaviour such as injecting drug use [296]. A 2021 report on the National Syringe Program (NSP) found that stimulants and hallucinogens (mainly methamphetamines) were the most commonly injected drugs reported by attendees of NSPs [297]. Of those attending NSPs, 21% identified as Aboriginal or Torres Strait Islander.

Hospitalisation

In 2018-19, the most common drug-related conditions resulting in hospitalisation for Aboriginal and Torres Strait Islander people were 'poisoning' and 'mental and behavioural disorders' [51]. The crude hospitalisation rate for Aboriginal and Torres Strait Islander people from poisoning due to drug use was 3.0 per 1,000 population and for mental and behavioural disorders due to drug use 4.7 per 1,000. In 2016-18, hospitalisation for mental and behavioural disorders from use of amphetamines[102] had the highest rate of hospital separations due to drug use at 2.1 per 1,000. Cannabis use was the second highest cause of hospitalisation for mental and behavioural disorders due to drug use, at 1.0 per 1,000.

For 2016-18, crude hospitalisation rates related to drug use were higher for Aboriginal and Torres Strait Islander people in major cities (9.2 per 1,000) than in inner and outer regional areas (6.6 per 1,000) and remote and very remote areas (4.3 per 1,000) [51].

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

Mortality

In 2018, 224 deaths (6.2% of all deaths) among Aboriginal and Torres Strait Islander people were attributed to illicit drug use [64]. In the period 2016-2020, there were 536 unintentional drug-induced deaths among Aboriginal and Torres Strait Islander people. In the same five year period, aggregated data for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT showed that the leading drug types involved in unintentional drug-induced deaths were opioids (involved in 51% of deaths), followed by stimulants (involved in 41% of deaths) and benzodiazepines (involved in 27% of deaths) [298].

In 2014-2018, age-standardised rates of drug-induced deaths were higher for Aboriginal and Torres Strait Islander males (17 per 100,000) than for females (11 per 100,000) [51]. For the same period, SA recorded the highest age-standardised rate of drug-induced deaths for Aboriginal and Torres Strait Islander people (20 per 100,000), followed by NSW (18 per 100,000) and WA (17 per 100,000).

Burden of disease

Illicit drug use was the fourth leading risk factor contributing to the burden of disease among Aboriginal and Torres Strait Islander people in 2018 [64]. It contributed to 6.9% of the total burden and was responsible for 5.1% of non-fatal burden and 8.9% of fatal burden. Among the different illicit drug types, the greatest contributors to the burden were opioids (2.2%), amphetamines (1.9%), and cannabis (1.6%). Illicit drug use contributed to the total burden of disease for multiple disease groups, particularly injuries (28%), gastrointestinal (16%), and mental disorders (12%).

Between the sexes, illicit drug use consistently contributed more to the burden of disease among males than females [64]. This was seen across age-groups, with illicit drug use contributing to: 14% of disease burden among males aged 15-24 years compared with 11% among females in the same age-group; 16% and 9.5% of burden respectively among males and females aged 25-44 years; and 5.4% of burden for males aged 45-64 years (illicit drug use did not appear in the top 10 causes of disease burden for females in this age-group).

Illicit drug use was the second leading risk factor causing total burden among Aboriginal and Torres Strait Islander people aged 15-24 years and 25-44 years (13% of total DALY among both age-groups) [64].

Volatile substance use

Volatile substance use (VSU) involves sniffing substances that give off fumes at room temperature such as petrol, paint, glue or deodorants [299]. They are also called ‘inhalants’ because of the way people use them by inhaling the fumes through the nose or mouth. Absorbing these substances into the lungs affects different parts of the body such as the liver, the brain and the heart [299, 300].

Most volatile substances such as solvents and aerosol sprays, are depressant drugs that slow down the central nervous system [299]. Short-term effects include slurred speech, lack of coordination, dizziness and euphoria [299, 301]. Sniffing volatile substances, particularly butane, propane and aerosols, can cause sudden death [302]. This is known as sudden sniffing death, a syndrome where a lack of oxygen and an unexpected event that stimulates an adrenalin release causes heart failure [301, 302]. Sudden sniffing death can happen to a first-time user who is otherwise healthy. VSU can also cause a person to lose consciousness, increasing the risk of death by suffocation.

Unlike other forms of drug use, the products used in VSU are readily available in common household and commercial products, posing a particular risk for young people [301]. 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 [303, 304]. Exposure to toluene[103] through sniffing petrol in adolescents has been shown to be associated with impaired growth for both height and weight and a ‘failure to thrive’ [304]. Excessive harmful inhalant use can also lead to permanent acquired brain injury [304-306]. Petrol is one of the most dangerous volatile substances to sniff which can result in damage to the brain [306, 307]. Long-term abstinence from inhalants, however, may

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[103] Toluene is the primary volatile solvent in misused products.

allow recovery of normal brain function, where encephalopathy (damage or disease that affects the brain) from lead poisoning is not present [306].

Sniffing volatile substances repeatedly is also associated with damage to the peripheral nervous system (resulting in numbness and limb weakness), as well as damage to the respiratory system, injury to the digestive tract, kidney damage and anaemia [300].

Extent of VSU use among Aboriginal and Torres Strait Islander people

The 2018-19 NATSIHS found that 0.9% of Aboriginal and Torres Strait Islander people aged 15 years and over reported using petrol and other inhalants in the last 12 months[104] [37]. In 2020-21, 1.2% of Aboriginal and Torres Strait Islander clients identified volatile solvents as the main drug they were seeking treatment for in publicly funded AOD services [290].

An overall decline in VSU in communities has been reported, with one study showing that in 17 Aboriginal communities, the total number of people sniffing petrol has fallen, from 647 in 2005-06 to 78 in 2013-14, a reduction of 88% [308]. This decrease in prevalence of sniffing has been associated with the replacement of regular unleaded petrol with low aromatic fuel (LAF)[105].

A follow-up study on the effects of LAF found that in 25 Indigenous 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% [303]. The number of people sniffing petrol for these communities represented just under 1% of the Aboriginal and Torres Strait Islander population aged 5-39 years.

While overall the number of people using volatile substances is small, the issue of VSU 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 [303].

Hospitalisation

In 2016-18, the crude rate of hospital separations for Aboriginal and Torres Strait Islander people from poisoning due to the toxic effect of organic solvents (e.g. petrol) was 0.05 per 1,000 [51]. Hospitalisation for accidental poisoning from organic solvents was 0.03 per 1,000. For males, hospitalisation rates from poisoning due to the toxic effect of organic solvents was 0.06 per 1,000 and for females 0.04 per 1,000. Hospitalisation for accidental poisoning from organic solvents was 0.04 per 1,000 for males, and 0.02 per 1,000 for females.

The crude rate of hospital separations due to mental and 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) [51].

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 [309]. For example, the death of someone who sniffs petrol chronically 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.

Environmental health

Environmental health refers to the physical, chemical and biological factors which potentially impact a person’s health and wellbeing such as housing conditions, drinking water and air quality, sanitation, disease control and food safety [51, 310]. Health conditions associated with poor environmental health include intestinal infectious diseases; skin infections, such as scabies; middle ear infections; ARF; respiratory issues, such as asthma; and some cancers, such as lung cancer [311, 312].

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, overcrowding and lack of adequate housing, poor infrastructure, lack of functioning health and home

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[104] This estimate has a high margin of error and should be interpreted with caution [37].

[105] LAF is a type of fuel with less aromatic hydrocarbons than regular unleaded petrol, that does not cause intoxication when inhaled.

hygiene hardware[106], lack of access to tradespeople and repairs, and the cost of infrastructure maintenance [310-312, 314].

The *National Aboriginal and Torres Strait Islander Health Plan 2013-2023* also acknowledged that environmental health is an important issue and that addressing housing, waste management and water security are key priorities [310]. The physical and emotional wellbeing of Aboriginal and Torres Strait Islander people, and especially of children, can be enhanced by reducing the rates and spread of diseases that are commonly linked to environmental causes [51].

This section will primarily cover housing, hospitalisation and mortality. 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[107] and poor infrastructure contribute significantly to the ill health and wellbeing of Aboriginal and Torres Strait Islander people [51, 167, 316].

Overcrowding

In the 2021 Census, 19% of Aboriginal and Torres Strait Islander people reported living in overcrowded conditions (requiring one or more additional bedrooms to properly accommodate the people usually living in the house) [20]. The highest proportions were reported for the NT (57%), followed by WA (21%), with the lowest proportion reported in the ACT (9.2%).

In the 2018-19 NATSIHS, the proportion of Aboriginal and Torres Strait Islander people who reported living in overcrowded households generally increased with remoteness, from 10% in major cities to 51% in very remote areas [51].

Infrastructure

An important contributor to the health and wellbeing of Aboriginal and Torres Strait Islander people is access to sufficient, working and regularly maintained infrastructure in housing and communities, including health hardware, clean water supply, sewerage, and electricity which support and encourage healthy living practices for hygiene, safety and nutrition [51, 222, 317]. A recent evaluation of the NSW Housing for Health program, which for the last 20 years has been assessing and repairing Aboriginal and Torres Strait Islander community housing, has shown a 40% reduction in infectious disease hospital separations due to regular maintenance [318].

In the 2018-19 NATSIHS, 80% of Aboriginal and Torres Strait Islander households reported living in houses of an acceptable standard[108] [51]. The lowest proportions were recorded in the NT (67%), followed by SA (72%) and WA (74%), with the highest rates in Tas (87%), NSW (84%) and Qld (83%). In the same period, 33% of Aboriginal and Torres Strait Islander households reported major structural issues within their dwelling. The most significant issues for Aboriginal and Torres Strait Islander dwellings were major cracks in the walls/ floors (12%), walls or windows not straight (10%), sinking/moving foundations (7.7%), major plumbing problems and wood rot/termite damage (both 6.6%). The most significant issues were reported in SA (44%) and the NT (41%) with the other jurisdictions reporting between 30% and 36%.

In the 2018-19 NATSIHS, the majority of respondents reported having access to household facilities, including facilities for washing people (97%), washing bedding and clothes (96%), preparing/storing food (91%) and had working sewerage facilities (98%) (Table 28) [51]. Access to functioning facilities was lower in the NT than other jurisdictions, and lower in remote areas than non-remote areas.

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[106] The kitchen, toilet, showers and laundry are recognised as home hygiene hardware [313].

[107] As defined by The Canadian National Occupancy Standard, a measure widely used in Australia to estimate the proportion of dwellings that are overcrowded by assessing bedroom requirements [20, 315].

[108] Housing of an acceptable standard includes two components: having four working household facilities; and not more than two major structural problems [51].

Table 28. Aboriginal and Torres Strait Islander households' access to facilities, by state and territory and remoteness, all jurisdictions, 2018-19, proportion (%)

	State/Territory								Remoteness		Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Non-remote	Remote	
Washing people	98	97	98	95	96	99	98	91	98	92	97
Washing bedding and clothes	98	98	97	92	94	97	99	85	97	86	96
Preparing/ storing food	94	89	93	84	88	98	95	79	93	79	91
Working sewerage	100	99	99	98	97	100	100	93	99	94	98

Source: SCRGSP, 2020 [51]

Hospitalisation

In 2018-19, the crude hospitalisation rates for Aboriginal and Torres Strait Islander people for selected diseases associated with poor environmental health were 9.2 per 1,000 for influenza and pneumonia, 9.0 per 1,000 for intestinal infectious diseases, 8.0 per 1,000 for bacterial diseases, 4.6 per 1,000 for acute upper respiratory infections, 2.7 per 1,000 for asthma and 1.8 per 1,000 for scabies [51].

In 2016-18, age-standardised hospitalisation rates for conditions associated with environmental health were higher in remote/very remote areas compared with major cities [51]. The highest differences were for scabies: 3.2 times higher in remote/very remote areas than in major cities (2.0 per 1,000 compared with 0.6 per 1,000) and influenza and pneumonia: 1.7 times higher in remote/very remote areas than in major cities (12 per 1,000 compared with 7.2 per 1,000).

Mortality

For 2014-2018, the age-standardised death rate for Aboriginal and Torres Strait Islander people living in NSW, Qld, WA, SA and the NT, from conditions associated with poor environmental health was 41 per 100,000 (44 per 100,000 for males and 40 per 100,000 for females) [51]. For the jurisdictions reported (NSW, Qld, WA, SA and the NT) the highest death rate was in the NT (71 per 100,000) followed by WA (64 per 100,000) with the lowest in NSW (26 per 100,000).

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. As noted in our 2021 *Overview*, COVID-19 has had a profound impact on all aspects of our lives. There has been a fundamental shift in the way that we are responding to infectious diseases such as the COVID-19 pandemic and it has shaped our health behaviours in important ways. Dudgeon et al. (2022) noted that the impacts are likely to be felt for many years to some [92]. The lessons learned from the COVID-19 response provide a roadmap for dealing with future pandemics, but also reinforce some clear indicators of the importance of continuing to address the long-terms impacts of the social and cultural determinants of health. These include support for the right to self-determination, maintaining strong and accurate public health responses, building local workforce capability and capacity, continuing to build on the digital and telehealth resources that were mobilised during the pandemic and ensuring that robust evaluation and program development includes a commitment to Indigenous data sovereignty.

Once again in 2022, the *Commonwealth Closing the Gap annual report* outlined that there is much yet to be done towards achieving parity in a range of indicators [319]. With respect to the health targets, the gap in life expectancy, while trending in a positive direction, is nevertheless not on track. On a more positive note, the target to increase the proportion of children with a healthy birthweight is showing progress with the latest figure of 90% close to the 2031 target of 91%. The priority reforms outlined in the report also speak to a much more engaged and respectful relationship between government and senior Aboriginal and Torres Strait Islander leadership in pursuit of positive health, social, cultural, economic and political outcomes (see also the *Indigenous Voice co-design process: final report to the Australian Government* [18]).

There are positives also in the *2022 Australian reconciliation barometer* [17], with overwhelming support for enhanced ownership and stewardship of matters that concern Aboriginal and Torres Strait Islander people in Australia. With the Albanese government implementing a referendum on the Voice to Parliament, it is encouraging that a substantial number of the general community (89%) feel that the relationship between First Nations and non-Indigenous Australians is important and 93% of all Australians say it is important for Aboriginal and Torres Strait Islander people to have a say in matters that affect them [17].

While this *Overview*, in providing a summary of the health status of Aboriginal and Torres Strait Islander people, outlines myriad areas where improvements are essential, we also believe that recent initiatives, and the committed advocacy and leadership from Aboriginal and Torres Strait Islander people throughout the country bodes well for a future where this *Overview* will chronicle a positive trajectory towards better health and wellbeing outcomes.

Appendix 1

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

The assessment of the health status of Aboriginal and Torres Strait Islander people is dependent on 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 uncertainty in some areas. This lack of completeness in the collection of data can lead to numerator-denominator bias [5].

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 [20]. Despite these efforts, there are impacts on data quality such as non-responses for identification. As at 30 June 2021, 88% of Aboriginal and Torres Strait Islander Australians were reported to be living in NSW, Qld, WA, SA and the NT (Derived from [320]) and the data from these jurisdictions are considered sufficient quality for reporting many of the health conditions/occurrences [2, 39].

The ABS, the AIHW and state and territory authorities have worked together to improve the accuracy of Indigenous status in several 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 [321] (cited in [322]).

The concern is the extent to which Aboriginal and Torres Strait Islander people are correctly identified in the various health-related data collections. There is currently no national approach on how to determine Indigenous status where classification is inconsistent or missing across multiple data sets, which may lead to different methodology being applied and difficulties in the interpretability and comparability of data [5, 322]. In death registrations, for example, not all Aboriginal and Torres Strait Islander deaths are correctly identified as such [40, 322]. 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 brings together information on Indigenous status from the ‘death registration form’; some states and territories also collect this information from medical certificates of causes of death [41]. 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. Aboriginal and Torres Strait Islander deaths may be underestimated because of inaccurate data or a 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 [5, 40]. However, there is normally only a minor 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 [40].

The 2016 Death Registrations to Census Linkage Project (previously referred to as the Indigenous Mortality Study) [323] involved linking death registrations with 2006 Census records, with the aim to assess the consistency of Indigenous status across the two datasets [40]. 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. To date this has not been undertaken for the 2021 Census.

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 [324]. 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 [146]. This means that previously there was an underestimation of Aboriginal and Torres Strait Islander births. Indigenous status for around 6% of births is unknown, due to the unknown status of the father. Also, 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 (private hospitals were not included [325]) in 2011-12 [50]. It has been suggested that the more accurate number of admissions was approximately 9% higher than recorded [47]. The accuracy of the identification of Indigenous people varied between states and territories, from 98% in the NT to 58% in the ACT [50]. The accuracy of identification also varied with remoteness level, from 99% in very remote areas to 77% in major cities. A further limitation is that all hospitalisation data for Tas, the ACT and the NT include only public hospitals [325].

The levels of Aboriginal and Torres Strait Islander people's identification in many other health-related data collections vary in their degree of completeness, which questions the quality and accuracy of the various estimates of health status [5].

There have been important advances in recent years in both the extent and quality of information about the health of Aboriginal and Torres Strait Islander people. The scope for further enhancements includes, for example:

- There are shortfalls in the information available for some important areas. An example is cancer, a leading cause of death among Aboriginal and Torres Strait Islander people. National data on cancer incidence and mortality 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 [2, 69, 326, 327].
- COVID-19 has highlighted the poor level of identification on pathology forms used for testing [327-329]. This has resulted in unreliable data on how many Aboriginal and Torres Strait Islander people have been tested and the accuracy of the infection rate among this population. Work is now being undertaken to improve Indigenous identification on forms used by both public and private laboratories. While this work is being undertaken in response to COVID-19, enhanced practices for Indigenous identification on pathology forms will also benefit screening and testing programs to enable accurate reporting of outcomes for Aboriginal and Torres Strait Islander people.
- Special reports related to Aboriginal and Torres Strait Islander health (see the *Sources of information* section) are often 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.
- Vital data sources, particularly major national surveys, are generally conducted every five to six years which means that relevant information is often dated.
- Self-reported survey data are open to interpretation; they do provide insight on an individual's view of their health, but these may not have been diagnosed by a health professional.
- Changes in aspects like methodology and levels of reporting in publications can cause difficulties in the analysis and synthesis of information for periods of time (i.e. trend analysis).

Glossary

Aboriginal and Torres Strait Islander

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

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 states and territories). They have been included for users to make comparisons that may not be available in this report.

avoidable mortality (deaths)

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

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: less than 18.5); normal (BMI: 18.5-24.9); overweight (BMI: 25.0-29.9); obese (BMI: 30.0+)

burden of disease (and injury)

the quantified impact of a disease or injury on a population using the **disability-adjusted life year** measure

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

child mortality rate

the number of deaths in a given period among children aged 0–14 years per 100,000 children of the same age. Can also be presented for specific age groups within this age range, such as for children aged 0–4 years

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

disability-adjusted life year

a year of healthy life lost, either through premature death or living with a disability due to illness or injury

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

fatal burden

the burden of dying prematurely from a disease or injury as measured by **years of life lost**. It offers a way to compare the impact of different diseases, conditions or injuries on a population. See **non-fatal burden**

fertility rate

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

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

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)

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

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 Diseases

WHO's internationally accepted classification of death and disease

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-fatal burden

the burden from living with ill health, as measured by **years lived with disability**

non-Indigenous

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

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

protective factors

health determinants that can influence health risks and/or outcomes in positive ways

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

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 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

years lived with disability

measures the years of what could have been a healthy life that were instead spent in states of less than full health. Years lived with disability represent **non-fatal burden**

years of life lost

measures years of life lost due to premature death, defined as dying before the ideal lifespan (based on the lowest observed death rates from multiple countries). Years of life lost represent **fatal burden**

Abbreviations/acronyms

AATSIHS - Australian Aboriginal and Torres Strait Islander Health Survey

ABS - Australian Bureau of Statistics

ACS - Acute coronary syndrome

ACT - Australian Capital Territory

AHMAC - Australian Health Ministers' Advisory Council

AIR - Australian Immunisation Register

AIHW - Australian Institute of Health and Welfare

AMA - Australian Medical Association

ANZDATA - Australia and New Zealand Dialysis and Transplant Registry

AOD - Alcohol and other drugs

ARF - Acute rheumatic fever

ASSAD - Australian Secondary Students' Alcohol and Drug Survey

BMI - Body mass index

CKD - Chronic kidney disease

COPD - Chronic obstructive pulmonary disease

COVID-19 - Coronavirus disease

CSEWB - Cultural social and emotional wellbeing

CSOM - Chronic suppurative otitis media

CVD - Cardiovascular disease

DAA - Direct-acting antiviral

DALY - Disability-adjusted life year

DR - Diabetic retinopathy

ERP - Estimated resident population

ESKD - End-stage kidney disease

ESRD - End-stage renal disease

FASD - Fetal alcohol spectrum disorder

GAS - Group A streptococci

GDM - Gestational diabetes mellitus

GP - General practitioner

HBV - Hepatitis B virus

HCV - Hepatitis C virus

HD - Haemodialysis

Hib - *Haemophilus influenzae* type b

HIV - Human immunodeficiency virus

HPV - Human papillomavirus

ICD - International Classification of Diseases

IHD - Ischaemic heart disease

IMD - Invasive meningococcal disease

IMR - Infant mortality rate

IPD - Invasive pneumococcal disease

LAF - Low aromatic fuel

LBW - Low birthweight

MMR - Maternal mortality ratio

MMR - Measles, mumps and rubella

NACCHO - National Aboriginal Community Controlled Health Organisation

NAPLAN - National Assessment Program – Literacy and Numeracy

NATSIHS - National Aboriginal and Torres Strait Islander Health Survey

NATSINPAS - National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey

NATSISS - National Aboriginal and Torres Strait Islander Social Survey

NCOHS - National Child Oral Health Study

NDSHS - National Drug Strategy Household Survey

NEHS - National Eye Health Survey

NHMRC - National Health and Medical Research Council

NIP - National Immunisation Program

NSAOH - National Study of Adult Oral Health

NSP - National Syringe Program

NSW - New South Wales

NT - Northern Territory

OM - Otitis media

PD - Peritoneal dialysis

Qld - Queensland

RHD - Rheumatic heart disease

SA - South Australia

SCRGSP - Steering Committee for the Review of Government Service Provision

SDAC - Survey of Disability, Ageing and Carers

SEWB - Social and emotional wellbeing

SIDS - Sudden infant death syndrome

STI - Sexually transmissible infection

Tas - Tasmania

TB - Tuberculosis

TIS - Tackling Indigenous Smoking

UNICEF - United Nations International Children's Emergency Fund

VI - Vision impairment

Vic - Victoria

VSU - Volatile substance use

WA - Western Australia

WC - Waist circumference

WHO - World Health Organization

WHR - Waist-hip ratio

YLD - Years lived with disability

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