

Summary of Aboriginal and Torres Strait Islander health status - selected topics 2021



Australian Indigenous Health/InfoNet

The mandate of the Australian Indigenous Health/InfoNet (Health/InfoNet) 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 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 commitment 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 Health/InfoNet websites (<https://healthinfonet.ecu.edu.au>), the Alcohol and Other Drugs Knowledge Centre (<https://aodknowledgecentre.ecu.edu.au>), Tackling Indigenous Smoking (<https://tacklingsmoking.org.au>) and WellMob (<https://wellmob.org.au>). The research involves analysis and synthesis of data and other information obtained from academic, professional, government and other sources. The Health/InfoNet'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 are persistent and enduring, continuing unbroken from the past to the present, characterised by resilience and a strong sense of purpose and identity despite the undeniably negative impacts of colonisation and dispossession. Aboriginal and Torres Strait Islander people throughout the country represent a diverse range of people, communities and groups, each with unique identities, cultural practices and spiritualities. We recognise that the current health status of Aboriginal and Torres Strait Islander people has been significantly impacted by past and present practices and policies.

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

Contact details

Professor Neil Drew (Director)
Australian Indigenous Health/InfoNet
Edith Cowan University
2 Bradford Street
Mount Lawley, Western Australia 6050

Phone: (08) 9370 6336
Email: healthinfonet@ecu.edu.au
Website: healthinfonet.ecu.edu.au

ISBN Web: 978-0-6489318-1-2
ISBN Hard copy: 978-0-6489318-0-5



©Australian Indigenous Health/InfoNet 2022

Summary of Aboriginal and Torres Strait Islander health status - selected topics 2021



Publication team

Neil Drew
Ashleigh Parnell
Christine Potter
Miranda Poynton

Production coordinator

Christine Potter

Publication layout

Michelle Pierre

Executive editor

Neil Drew

Suggested citation:

Australian Indigenous HealthInfoNet. (2022) *Summary of Aboriginal and Torres Strait Islander health status - selected topics 2021*. Perth, WA: Australian Indigenous HealthInfoNet

Further information

This *Summary* is based on our more comprehensive publication the *Overview of Aboriginal and Torres Strait Islander health status 2021 (Overview)*. The *Summary* does not cover all of the health topics found in the *Overview*, only those which receive specific funding through the HealthInfoNet funding partners. The *Overview* and *Summary* are produced annually and can be found at: healthinfonet.ecu.edu.au/summaries and healthinfonet.ecu.edu.au/overviews.

Acknowledgements

Special thanks are extended to staff at the Australian Indigenous HealthInfoNet for their assistance and support, and to the Australian Government Department of Health and other funding partners for their ongoing support of the work of the Australian Indigenous HealthInfoNet.

Tell us what you think

We value your feedback as part of our post-publication peer review process. Please let us know if you have any suggestions for improving this *Summary*: <https://healthinfonet.ecu.edu.au/contact-us>



Cover artwork

Bibdjool by Donna Lei Rioli

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

Donna is a Tiwi/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 HealthInfoNet in contributing to improving the health and wellbeing of Aboriginal and Torres Strait Islander people.

Featured icon artwork by Frances Belle Parker

The HealthInfoNet commissioned Frances Belle Parker, a proud Yaegl woman, mother and artist, to produce a suite of illustrated icons for use in our knowledge exchange products. Frances translates biomedical and statistically based information into culturally sensitive visual representations, to provide support to the Aboriginal and Torres Strait Islander workforce and those participating in research and working with Aboriginal and Torres Strait Islander people and their communities. Frances came to prominence winning the Blake Prize in 2000, making her the youngest winner and the first Indigenous recipient over the 65 year history of the prize.

“Birrinda is the Yaygirr name for the mighty Clarence River (NSW). It is this river that is the life giving vein for the Yaegl people. And it is this river which inspires much of my artwork. I am deeply inspired by my Mother’s land (Yaegl land) and the Island in the Clarence River that my Mother grew up on, Ulgundahi Island. The stories which are contained within this landscape have shaped me as a person as an artist and most recently as a Mother. This is my history, my story and it will always... be my responsibility to share this knowledge with my family and my children.”





Table of Contents

- Introduction 2
 - Statistical terms 3
 - Sources of information 4
- Aboriginal and Torres Strait Islander population..... 5
- Determinants of health 6
- Births and pregnancy..... 7
- Deaths 8
- Hospitalisations..... 9
- Burden of disease 10
- Impact of COVID-19..... 12
- Cardiovascular health..... 14
- Cancer 16
- Diabetes..... 18
- Social and emotional wellbeing 20
- Kidney health 22
- Respiratory health 24
- Sexual transmitted infections 25
- Environmental health 26
- Tobacco use..... 27
- Alcohol use 28
- Illicit drug use 30
- References..... 32

Introduction

Aboriginal and Torres Strait Islander people have lived on their traditional lands across Australia, including the Torres Strait Islands, for many thousands of years^[1]. Before colonisation, Aboriginal and Torres Strait Islander people lived in family and community groups, and moved across the land following seasonal changes. The Aboriginal and Torres Strait Islander concept of health is not just about the individual person, but a whole-of-life view that includes the social, emotional and cultural wellbeing of the community^[2].

There are distinctive ethnic and cultural differences between Aboriginal societies and between Torres Strait Islander societies, each having their own languages and traditions^[3]. Despite their differences, Aboriginal and Torres Strait Islander people have had many similar experiences of colonisation that have led to negative outcomes on their quality of life and their health^[1,4]. It is evident that ongoing 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, and an increase in chronic conditions^[5,6].

Nationally, there has been a shift away from the deficit approach (focusing on the negative differences between Aboriginal and Torres Strait Islander people and non-Indigenous people) to focus on strength based approaches to understanding and interpreting measures of health and wellness^[7]. The *Summary of Aboriginal and Torres Strait Islander health status – selected topics 2021 (Summary)* aims to deliver the most important and up to date information about Aboriginal and Torres Strait Islander health while also limiting comparisons with other Australians.

The HealthInfoNet has prepared this *Summary* as part of our contribution to support those who work in the Aboriginal and Torres Strait Islander health sector. Key health topics are summarised in plain language and an infographic style to enable readers to absorb data easily and quickly.

The accuracy of the identification of Aboriginal and Torres Strait Islander people in health data collections varies across the country. Information about hospitalisations is generally considered to be accurate for all jurisdictions: 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), however in some jurisdictions private hospital data are not included. Other statistical information is only considered to be sufficient and complete for certain jurisdictions, for example data about deaths are usually only provided for NSW, Qld, WA, SA and the NT. Please refer to the sources for full details on the statistical information presented here.

If you want more information about the health and wellbeing of Aboriginal and Torres Strait Islander people, you can:

- read our latest *Overview*^[8] for a more comprehensive health status update
- read one of our health topic reviews (healthinfonet.ecu.edu.au/reviews)
- visit our website (healthinfonet.ecu.edu.au).



In 2021, the HealthInfoNet undertook a nation-wide consultation to develop policy and practice guidelines for the work of the HealthInfoNet. The focus of the consultation review is on best practice in data sovereignty and governance. Implementation of the outcomes of the review will be commenced in 2022.

Statistical terms

- **Burden of disease (and injury)** is the quantified impact of a disease or injury on a population using the **disability-adjusted life year** measure.
- **Disability-adjusted life year (DALY)** is a year of healthy life lost, either through premature death or living with a disability due to illness or injury.
- **Fatal burden** is 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**.
- **Hospitalisation** refers to a period of hospital care for a person admitted to hospital. **Hospitalisation rates** are calculated as the total number of such periods of care divided by the total number of the population of interest. The rate is usually written per 1,000. Unless indicated, rates of hospitalisations provided in this *Summary* are **excluding dialysis separations** – these are the regular hospitalisations required by kidney disease patients for dialysis treatment.
- **Incidence** is the number of new cases of a disease or condition during a time period, the **incidence rate** is the number divided by the population of interest.
- **Median** is the middle number in a range where 50% fall below and 50% fall above.
- **Maternal mortality** refers to pregnancy-related deaths occurring to women during pregnancy, or up to 42 days after delivery.
- **Maternal mortality ratio** is the number of maternal deaths divided by the number of confinements (expressed in 100,000s).
- **Non-fatal burden** is the burden from living with ill health, as measured by **years lived with disability**.
- **Prevalence** is the proportion of people living with a disease or condition in a given time period.
- **Rates** are one way of looking at how common a disease or condition is in a population. A rate is calculated by taking the number of cases and dividing it by the population at risk, for a specific time period. A specific type of rate, called an **age-standardised rate** (or an age-adjusted rate), allows for comparison between populations that have different age profiles. These are different from **crude rates**. Unless stated otherwise, rates presented in this *Summary* are age-standardised.
- **Survival** is statistically measured as the likelihood of a person being alive for a given period of time after being diagnosed with a disease or condition. Data about survival are provided for NSW, Vic, Qld, WA and the NT.
- **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**.



Sources of information

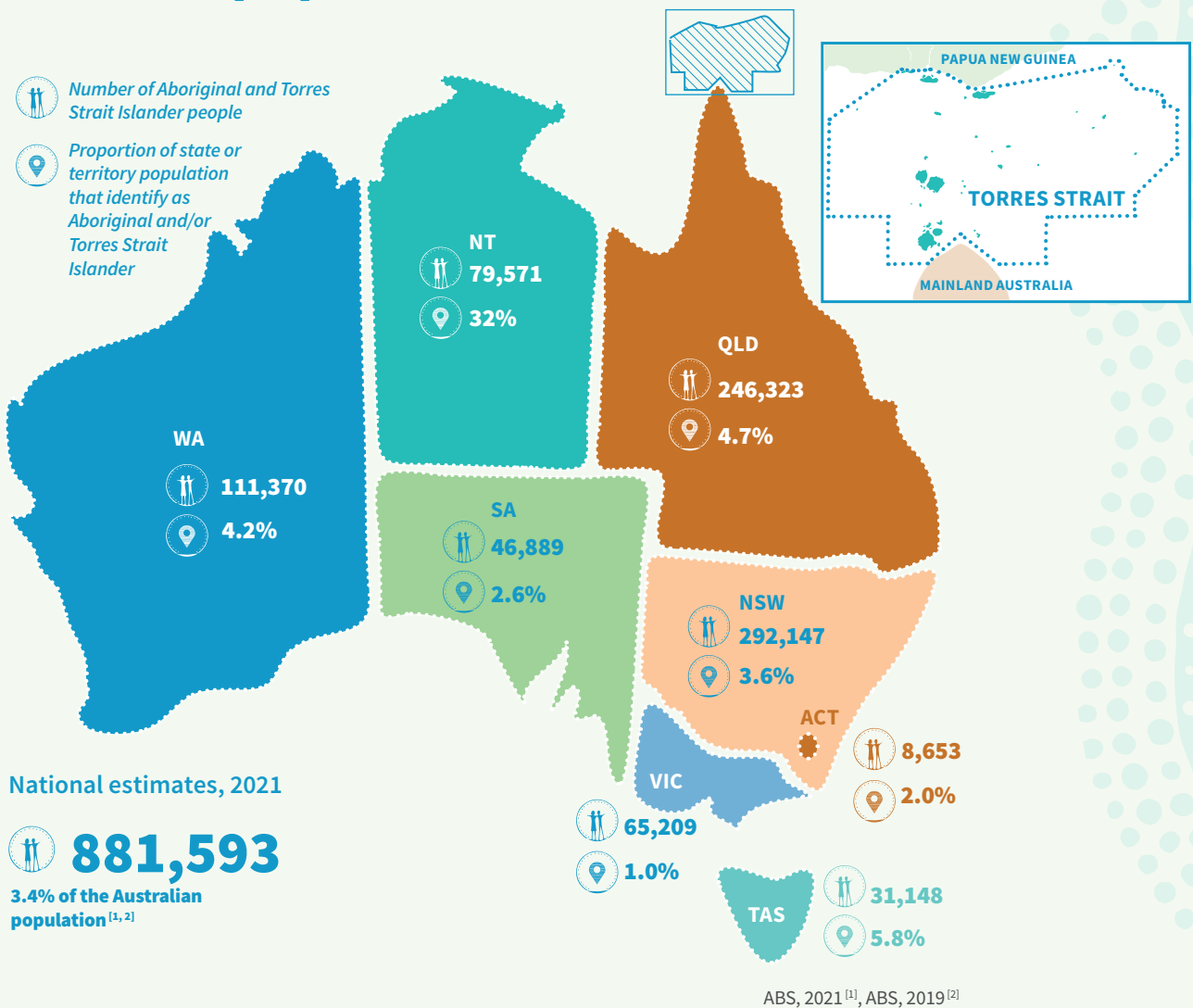
Most of the information presented in this *Summary* is sourced from government reports, particularly those produced by the Australian Bureau of Statistics (ABS), the Australian Institute of Health and Welfare (AIHW), the Australian Health Ministers' Advisory Council (AHMAC) and the Steering Committee for the Review of Government Service Provision (SCRGSP). Data in these reports come from national health surveys, hospitals and other government agencies (including the birth and death registration systems).

It is important to note that data presented from national health surveys were generally calculated from responses by people aged 15 years and over. For children aged 14 years and under, a parent or guardian of a child generally provided responses on behalf of the child.

Surveys that have informed in this *Summary*

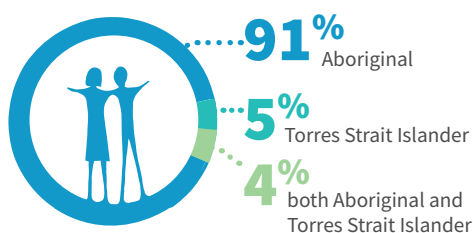
| | |
|--|------------------------|
| 2012-13 Australian Aboriginal and Torres Strait Islander Health Survey | 2012-13 AATSIHS |
| 2014-15 National Aboriginal and Torres Strait Islander Social Survey | 2014-15 NATSISS |
| 2018-19 National Aboriginal and Torres Strait Islander Health Survey | 2018-19 NATSIHS |
| 2019 National Drug Strategy Household Survey | 2019 NDSHS |

Aboriginal and Torres Strait Islander population



The Aboriginal and Torres Strait Islander population is much younger overall than the non-Indigenous population^[1,2]. In 2021, it was estimated that 1/3 of the Aboriginal and Torres Strait Islander population was aged <15 years and just over 5% of Aboriginal and Torres Strait Islander people were aged 65 years+^[2].

More detailed information about the Aboriginal and Torres Strait Islander population can be found in the 2016 Census^[3].



The ABS estimated that of the population of 881,593 in 2021:



32% of the total Aboriginal and Torres Strait Islander population were located in the regions of Brisbane, NSW Central and North Coast and Sydney-Wollongong^[2].

Determinants of health

among Aboriginal and Torres Strait Islander people

Factors known as the ‘determinants of health’ impact the health and wellness of individuals^[1]. Social determinants of health are the conditions in which people are born, grow, work, live, and age, and include^[2]:



employment



education



income



access to health care



Education

In 2020^[3]:

There were **240,180** school students who identified as Aboriginal and/or Torres Strait Islander. The **retention rate**₁ for secondary students was **60%**.



Highest retention rates were in the **ACT** (99%) and **SA** (75%), while **lowest** were in the **NT** (36%) and **NSW** and **WA** (both 56%).

Aboriginal and Torres Strait Islander students at, or above the national minimum standard, 2021^[4]:

| | Year 3 | Year 5 | Year 7 | Year 9 |
|-------------------------|--------|--------|--------|--------|
| Reading | 84% | 78% | 75% | 66% |
| Writing | 84% | 73% | 65% | 52% |
| Spelling | 74% | 77% | 79% | 73% |
| Grammar and punctuation | 77% | 73% | 62% | 60% |
| Numeracy | 81% | 76% | 71% | 79% |

The 2016 Australian Census reported for Aboriginal and Torres Strait Islander people^[5]:



aged 20-24 years had completed year 12



aged 15 years+ had completed vocational or tertiary studies



were studying at university



Employment and income

The 2016 Australian Census reported for Aboriginal and Torres Strait Islander people^[5]:



aged 15 to 24 years were either in full or part-time employment, education or training



reported a household weekly income₂ of **\$150-\$799**



aged 15-64 years were employed

1. Students who started school in year 7/8 and continued through to year 12.

2. This is based on equivalised household income, which is a special calculation that allows for the comparison of incomes of different types of households.

Births and pregnancy

among Aboriginal and Torres Strait Islander people

In 2020, there were **22,016 births**₁ registered in Australia where one or both parents were Aboriginal and/or Torres Strait Islander, this represented **7.5% of all births** registered^[1]:

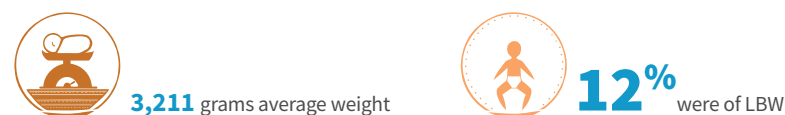


Aboriginal and/or Torres Strait Islander status of parents for births registered as Indigenous:



Babies

Low birthweight (LBW) is a birthweight of less than 2,500 grams^[2]. Babies with LBW are at greater risk of health problems and death^[3]. For babies born to Aboriginal and Torres Strait Islander mothers in 2019^[4]:



Mothers

Antenatal (pre-birth) care from health professionals during pregnancy supports positive health outcomes for mother and child, especially when provided during the first trimester (less than 14 weeks) of pregnancy^[5, 6].



In 2019, **67%** of pregnant women attended their first antenatal care appointment during their first trimester of pregnancy^[4].

For Aboriginal and Torres Strait Islander mothers who gave birth in 2020^[1]:

- the median age was **26.3 years**
- **58%** were aged **20-29 years**
- **10%** were **teenagers** aged 15-19 years.

The total fertility rate₂ was: **2.3** babies per 1,000 women



There have been **improvements in birth and pregnancy outcomes** for Aboriginal and Torres Strait Islander mothers and babies, 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
- a **decrease in the proportion of babies born small** for gestational age^[4].

1. Likely to be underestimated as Indigenous status is not always identified, and there may be a delay in birth registrations.

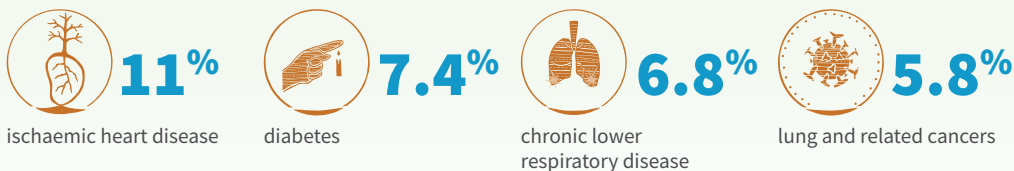
2. The total fertility rate is the number of children born to 1,000 women at the current level and age pattern of fertility.

Deaths

among Aboriginal and Torres Strait Islander people

In 2020, there were **4,063 deaths**₁ registered for Aboriginal and/or Torres Strait Islander people^[1]. This accounts for **2.5% of all deaths in Australia** for 2020.

Leading causes of death₂ in 2020^[2]:



In 2020^[1] the **median age at death** was **61.0 years**:

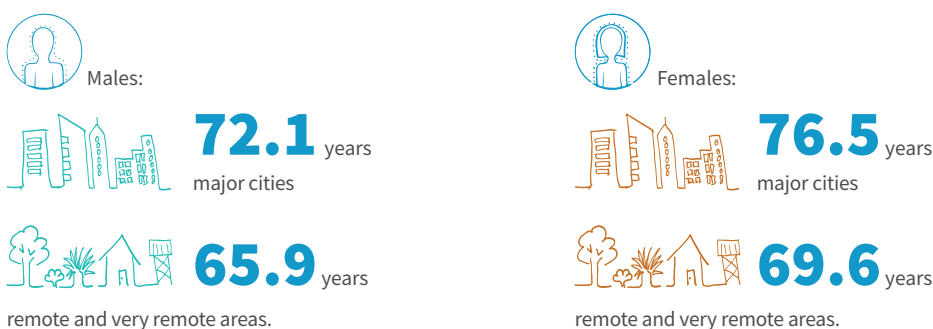


The rate of deaths for **babies** 12 months or younger was **5.4 per 1,000** live births. For 2012-2019, the maternal mortality ratio was **18 deaths per 100,000** women who gave birth^[3].

The **life expectancy** for Aboriginal and Torres Strait Islander people born in 2015-2017 was^[4]:



Life expectancy was **lower** for people living in remote and very remote areas than those living in major cities:



Deaths from **avoidable causes**₃ accounted for **61%** of all deaths in the five-year period 2014-2018^[5].



In July 2020, a new national agreement on *Closing the gap* was endorsed by Aboriginal and Torres Strait Islander leaders. Specific outcomes, targets and monitoring measures were set for life expectancy; deaths; leading causes of death; and potentially avoidable deaths^[5].

1. The ABS notes that the actual number of deaths may be slightly higher because of inaccurate data or delays in registration.

2. In 2020, leading causes of death only included data from NSW, Qld, WA, SA and the NT (3,611 deaths).

3. Deaths that could have been prevented with timely and effective health care, including early detection and effective treatment^[5].

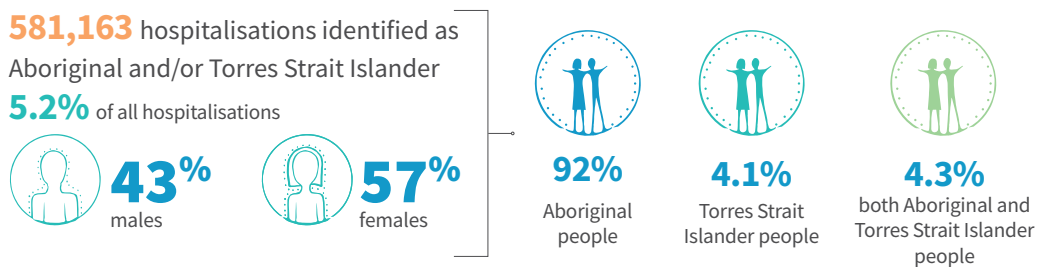
Hospitalisations

among Aboriginal and Torres Strait Islander people

Hospital statistics provide some information about the health of a population and give governments information on how well the health system is managing^[1]. However, they provide only a part of the overall picture of health because:

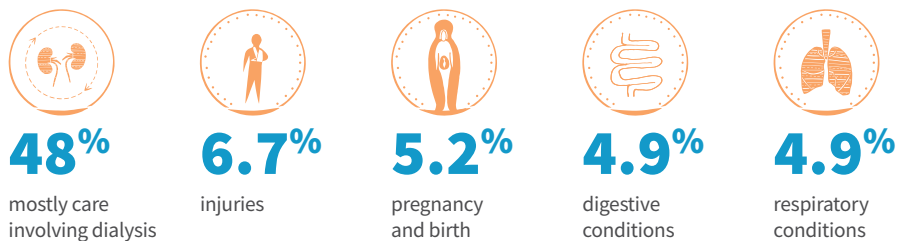
- they only report on conditions that are serious enough to require hospitalisation
- depending on where they live, not everyone has access to hospitals
- different hospitals may have different admission policies and procedures for illnesses
- the statistics relate to events of hospitalisation rather than to individual patients, i.e. one person may be hospitalised several times in the time period^[2-5].

In 2019-20 there were^[6]:



A key factor in the high rates of hospitalisation for Aboriginal and Torres Strait Islander people is dialysis treatment for kidney disease, which involves repeat admissions for the same patients^[2].

Leading causes of Aboriginal and Torres Strait Islander hospitalisation in 2019-20^[6]:

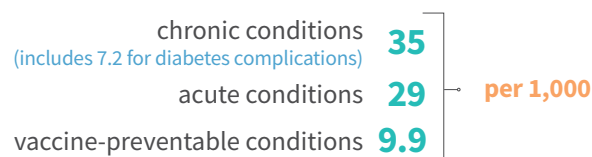


Potentially preventable hospitalisations

Potentially preventable hospitalisations are those that could have been avoided with preventative care actions and early disease management^[7]. They can be used as a way to measure how easily people can access primary health or community care and how effective it is^[8]. These hospitalisations are calculated for chronic conditions (such as diabetes), acute conditions and conditions that can be prevented with vaccinations.

In 2019-20, the rate of potentially preventable hospitalisations was **72 per 1,000**^[6].

The highest rates for potentially preventable hospitalisations were for:



Burden of disease

among Aboriginal and Torres Strait Islander people

In 2021, key findings for Aboriginal and Torres Strait Islander people were released for Australia's National Burden of Disease study^[1]. The reference year for this study was 2018.

Burden of disease studies have been undertaken in Australia for more than 20 years by the Australian Institute of Health and Welfare (AIHW)^[2]. These studies measure the impact of diseases and injuries on a group of people in terms of:

- the number of years of healthy life lost through living with illness, and
- the number of years of life lost through dying prematurely^[1].

When added together, these measures are called **total burden**.

The findings from the burden of disease analysis are useful to people who plan health services because they highlight which diseases and injuries are having the most impact on a population.

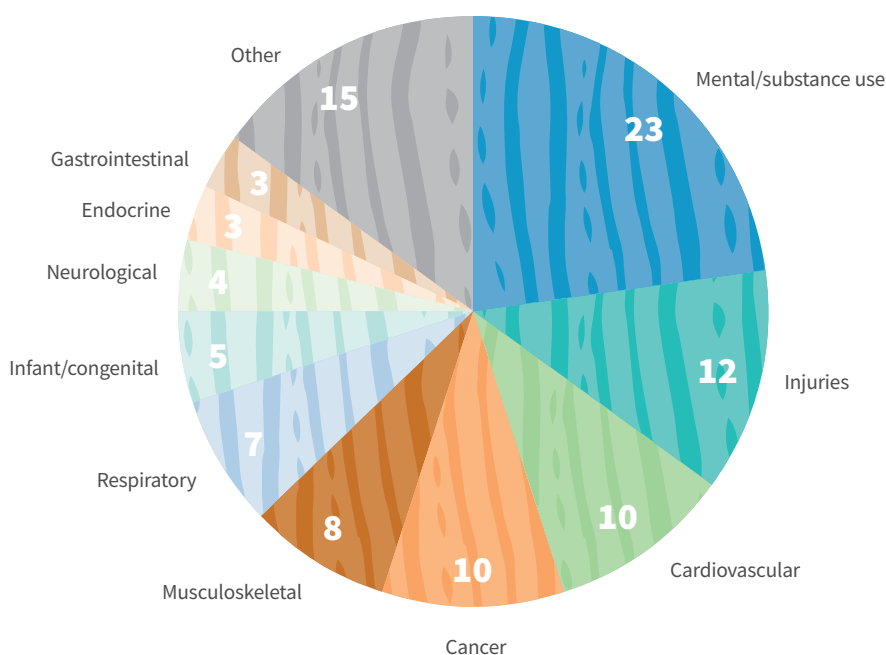
This *Summary* presents information₁ about the impact that selected diseases and risk factors have on total burden among Aboriginal and Torres Strait Islander people.



Contribution of disease groups to total burden

Each **disease group** made a different contribution to overall burden for Aboriginal and Torres Strait Islander people. The leading contributors were **mental and substance use disorders** and **injuries**^[1].

Contribution (%) of disease groups to total burden (DALY₂) among Aboriginal and Torres Strait Islander people, 2018



1. Findings from the burden of disease study selected for inclusion in this Summary differ slightly from those included in the Overview of Aboriginal and Torres Strait Islander health status 2021.

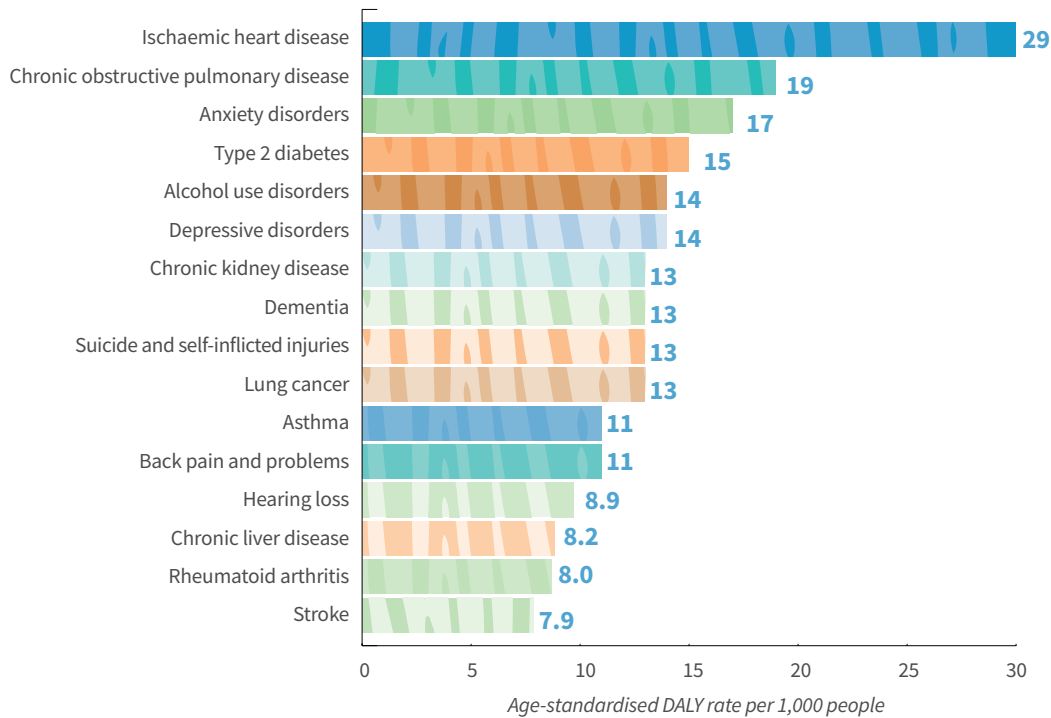
2. For definition of DALY, see Statistical terms on page 3.



Leading specific causes of total burden

Ischaemic heart disease, chronic obstructive pulmonary disease and anxiety disorders were the leading **specific** causes of total burden among Aboriginal and Torres Strait Islander people^[1].

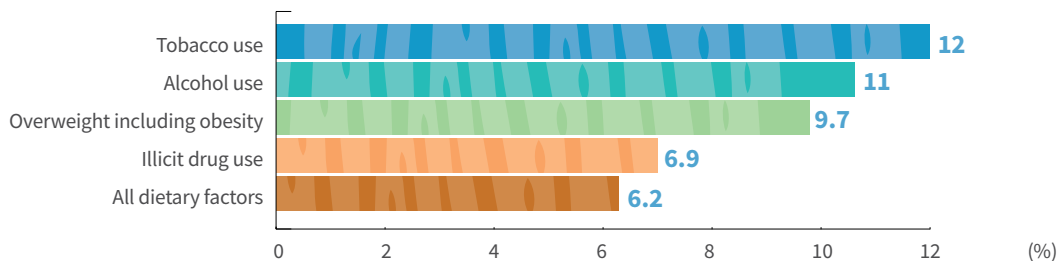
Leading specific causes of total burden (based on age-standardised DALY rate) among Aboriginal and Torres Strait Islander people, 2018



Leading risk factors contributing to total burden

The study calculated the contribution made by modifiable risk factors to the total burden of disease among Aboriginal and Torres Strait Islander people. **It found that almost half (49%) of total burden could have been prevented by avoiding modifiable risk factors.** Tobacco use was the risk factor that contributed the most burden^[1].

Proportion (%) of total burden attributable to the leading five risk factors among Aboriginal and Torres Strait Islander people, 2018



Note: Risk factor contributions in this graph can not be added together to estimate totals, due to interactions between factors.

Impact of COVID-19

in Aboriginal and Torres Strait Islander people and communities

Australia is generally considered to have responded well to reduce the impact COVID-19^[1,2].

Mortality rates in comparable developed nations around the world have **been estimated at 100 times greater than Australia**^[3]. Aboriginal and Torres Strait Islander people and communities were identified as a vulnerable population due to persistent social, economic and health inequalities^[4-7].

The response to the pandemic by the Aboriginal Community Controlled Health Sector with national leadership by NACCHO has been praised as instrumental to mitigating the impact of COVID-19^[2,3].

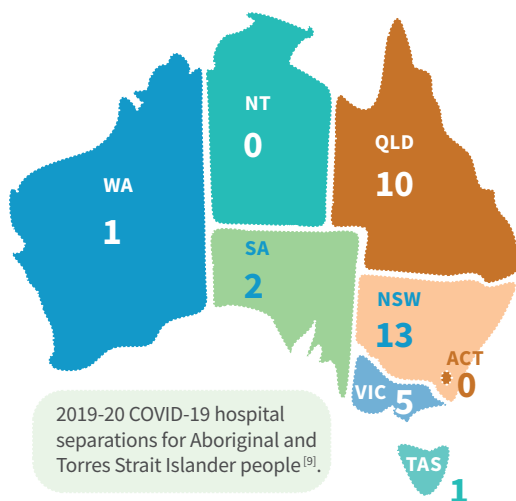
- The infection rate in **non-Indigenous populations was 5.9 times higher** than for First Nations people^[5].
- The **resilience** of Aboriginal and Torres Strait Islander people and communities has also been highlighted^[7].
- The impact of COVID-19 on mental health and the potential exposure to increased racism are important factors to be aware of^[6].



In Australia in June 2021 there were **910 deaths** with **none** reported in Aboriginal and Torres Strait Islander communities^[1,8].



In 2019-20, 1.2% of hospitalisations were for Aboriginal and Torres Strait Islander people^[9]. Of these, the highest number of separations were in NSW followed by Qld, Vic, SA, WA and Tas. There were no separations in this period for the ACT or the NT.



As at December 2021, there had been^[10]:

8,807 cases of COVID-19

reported for Aboriginal and Torres Strait Islander people

42% living in a regional or remote area

20 deaths were reported from June to December 2021.



Vaccination

Vaccination rates for a large number of Aboriginal and Torres Strait Islander people remain lower than the general Australian population^[11].

COVID-19 vaccine rollout rates varied across Australia^[12].

COVID-19 vaccine rollout rates for Indigenous people, by state and territory Local Government Areas (LGSs), 2021

| State | Indigenous individuals received dose 1 (%) | Indigenous individuals received dose 2 (%) |
|-------------------|--|--|
| ACT | 91 | 87 |
| NSW | 68 - 94 | 63 - 93 |
| NT | 66* - 94* | 48* - 85* |
| Qld | 58 - 93* | 39* - 90* |
| SA | 62 - 97* | 50* - 94* |
| Tas | 80 - 94* | 70 - 92* |
| Vic | 84 - 96 | 79 - 92 |
| WA | 48 - > 99* | 31* - >99 |
| Other Territories | 89* | 93* |

Notes:

1. *Denotes LGAs with very large 'very remote' and 'remote' areas where geocoding addresses is difficult, often leading to artificially low counts.

2. Ranges indicate the highest to lowest LGA.

Source: Derived from Australian Government Department of Health, 2022^[12].

Low vaccine rates in Aboriginal and Torres Strait Islander communities may be due to:

- access to vaccination^[5, 13]
- perceived racism in mainstream services leading to high levels of mistrust^[5, 9]
- campaigns of misinformation and conspiracy theories^[14]

Vaccine hesitancy has also become a more important health challenge with the appearance of the Delta strain and then the Omicron variant, together with nationwide plans to 'open the borders' in most Australian states and territories in early 2022. There will be a knock-on effect as the requirement for booster shots to further control COVID-19 outbreaks is rolled out.

To combat low vaccination rates programs have been implemented to enhance quality and impact of COVID-19 messaging. For example:

- media personality Ernie Dingo is returning to his Country as part of the Vax the Outback program^[15]
- the Victorian Aboriginal Community Controlled Health Organisation (VACCHO) have sent Vaccine Vans out into their communities^[16]
- the Northern Land Council have released a series of short videos using local personalities called *Get the Jab*^[17].

NACCHO continues to provide strong leadership and support throughout Australia.

Cardiovascular health

among Aboriginal and Torres Strait Islander people

Cardiovascular disease (CVD) is the common term for all of the diseases and conditions that affect the heart and blood vessels^[1]. These include^[1,2]:

- ischaemic heart disease (**IHD**)
- heart failure
- peripheral vascular disease
- cerebrovascular disease (including stroke) which affects blood vessels in the brain
- rheumatic heart disease (**RHD**).

The term also includes high blood pressure which is associated with CVD^[2]. CVD is a serious problem for the Aboriginal and Torres Strait Islander population^[3]. Many people report having CVD, and it is a leading cause of both hospitalisation and death.

Prevalence

In the National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) 2018-19^[4]:



Risk factors

Risk factors for CVD include^[5-7]:



In 2018-19, about **one quarter of Aboriginal and Torres Strait Islander adults had high blood pressure**^[4]. Other health conditions like diabetes and chronic kidney disease can also increase the risk of developing CVD^[7].

Due to the high prevalence of CVD among Aboriginal and Torres Strait Islander people, it is now recommended for all adults to participate in regular screening for CVD risk factors from the age of 18 years^[7].



Hospitalisations

There were **16,360** hospitalisations for CVD in 2019-20^[8]:

5.4% of all Aboriginal and Torres Strait Islander hospitalisations (excluding dialysis)

The crude rate of hospitalisations in 2018-19^[9]: **19 per 1,000**

Although rates of CVD are highest among older people, CVD is recognised as having a substantial impact on **younger** Aboriginal and Torres Strait Islander people^[10].

In 2015-17 the rate of hospitalisations for CVD in Aboriginal and Torres Strait Islander **people aged 35-44 years** was **22 per 1,000**

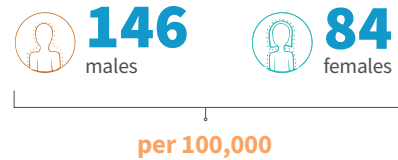


Deaths

About one quarter of all deaths were caused by CVD in 2014-2018^[10]:



IHD was the leading cause of deaths in 2020^[11]:



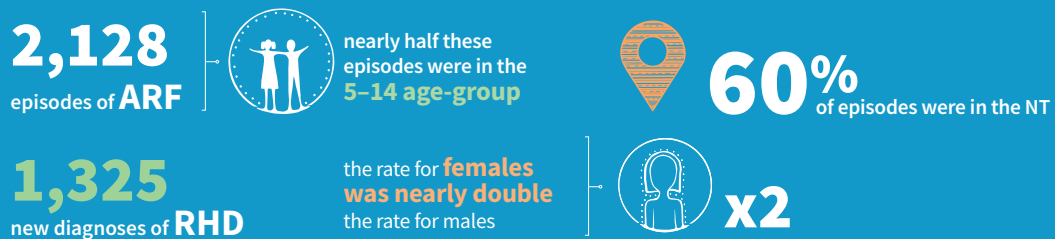
The rates of death due to **IHD increased with age**, however, concerningly, it was the **2nd leading cause of death** among the **35-44 year age group** and the **4th leading cause of death** among the **25-34 year age group** in 2016-2020^[11].



Acute rheumatic fever (ARF) and rheumatic heart disease (RHD)

ARF and RHD are preventable health problems that affect many Aboriginal and Torres Strait Islander people and communities^[12]. RHD occurs when ARF, a sickness caused by the germ *Streptococcus*, leads to permanent damage to the heart valves. Risk factors for ARF include overcrowding and poor sanitation^[12, 13].

In Qld, WA, SA and the NT in 2015-2019, among Aboriginal and Torres Strait Islander people, there were^[14]:



A roadmap for ending RHD in Australia by 2031 was released in 2020^[12].

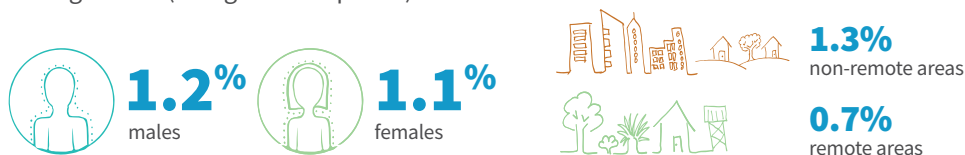
Cancer


among Aboriginal and Torres Strait Islander people

Cancer is the term used for a number of related diseases that cause damage to healthy body cells causing them to grow abnormally^[1]. Cancer can start almost anywhere in the body^[1] and there are more than 200 types of cancer^[2]. The location in the body where the cancer cells begin forming is known as the primary site. For example, lung cancer begins in the lungs. When cancer cells spread to other parts of the body it is known as ‘metastasis’. ‘Neoplasms’ is sometimes used to describe conditions associated with abnormal growth of new tissue (tumour)^[3]. Neoplasms can be benign (not cancerous) or malignant (cancerous).

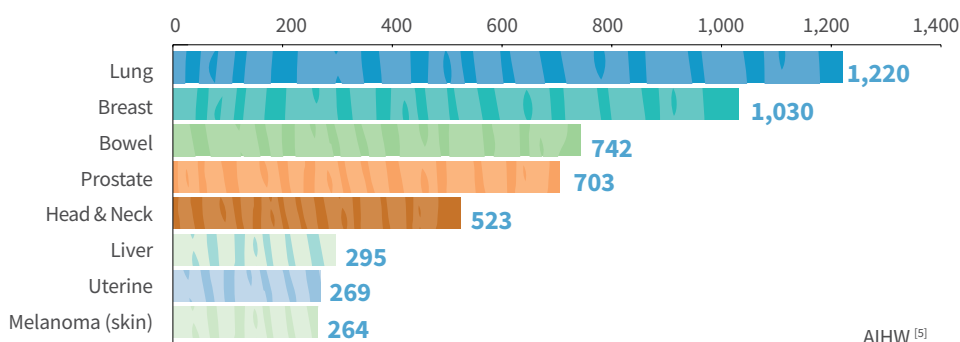
Incidence and prevalence

In the 2018-19 NATSIHS^[4], **1.1%** of Aboriginal and Torres Strait Islander people reported having cancer (malignant neoplasm):



 In 2012-2016, **8,326** new cases were diagnosed, an average of **1,665** new cases per year^[5].

New cases of the most common cancers:



Risk factors

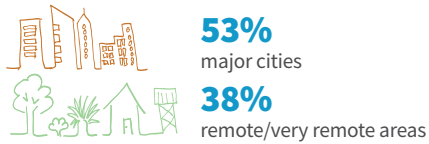
Different types of cancer have different risk factors and sometimes cancers can develop for no known reason^[6]. Risk factors for the common types of cancer include^[7]:



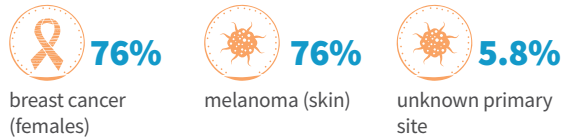
The patterns of incidence and mortality of some types of cancer among Aboriginal and Torres Strait Islander people can be partly explained by the higher level of risk factors, most notably smoking^[8]. This is the main contributing factor to the high incidence of lung cancer.

✓ Survival

For the period 2007-2016, the likelihood of **surviving five years after a cancer diagnosis was 47%**^[5]. Observed survival decreased with remoteness:



The highest observed survival rates were found in breast cancer (females) and melanoma (skin), while cancer of unknown primary site had the lowest^[5]:



✚ Hospitalisations

In 2019-20, there were **10,073 hospitalisations** for neoplasms, representing **3.3%** of all hospitalisations^[9].

In 2015-17, there were **10,323** hospitalisations for cancer as the principal diagnosis, at a rate of **12 per 1,000**^[10]:



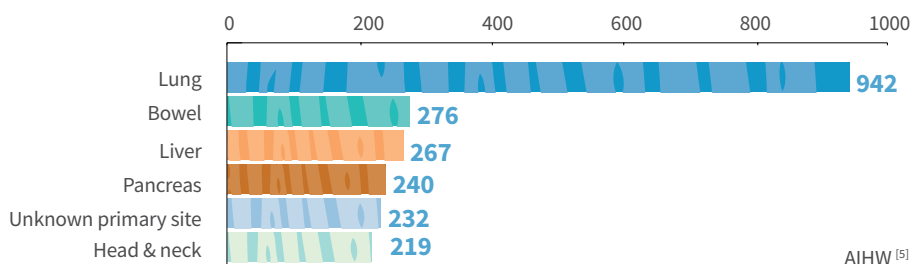
☔ Deaths

There were **3,576 deaths** due to cancer in 2015-2019, at a rate of **230 per 100,000**^[5]:



Cancers of the trachea, bronchus and lung combined were the **4th highest overall cause of death** in 2020^[11].

Number of deaths for selected cancers 2015-2019^[5]:



Factors contributing to cancer incidence and deaths^[12-14]:

- having the types of cancers that are more likely to be fatal
- being diagnosed with cancer at a later stage
- being more likely to present with co-morbidities (other chronic conditions)
- no treatment, or inadequate treatment
- not participating in national cancer screening programs.

Diabetes

among Aboriginal and Torres Strait Islander people

Diabetes (diabetes mellitus) is a chronic condition where the body cannot properly process glucose (sugar) from food^[1]. Diabetes is treatable but can lead to life-threatening health complications if left untreated or not managed well^[2].

There are different types of diabetes with the three most common being:


- **type 1 diabetes**
- **type 2 diabetes**
- **gestational diabetes mellitus (GDM)** (a type of diabetes that occurs in pregnancy).

Diabetes is a serious problem for the Aboriginal and Torres Strait Islander population^[2]. The most common form is type 2 diabetes, which occurs at earlier ages for Aboriginal and Torres Strait Islander people than for non-Indigenous people and is often undetected and untreated.

Incidence and prevalence

In the 2018-19 NATSIHS **7.9%** of people self-reported diabetes^[3]:



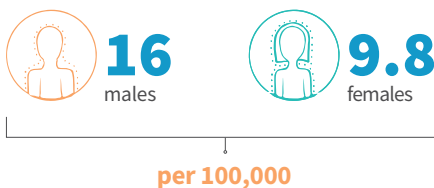
 WA and the NT had the highest levels of diabetes (both **11%**)

 Diabetes increased with age:
35% of people **55 years +** had diabetes.

High sugar levels (HSL) are a pre-cursor to diabetes. In the 2018-19 NATSIHS, **13% of adults** reported having HSL and/or diabetes^[4]:



In 2019, the incidence rate for **type 1 diabetes** was **13 per 100,000**^[5]:



 In 2017-18, there were **1,715 new cases of GDM** among Aboriginal and Torres Strait Islander females aged 15-49 years^[6].



Risk factors

Risk factors for diabetes include^[1, 7]:



Smoking



Family history



Obesity



Other chronic conditions such as kidney disease, cardiovascular disease, liver disease and anaemia.



Hospitalisations

Hospital services are usually required to treat the advanced stages of complications of diabetes or acute episodes^[2].

In 2018-19, there were **4,786 hospitalisations** for diabetes as a main diagnosis^[8]:

7.2 per 1,000

In 2017-18, there were **1,016** hospitalisations for **type 1** diabetes as a main diagnosis^[9]:

The crude rate as a main or additional diagnosis was

3.7

per 1,000

3.8
males

3.7
females

There were **2,504** hospitalisations for **type 2** diabetes as a main diagnosis:

The crude rate as a main or additional diagnosis was^[6]

85

per 1,000

71
males

99
females



Hospitalisations for those living in remote and very remote areas were **2.3x higher** (8.4 per 1,000) than for those living in major cities (3.6 per 1,000)^[9].



In 2017-18, there were **589 hospitalisations** for diabetes as the main diagnosis **during pregnancy (GDM)**^[9].



The rate of GDM was **more than 5x higher** for those living in remote and very remote areas (119 per 1,000) than for those living in major cities (22 per 1,000).



Deaths

Diabetes was the **second leading cause of death** for Aboriginal and Torres Strait Islander people in 2020^[10]:

266 deaths, **7.4%** of all deaths

122
males

4th leading cause of death

144
females

2nd leading cause of death



The **NT** had the highest rate of deaths due to diabetes (160 per 100,000).

Social and emotional wellbeing

(including mental health) among Aboriginal and Torres Strait Islander people

For many Aboriginal and Torres Strait Islander people, social and emotional wellbeing (SEWB) includes mental health and also:

- connection to Country
- culture
- spirituality
- the body and emotions
- ancestry, family and community^[1,2].

Factors that have been found to support wellbeing include^[2,3]:



cultural continuity



self-determination



supporting Indigenous knowledge systems



maintaining family networks



strong community governance

COVID-19 has been found to have an impact on SEWB and mental health:

- higher levels of stress
- uncertainty
- loss of control
- isolation^[4,5].



Prevalence

In the 2018-19 NATSIHS, **31%** of Aboriginal and Torres Strait Islander respondents aged 18 years and over reported high or very high levels of psychological distress^[6]:



31%

of Aboriginal people



23%

of Torres Strait Islander people

More females reported high or very high levels of psychological distress compared with males:



35%

females



26%

males

28%

remote areas



31%

non-remote areas



In the 2018-19 NATSIHS there were some **encouraging and positive indicators**^[6].

For Aboriginal and Torres Strait Islander males over 18 years of age:



80% reported feeling calm and peaceful all/most of the time

87% felt happy all/most of the time

For females over 18 years of age:



78% reporting feeling calm and peaceful all/most of the time

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:

78% in non-remote areas (major cities and regional areas)

83% in remote areas (remote and very remote)

Happiness:

87% in non-remote areas

90% in remote areas

Mental health conditions

In the 2018-19 NATSIHS [6]:

25% of Aboriginal people and **17%** of Torres Strait Islander people aged two years and over were reported as having a mental and/or behavioural condition.



17%
Anxiety was the most common mental and behavioural condition reported.



13%
Depression was the second most common mental and behavioural condition reported.

Mental and behavioural conditions were more likely to be reported by people living in non-remote areas compared with remote areas.



Hospitalisations

In 2019-20 [7]:

There were **26,228** hospitalisations of Aboriginal and Torres Strait Islander people for **mental** and **behavioural** disorders.

8.6%
of all hospitalisations

Intentional **self-harm**₁ was responsible for **3,094** hospitalisations.

0.5%
of all hospitalisations



Deaths

In 2020, **197 people died** from intentional self-harm (suicide) [8].

Suicide was the 5th leading cause of death overall in 2020 for Aboriginal and Torres Strait Islander people.

Suicide was:



x3

more likely to be a cause of death for males as for females.

For 2016-2020, the age groups with the highest rate of death by suicide were:



males 35-44 years

74 per 100,000



females 15-24 years

26 per 100,000



WA consistently records the **highest death rates for suicide**.

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

Kidney health

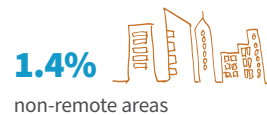
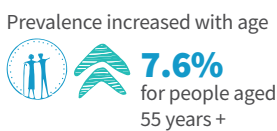
among Aboriginal and Torres Strait Islander people

Keeping the kidneys healthy is important because they help the body by removing waste and extra water, and keeping the blood clean and chemically balanced^[1]. If the kidneys stop working properly, waste can build up in the blood and damage the body^[2]. Many people are unaware that they have kidney disease as up to 90% of kidney function can be lost before symptoms appear.

Incidence and prevalence

For the 2012-13 AATSIHS, **18%** of Aboriginal and Torres Strait Islander adults **had biomedical signs of CKD**^[3].

For the 2018-19 NATSIHS, **1.8%** of Aboriginal and Torres Strait Islander people reported kidney disease as a long-term health condition^[4].



For 2016-2020, the incidence rate of ESKD for Aboriginal and Torres Strait Islander people was:



For ESKD, **55%** of people were aged **less than 55 years**.

Risk factors

Risk factors for kidney disease which can be changed or controlled include^[2, 9]:



Risk factors for Aboriginal and Torres Strait Islander people that cannot be changed or controlled include^[10]:





Hospitalisations

In 2017-18, the crude rate of **CKD** hospitalisation was **33 per 1,000**^[2]:



In 2018-19, there were **242,274** hospitalisations for **ESKD** at a crude hospitalisation rate of **289 per 1,000**^[11].

In 2016-18, the crude rate of ESKD hospitalisation was **278 per 1,000**:



In 2016-18, the rate for people living in remote and very remote locations (681 per 1,000) was **5x higher** than for those living in major cities (137 per 1,000)^[11].

Managing kidney disease may require dialysis, which involves artificially filtering the blood. This often requires the patient being admitted^[2] to hospital, although in some circumstances the treatment can be performed at home. If kidney disease is left untreated a kidney transplant may be required^[2]. Kidney disease impacts a patient's quality of life as well as those who care for them^[12-14]. Treatments can be expensive and require frequent travel to medical facilities^[15].

Dialysis: **Dialysis is the most common reason** Aboriginal and Torres Strait Islander people are hospitalised^[16].

In 2017-18, the rate of hospitalisation for regular dialysis was **284 per 1,000**^[2].

In 2020, **314** people commenced dialysis, **down from 383** in 2019^[17].

In 2020, **2,098** people were receiving dialysis: **haemodialysis 93%** and **peritoneal dialysis 7%**^[17].

Kidney transplants: In 2019, there were **55 transplant operations**^[18].



Deaths

In 2020, there were **110 deaths due to diseases of the urinary system** (including disorders of the bladder and urethra, as well as disease of the kidneys and ureters) It was the **7th** underlying cause of death for females and the **10th** underlying cause of death for males^[19].

In 2015-2019, the death rate for kidney disease (major cause) was **19 per 100,000**^[20].

For 2016-2018, the crude death rate for CKD as an underlying or associated cause of death was:



In 2020, **236** Aboriginal and Torres Strait Islander people who were receiving dialysis died^[17]. The **most common causes of death for the dialysis patients were CVD** (78 deaths) and withdrawal from treatment (49 deaths).



Respiratory health

among Aboriginal and Torres Strait Islander people


Respiratory health can include a number of conditions that affect the airways and other parts of the lung^[1], and affect breathing^[2]. They range from those that come on quickly or do not last long (acute respiratory conditions), to those that last a long time (chronic respiratory conditions)^[3].

Prevalence

In the 2018-19 NATSIHS, **29%** of Aboriginal and Torres Strait Islander people reported **having a long-term respiratory condition**^[4]. Other specific long-term respiratory diseases reported included:

 asthma **16%** and  chronic obstructive pulmonary disease (COPD) **3.4%**

The level of respiratory disease among Aboriginal and Torres Strait Islander **females** was approximately **1.2x higher** than for males.

 **26%** males  **32%** females

Risk factors

The main risk factors for respiratory disease include^[3,5]:



tobacco smoking



environmental conditions



occupational exposures and hazards



family history



obesity



infectious diseases

Risk factors for infants and children include^[6,7]:



exposure to second-hand tobacco smoke



poor living conditions



poor nutrition



limited access to medical care

Hospitalisations

In 2018-19, crude hospitalisation rates were highest for Aboriginal and Torres Strait Islander people with^[8]:

- **influenza and pneumonia** (9.2 per 1,000)
- **acute upper respiratory infections** (4.6 per 1,000)
- **COPD** (6.7 per 1,000)
- **asthma** (2.7 per 1,000)

Deaths

In 2020, **chronic lower respiratory disease** (which includes asthma, bronchitis, emphysema, and COPD) was the **3rd leading cause of death** for Aboriginal and Torres Strait Islander people, **responsible for 245 deaths**^[9].

There were no deaths of Aboriginal and Torres Strait Islander people from COVID-19 in 2020^[9].

Sexually transmissible infections

among Aboriginal and Torres Strait Islander people

Sexually transmissible infections (STIs) are spread through sexual contact and include:

- **bacterial infections** such as chlamydia, gonorrhoea and syphilis
- **viral infections** such as human papillomavirus (HPV) and genital herpes
- **parasitic infections** such as trichomoniasis.

Most STIs are treatable although early detection is important^[1]. Safe sex practices, such as using condoms, are recommended to prevent exposure and the spread of STIs.



Incidence and prevalence of some notifiable¹ STIs

In 2019, there were^[2]:

| | | |
|--|--------------|--------------------|
| 7,647 notifications of chlamydia | 1,216 | } rate per 100,000 |
| 4,042 notifications of gonorrhoea | 586 | |
| 1,021 notifications of syphilis | 119 | |

In 2019^[2]:



Females were **1.9x** more likely to be diagnosed with **chlamydia** than males.



Females were **1.2x** more likely to be diagnosed with **gonorrhoea** than males.



Males and females were diagnosed with **syphilis** at **similar rates**.

In 2019^[2]:



Chlamydia notification rates were highest in the NT, followed by WA and Qld.

Gonorrhoea notification rates were highest in the NT, followed by SA and WA.

Syphilis notification rates were highest in the NT, followed by WA and Qld.

For more information about STIs and other aspects of sexual health visit the Australian Indigenous HealthInfoNet's **new online sexual health portal** [healthinfonet.ecu.edu.]

1. A disease required by law to be reported to government authorities in order to monitor its spread.

Environmental health

among Aboriginal and Torres Strait Islander people

Environmental health refers to the physical, chemical and biological factors which impact a person's health and wellbeing such as: housing conditions; drinking water; air quality; sanitation; disease control and food safety^[1,2]. Health conditions associated with poor environmental health include:

- infectious diseases of the bowels (such as 'gastro')
- skin infections (such as scabies, boils)
- middle ear infections
- chronic diseases (such as ARF)
- respiratory issues (such as asthma)
- some cancers (such as lung cancer)^[3,4].

Aboriginal and Torres Strait Islander people are disproportionately affected by the diseases associated with environmental health due to:

- the remoteness of some communities
- lack of adequate housing
- lack of cleaning, health and personal care equipment
- poor infrastructure
- lack of access to tradespeople and repairs
- the cost of maintenance^[2-5].



Overcrowding



In 2016, **18%** of Aboriginal and Torres Strait Islander people reported living in an **overcrowded house**^[6].

In 2018-19, overcrowding was:



reported highest in the **NT (51%)** and lowest in the **ACT (8%)**^[1].



Infrastructure

In 2018-19^[1]:

✓ **80%** of Aboriginal and Torres Strait Islander households reported living in housing of an acceptable₁ standard

! **33%** of households reported major structural issues

! households with major structural issues increased with **remoteness**

✓ **majority** reported having access to household facilities for:

- washing people **97%**
- washing bedding and clothes **96%**
- preparing/storing food **91%**
- sewerage facilities **98%**

Access to functioning facilities was **lowest in the NT.**



Hospitalisations for diseases related to environmental health



Deaths related to poor environmental health

44

males



per 100,000

40

females



2014-2018^[1]

1. Housing of an 'acceptable' standard must have at least four working household facilities and not more than two major structural problems^[1].

Tobacco use

among Aboriginal and Torres Strait Islander people

Tobacco smoking increases the risk of chronic disease, such as CVD, many forms of cancer and lung diseases, as well as being a risk factor associated with preterm birth and LBW^[1]. Environmental tobacco smoke (passive smoking) can also make people sick, especially children. Passive smoking is a risk factor for children who are particularly susceptible to middle ear infections, asthma and increased risk of sudden infant death syndrome (SIDS).

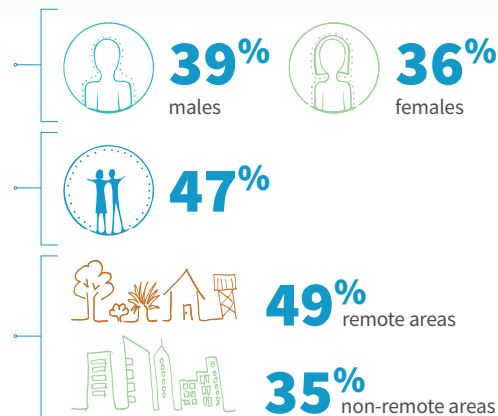
Smoking among Aboriginal and Torres Strait Islander people

In the 2018-19 NATSIHS^[2]:

37% of people aged 15 years+ reported they were current daily smokers

the age-group with the **highest** proportion of current daily smokers was **35-44 years**

people living in **remote areas reported a higher proportion** of current daily smokers than those living in non-remote areas



Passive smoking reported in the 2014-15 NATSISS^[3]

 **57%** of Aboriginal and Torres Strait Islander children aged 0-14 years lived in households with a daily smoker.

 For those children living with a daily smoker, **13%** were living in households where people smoked indoors.



Deaths

In 2018, around **800 deaths** (**23% of all deaths**) among Aboriginal and Torres Strait Islander people) were due to tobacco use^[4].



The proportion of **young people starting to smoke has decreased**, which will result in improved health outcomes over time.

Daily smoking rates reduced between the 2012-13 AATSIHS and the 2018-19 NATSIHS^[2]:

15-17 year olds
decreasing from 18% to
9.7%

18-24 year olds
decreasing from 42% to
36%

25-34 year olds
decreasing from 52% to
44%



A 2021 study found that there was a **15% lower prevalence** of smoking inside the home in areas funded under the Tackling Indigenous Smoking (TIS) program compared to non-TIS areas^[5].



The proportion of Aboriginal and Torres Strait Islander mothers who reported smoking during pregnancy **has decreased** from 50% in 2009 to **43%** in 2019^[6].

Alcohol use

among Aboriginal and Torres Strait Islander people

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
- violence

Alcohol use not only affects individuals, but also families and the wider community^[1, 2].

The 2020 National Health and Medical Research (NHMRC) *Australian guidelines to reduce health risks from drinking alcohol* provide recommendations on reducing the risk of alcohol-related harm for adults, young people, and women who are pregnant or breastfeeding^[3]:

- **Guideline 1** recommends that to reduce the risk of alcohol-related disease or injury, men and women should drink no more than four standard drinks on any day or no more than 10 standard drinks in a week.
- **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.

The 2018-19 NATSIHS assessed a person's alcohol consumption for short-term and lifetime risk using the previous (2009) NHMRC alcohol guidelines.



Abstinence and alcohol consumption

The following information was self-reported by participants in the 2018-19 NATSIHS^[4]:

Abstinence (or those who had never drunk alcohol) in the last 12 months:



26%

of Aboriginal people



23%

of Torres Strait Islander people aged 18 years or older



The proportion of people who abstained was highest for those aged 55 years and older.

The proportion of people who abstained was higher for people living in very remote areas:



43%

very remote areas



19%

major cities

Short-term risk (no more than four drinks on a single occasion):

18% of Aboriginal people and 22% of Torres Strait Islander people **did not exceed** the guidelines
54% of people reported **exceeding** the short-term risk guideline.

Males were 1.5x more likely to exceed the guideline compared with females:



Young people were more likely to exceed the guideline compared with people **aged 55 years** and older:



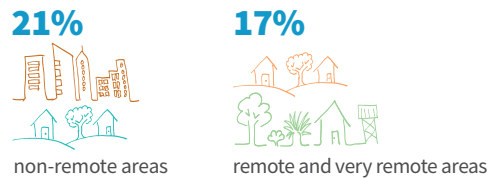
Lifetime risk (no more than two standard drinks on a single day):

26% of Aboriginal people and 21% of Torres Strait Islander people **did not exceed** the guidelines
20% of Aboriginal people and 24% of Torres Strait Islander people reported **exceeding** the guideline for lifetime risk.

Males were 3x more likely to exceed the guideline for lifetime risk compared with females:



The proportion of people exceeding the guideline for lifetime risk was higher for people living in non-remote areas compared with remote and very remote areas:



Hospitalisations

In 2016-18^[5], the crude alcohol-related hospitalisation rate was **7.6 per 1,000**



Deaths

For 2014-2018^[5], the rate of death due to alcohol use was **20 per 100,000**, **2.9x higher for males** than for females.



The main cause of alcohol-related deaths was **alcoholic liver disease**.



Between 2010 and 2019 there was a reduction in the proportion of Aboriginal and Torres Strait Islander people aged 14 years and older exceeding the 2009 alcohol guidelines for lifetime risk^[2].



In 2018-19, **90% of mothers of Aboriginal and Torres Strait Islander children** (aged 0-3 years) had **not drunk alcohol** during their pregnancy^[6].

Illicit drug and volatile substance use

among Aboriginal and Torres Strait Islander people

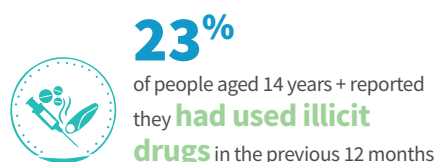
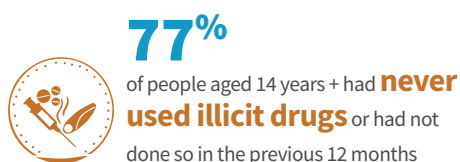
Illicit drug use is the use of illegal drugs such as cannabis, heroin, cocaine and methamphetamine, as well as the use of prescribed drugs, such as painkillers, in ways in which they were not intended or prescribed^[1,2]. Illicit drug use is associated with an increased risk of mental illness, poisoning, self-harm, infection with blood borne viruses from unsafe injection practices, chronic disease and death^[3-5].

Most Aboriginal and Torres Strait Islander people surveyed do not use illicit drugs^[6-8].

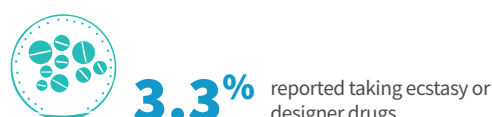


Prevalence

In the 2019 National Drug Strategy Household Survey (NDSHS)^[8]:



In the 2018-19 NATSIHS^[7], people aged 15 years + reported **specific drug** use in the previous 12 months:



Illicit drug use was **1.8x** higher among males than females^[7]:



In 2019-20, the most common principal illicit drugs of concern that Aboriginal and Torres Strait Islander people **sought treatment** for were **amphetamines, cannabis and heroin**^[9].

1. Drugs included in the 'other' category includes heroin, cocaine, petrol, LSD/synthetic hallucinogens, naturally occurring hallucinogens, kava, methadone and other inhalants.



Hospitalisations

The top two reasons for **drug-related hospitalisations** among Aboriginal and Torres Strait Islander people in 2018-19 were **mental and behavioural disorders** (crude rate of 4.7 per 1,000) and **poisoning** (crude rate of 3.0 per 1,000) ^[10].

The **most common drugs** to cause mental and behavioural disorders requiring hospitalisation in 2016-18 were ^[10]:



Hospitalisation rates due to drug use were higher in major cities than in inner and outer regional areas, and remote and very remote areas ^[10].



Deaths

In 2019 ^[11]:

The rate of **unintentional** deaths caused by drugs was **20** } per 100,000

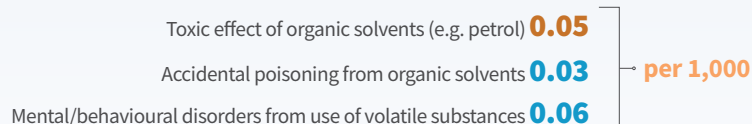


Volatile substance use

Volatile substance use (VSU) involves sniffing inhalants - substances that give off fumes such as petrol, paint, glue or deodorants ^[12]. Sniffing can have serious short and long-term health effects, including a condition known as sudden sniffing death which causes the heart to stop within minutes ^[13].

In the 2014-15 NATSISS, **0.7%** of Aboriginal and Torres Strait Islander people aged 15 years and over **reported using petrol and other inhalants** in the 12 months prior to the survey ^[14].

Crude rates of hospitalisation caused by VSU for 2016-18 ^[10]:



Overall, the number of people using volatile substances is small but the issue of VSU is still a concern in some communities ^[15]. **Positively**, one study reported a **95% reduction of VSU between 2006 and 2018**, attributed to the replacement of regular unleaded petrol with low aromatic fuel.

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

References

Introduction

1. Dudgeon, P., Wright, M., Paradies, Y., Garvey, D., & Walker, I. (2014). Aboriginal social, cultural and historical contexts. In P. Dudgeon, H. Milroy & R. Walker (Eds.), *Working together: Aboriginal and Torres Strait Islander mental health and wellbeing principles and practice* (2nd ed., pp. 3-24). Canberra: Department of The Prime Minister and Cabinet.
2. National Aboriginal Community Controlled Health Organisation. (2022). *Aboriginal Community Controlled Health Organisations (ACCHOs): what is the definition of Aboriginal health?* From <https://www.naccho.org.au/acchos>
3. New South Wales Department of Health. (2019). *Communicating positively: a guide to appropriate Aboriginal terminology*. Sydney: New South Wales Department of Health.
4. Gee, G., Dudgeon, P., Schultz, C., Hart, A., Kelly, K.. (2014). Aboriginal and Torres Strait Islander social and emotional wellbeing. In Dudgeon, P. Milroy, H. Walker, R. (Ed.), (2nd ed.,pp. 55-68). Canberra: Department of the Prime Minister and Cabinet.
5. Australian Institute of Health and Welfare (2009). *Measuring the social and emotional wellbeing of Aboriginal and Torres Strait Islander peoples*. Canberra: Australian Institute of Health and Welfare.
6. Osborne, K., Baum, F., Brown, L. (2013). *What works? A review of actions addressing the social and economic determinants of Indigenous health*. Canberra: Closing the Gap Clearinghouse.
7. Steering Committee for the Review of Government Service Provision. (2016). *Overcoming Indigenous disadvantage: key indicators 2016 report*. Canberra: Productivity Commission.
8. Australian Indigenous HealthInfoNet (2022). *Overview of Aboriginal and Torres Strait Islander health status 2021*. Perth: Australian Indigenous HealthInfoNet.

Population

1. Australian Bureau of Statistics. (2021). *National, state and territory population*. Retrieved 16 December 2021 from <https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/latest-release>
2. Australian Bureau of Statistics. (2019). *Estimates and projections, Aboriginal and Torres Strait Islander Australians, 2006 to 2031*. Canberra: Australian Bureau of Statistics.

3. Australian Bureau of Statistics. (2018). *Estimates of Aboriginal and Torres Strait Islander Australians, June 2016*. Retrieved 31 August 2018 from <https://www.abs.gov.au/ausstats/abs@.nsf/mf/3238.0.55.001>

Determinants of health

1. National Aboriginal Community Controlled Health Organisation. (2013). *Healthy Futures 2013-2030: NACCHO 10 point plan*. Canberra: National Aboriginal Community Controlled Health Organisation.
2. World Health Organization. (2016). *What are social determinants of health?* Retrieved 2016 from http://www.who.int/social_determinants/sdh_definition/en/
3. Australian Bureau of Statistics. (2021). *Schools, Australia, 2020*. Retrieved from <https://www.abs.gov.au/statistics/people/education/schools/2020>
4. Australian Curriculum Assessment and Reporting Authority (2021). *National Assessment Program - Literacy and Numeracy: achievement in reading, writing, language conventions and numeracy: national report for 2021*. Sydney: Australian Curriculum Assessment and Reporting Authority.
5. Australian Bureau of Statistics. (2017). *Census of population and housing: reflecting Australia - stories from the Census, 2016: Aboriginal and Torres Strait Islander population*. Retrieved 28 June 2017 from <https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2071.02016?OpenDocument>

Births and pregnancy

1. Australian Bureau of Statistics (2021). *Births, Australia 2020*. Retrieved from: <https://www.abs.gov.au/statistics/people/population/births-australia/2020>
2. World Health Organization. (2016). *International Statistical Classification of Diseases and Related Health Problems 10th Revision*. Retrieved 2016 from <http://apps.who.int/classifications/icd10/browse/2016/en#/XIX>
3. Australian Institute of Health and Welfare. (2014). *Birthweight of babies born to Indigenous mothers* (AIHW Catalogue no IHW 138). Canberra: Australian Institute of Health and Welfare.
4. Australian Institute of Health and Welfare (2021). *Australia's mothers and babies* [web report]. Retrieved from: <https://www.aihw.gov.au/reports/mothers-babies/australias-mothers-babies/contents/summary>

5. Australian Institute of Health and Welfare. (2020). *Antenatal care use and outcomes for Aboriginal and Torres Strait Islander mothers and their babies 2016-2017*. Canberra: Australian Institute of Health and Welfare.
6. Australian Government Department of Health (2020). *Clinical practice guidelines: pregnancy care*. Canberra: Australian Government Department of Health.

Deaths

1. Australian Bureau of Statistics (2021). *Deaths, Australia, 2020*. Canberra: Australian Bureau of Statistics.
2. Australian Bureau of Statistics (2021). Causes of death, Australia 2020. Retrieved from: <https://www.abs.gov.au/statistics/health/causes-death/causes-death-australia/2020>
3. Australian Institute of Health and Welfare (2021). Australia's mothers and babies: maternal deaths [Web article]. Retrieved from: <https://www.aihw.gov.au/reports/mothers-babies/maternal-deaths-australia>
4. Australian Bureau of Statistics. (2018). *Life tables for Aboriginal and Torres Strait Islander Australians, 2015-2017* (ABS Cat. no. 3302.0.55.003). Canberra: Australian Bureau of Statistics.
5. Australian Institute of Health and Welfare, & National Indigenous Australians Agency. (2020). *Aboriginal and Torres Strait Islander Health Performance Framework report*. Retrieved 9/12/2020 from <https://www.indigenoushpf.gov.au/>

Hospitalisations

1. Australian Institute of Health and Welfare, & Australasian Association of Cancer Registries. (2012). *Cancer in Australia: an overview 2012* (AIHW Catalogue no CAN 70, cancer series no 74). Canberra: Australian Institute of Health and Welfare.
2. Australian Institute of Health and Welfare, & National Indigenous Australians Agency. (2020). *Aboriginal and Torres Strait Islander Health Performance Framework report*. Retrieved 9/12/2020 from <https://www.indigenoushpf.gov.au/>
3. Australian Institute of Health and Welfare. (2018). *Australia's health 2018* (Australia's health series no. 16, Cat. no: AUS 221). Canberra: Australian Institute of Health and Welfare.

4. Australian Institute of Health and Welfare. (2019). *Data quality statement: Admitted Patient Care 2017-18*. Retrieved 27 November 2019 from <https://meteor.aihw.gov.au/content/index.phtml/itemId/724188>
5. Australian Institution of Health and Welfare. (2016). *Data quality statement: National Hospital Morbidity Database 2014-15*. Canberra: Australian Institute of Health and Welfare.
6. Australian Institute of Health and Welfare (2021). Admitted patients. Retrieved from: <https://www.aihw.gov.au/reports-data/myhospitals/sectors/admitted-patients>
7. Australian Institute of Health and Welfare. (2020). *National Healthcare Agreement: PI 18 - Selected potentially preventable hospitalisations, 2021* Retrieved 16 September 2020 from <https://meteor.aihw.gov.au/content/index.phtml/itemId/725793>
8. Australian Institute of Health and Welfare (2020). *Disparities in potentially preventable hospitalisations across Australia, 2012-13 to 2017-18*. Canberra: Australian Institute of Health and Welfare.

Burden of disease

1. Australian Institute of Health and Welfare. (2021). *Australian Burden of Disease Study 2018: key findings for Aboriginal and Torres Strait Islander people* (Cat. no: BOD 28). Canberra: Australian Institute of Health and Welfare.
2. Moon, L., Gourley, M., Goss, J., Lum On, M., Laws, P., Reynolds, A., & Juckes, R. (2020). History and development of national burden of disease assessment in Australia. *Archives of Public Health*, 78. Retrieved from: <https://doi.org/10.1186/s13690-020-00467-2>

COVID-19

1. Australian Institute of Health and Welfare. (2021). *The first year of COVID-19 in Australia: direct and indirect health effects*. Canberra: Australian Institute of Health and Welfare.
2. Finlay, S., & Wenitong, M. (2020). Aboriginal Community Controlled Health Organisations are taking a leading role in COVID-19 health communication. *Australian and New Zealand Journal of Public Health*, 44(4), 251-252.
3. Fitts, M. S., Russell, D., Mathew, S., Liddle, Z., Mulholland, E., Comerford, C., & Wakerman, J. (2020). Remote health service vulnerabilities and responses to the COVID-19 pandemic. *Australian Journal of Rural Health*, 28(6), 613-617.





4. Moodie, N., Ward, J., Dudgeon, P., Adams, K., Altman, J., Casey, D., . . . Yap, M. (2020). Roadmap to recovery: reporting on a research taskforce supporting Indigenous responses to COVID-19 in Australia. *Australian Journal of Social Issues, Early view* (<https://doi.org/10.1002/ajs4.133>).
5. Stanley, F., Langton, M., Ward, J., McAullay, D., & Eades, S. (2021). Australian First Nations response to the pandemic: a dramatic reversal of the 'gap'. *Journal of Paediatrics and Child Health, 57*(12), 1853-1856.
6. Yashadhana, A., Pollard-Wharton, N., Zwi, A. B., & Biles, B. (2020). Indigenous Australians at increased risk of COVID-19 due to existing health and socioeconomic inequities. *The Lancet Regional Health, 1*.
7. Markham, F., Smith, D., & Morphy, F. (2020). *Indigenous Australians and the COVID-19 crisis: perspectives on public policy* (CAEPR Topical Issue 1/2020). Canberra: Centre for Aboriginal Economic Policy Research.
8. Eades, S., Eades, F., McCaulley, D., Nelson, L., Phelan, P., & Stanley, F. (2020). Australia's First Nations' response to the COVID-19 pandemic [letter]. *The Lancet, 396*(10246), 237-238.
9. Australian Institute of Health and Welfare. (2021). *Admitted patients*. Retrieved 28 July 2021 from <https://www.aihw.gov.au/reports-data/myhospitals/sectors/admitted-patients>
10. Australian Government Department of Health. (2021). *Coronavirus disease 2019 (COVID-19) epidemiology reports, Australia, 2020-2021*. Retrieved 2021 from Australian Government Department of Health
11. Allam, L., & Evershed, N. (2021). Aboriginal Covid cases climb as Australian vaccination 'surge' falls short. Retrieved 6 November 2021 from <https://www.theguardian.com/australia-news/2021/nov/05/aboriginal-people-in-nsw-and-act-affected-by-covid-at-twice-the-rate-of-other-australians-data-shows>
12. Australian Government Department of Health. (2022). *COVID-19 vaccination - geographic vaccination rates - Indigenous population: local government area (LGA) and statistical area 4 (SA4)*. Retrieved from <https://www.health.gov.au/resources/collections/covid-19-vaccination-geographic-vaccination-rates-lga-indigenous-population>
13. Choiseul, J. C., Emmerson, P. J., Eslanloo Pereira, T., Hosseinalipour, S., & Hasselgård-Rowe, J. (2021). What can be learned from the early stages of the COVID-19 vaccination rollout in Australia: a case study. *Epidemiologia, 2*(4), 587-607.
14. Senate Select Committee on COVID-19. (2021). *Official Committee Hansard: Australian government's response to the COVID-19 pandemic*. Canberra: Commonwealth of Australia.
15. Wyatt, K. (2021). *Ernie Dingo hits the road for new Indigenous vaccination campaign in remote WA [media release]*. Retrieved 16 November 2021 from <https://ministers.pmc.gov.au/wyatt/2021/ernie-dingo-hits-road-new-indigenous-vaccination-campaign-remote-wa>
16. Bloch, A. (2021). *VACCHO vaccine vans hit the road*. Retrieved 5 October 2021 from <https://nit.com.au/vaccho-vaccine-vans-hit-the-road/>
17. Northern Land Council. (2021). *Northern Land Council videos*. Retrieved 2021 from <https://www.youtube.com/user/NorthernLandCouncil/videos>

Cardiovascular health

1. World Health Organization. (2017). *Cardiovascular diseases (CVDs) [factsheet]*. Retrieved 17 May 2017 from [https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-\(cvds\)](https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds))
2. World Health Organization. (2016). *International Statistical Classification of Diseases and Related Health Problems 10th Revision*. Retrieved 2016 from <http://apps.who.int/classifications/icd10/browse/2016/en#/XIX>
3. Australian Institute of Health and Welfare. (2016). *Australian Burden of Disease Study: impact and causes of illness and death in Aboriginal and Torres Strait Islander people 2011* (Australian Burden of Disease Study series no. 6, Cat no. BOD 7). Canberra: Australian Institute of Health and Welfare.
4. Australian Bureau of Statistics. (2019). *National Aboriginal and Torres Strait Islander Health Survey, 2018-19*. Canberra: Australian Bureau of Statistics.
5. Australian Institute of Health and Welfare. (2015). *Cardiovascular disease, diabetes and chronic kidney disease - Australian facts: risk factors* (AIHW Catalogue no CDK 004, cardiovascular, diabetes and chronic kidney disease series no 4). Canberra: Australian Institute of Health and Welfare.
6. World Heart Federation. (2017). *Cardiovascular risk factors*. Retrieved 30 May 2017 from <https://www.world-heart-federation.org/resources/risk-factors/>

- 
7. Agostino, J. W., Wong, D., Paige, E., Wade, V., Connell, C., Davey, M. E., . . . Banks, E. (2020). Cardiovascular disease risk assessment for Aboriginal and Torres Strait Islander adults aged under 35 years: a consensus statement. *Medical Journal of Australia*, 212(9), 422-427.
 8. Australian Institute of Health and Welfare (2021). Admitted patients. Retrieved from: <https://www.aihw.gov.au/reports-data/myhospitals/sectors/admitted-patients>
 9. Steering Committee for the Review of Government Service Provision (2020). *Overcoming Indigenous disadvantage: key indicators 2020*. Canberra: Productivity Commission.
 10. Australian Institute of Health and Welfare, & National Indigenous Australians Agency. (2020). *Aboriginal and Torres Strait Islander Health Performance Framework report*. Retrieved 9/12/2020 from <https://www.indigenoushpf.gov.au/>
 11. Australian Bureau of Statistics (2021). *Causes of death, Australia 2020*. Retrieved from: <https://www.abs.gov.au/statistics/health/causes-death/causes-death-australia/2020>
 12. Wyber, R., Noonan, K., Halkon, C., Enkel, S., Ralph, A., Bowen, A., . . . Carapetis, J. (2020). *The RHD Endgame Strategy: The blueprint to eliminate rheumatic heart disease in Australia by 2031*. Perth: The END RHD Centre of Research Excellence, Telethon Kids Institute.
 13. Rheumatic Heart Disease Australia. (2020). *The 2020 Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease (3rd edition)*. Darwin: Menzies School of Health Research.
 14. Australian Institute of Health and Welfare (2021). *Acute rheumatic fever and rheumatic heart disease in Australia, 2015-2019* [web report]. Retrieved from: <https://www.aihw.gov.au/reports/heart-stroke-vascular-diseases/acute-rheumatic-fever-and-rheumatic-heart-disease/contents/summary>
 5. Australian Institute of Health and Welfare (2021). *Cancer in Australia 2021*. Canberra: Australian Institute of Health and Welfare.
 6. Australian Institute of Health and Welfare. (2014). *Cancer in Australia: an overview 2014* (AIHW Catalogue no CAN 88, cancer series no 90). Canberra: Australian Institute of Health and Welfare.
 7. Australian Indigenous HealthInfoNet. (2020). *Summary of cancer among Aboriginal and Torres Strait Islander people*. Perth: Australian Indigenous HealthInfoNet.
 8. Australian Institute of Health and Welfare, & Cancer Australia. (2013). *Cancer in Aboriginal and Torres Strait Islander peoples of Australia: an overview* (AIHW Catalogue no CAN 75, cancer series no78). Canberra: Australian Institute of Health and Welfare.
 9. Australian Institute of Health and Welfare (2021). Admitted patients. Retrieved from: <https://www.aihw.gov.au/reports-data/myhospitals/sectors/admitted-patients>
 10. Australian Institute of Health and Welfare, & National Indigenous Australians Agency. (2020). *Aboriginal and Torres Strait Islander Health Performance Framework report*. Retrieved 9/12/2020 from <https://www.indigenoushpf.gov.au/>
 11. Australian Bureau of Statistics (2021). *Causes of death, Australia 2020*. Retrieved from: <https://www.abs.gov.au/statistics/health/causes-death/causes-death-australia/2020>
 12. Cunningham, J., Rumbold, A. R., Zhang, X., & Condon, J. R. (2008). Incidence, aetiology, and outcomes of cancer in Indigenous peoples in Australia. *The Lancet Oncology*, 9(6), 585-595.
 13. Australian Institute of Health and Welfare (2021). *BreastScreen Australia monitoring report 2021*. Canberra: Australian Institute of Health and Welfare.
 14. Moore, S. P., Green, A. C., Bray, F., Garvey, G., Coory, M., Martin, J., & Valery, P. C. (2014). Survival disparities in Australia: an analysis of patterns of care and comorbidities among Indigenous and non-Indigenous cancer patients. *BMC Cancer*, 14. Retrieved from: <http://dx.doi.org/10.1186/1471-2407-14-517>

Cancer

1. National Cancer Institute. (2015). *What is cancer?* Retrieved 2017 from <https://www.cancer.gov/about-cancer/understanding/what-is-cancer>
2. Australian Cancer Research Foundation. (2018). *What is cancer?* Retrieved 2018 from <https://www.acrf.com.au/support-cancer-research/what-is-cancer/>
3. Australian Institute of Health and Welfare (2019). *Cancer in Australia 2019*. Canberra, Australian Capital Territory: Australian Institute of Health and Welfare.
4. Australian Bureau of Statistics. (2019). *National*

Diabetes

1. Australian Institute of Health and Welfare. (2016). *Australia's health 2016*. Canberra: Australian



Institute of Health and Welfare.

- Australian Institute of Health and Welfare. (2015). *Cardiovascular disease, diabetes and chronic kidney disease- Australian facts: Aboriginal and Torres Strait Islander people*. Canberra: Australian Institute of Health and Welfare.
- Australian Bureau of Statistics. (2019). *National Aboriginal and Torres Strait Islander Health Survey, 2018-19*. Canberra: Australian Bureau of Statistics.
- Australian Institute of Health and Welfare, & National Indigenous Australians Agency. (2020). *Aboriginal and Torres Strait Islander Health Performance Framework report*. Retrieved 9/12/2020 from <https://www.indigenoushpf.gov.au/>
- Australian Institute of Health and Welfare. (2020). *Incidence of insulin-treated diabetes in Australia*. Retrieved 9 December 2020 from <https://www.aihw.gov.au/reports/diabetes/incidence-of-insulin-treated-diabetes/contents/incidence-of-insulin-treated-diabetes-in-australia>
- Australian Institute of Health and Welfare. (2019). *Diabetes*. Retrieved 30 August 2019 from <https://www.aihw.gov.au/reports/diabetes/diabetes/contents/what-is-diabetes>
- Australian Bureau of Statistics. (2014). *Australian Aboriginal and Torres Strait Islander health survey: biomedical results, 2012-13 - Australia: table 6.3 [data cube]*. Retrieved 10 September 2014 from http://www.abs.gov.au/AUSSTATS/subscriber.nsf/log?openagent&4727.0.55.003_6.xls&4727.0.55.003&Data%20Cu bes&F653985C855EA253CA257D4E00170316&0&2012-13&10.09.2014&Latest
- Australian Government Productivity Commission. (2021). *Report on government services 2021, part E: health*. Canberra: Australian Government Productivity Commission.
- Australian Institute of Health and Welfare. (2020). *Diabetes indicators for the Australian National Diabetes Strategy 2016-2020*. Retrieved 9 December 2020 from <https://www.aihw.gov.au/reports/diabetes/diabetes-indicators-strategy-2016-2020/contents/summary>
- Australian Bureau of Statistics. (2021). *Causes of death, Australia 2020*. From <https://www.abs.gov.au/statistics/health/causes-death/causes-death-australia/2020>

Social and emotional wellbeing

- Gee, G., Dudgeon, P., Schultz, C., Hart, A., & Kelly, K. (2014). *Aboriginal and Torres Strait Islander*

social and emotional wellbeing. In P. Dudgeon, H. Milroy & R. Walker (Eds.), *Working together: Aboriginal and Torres Strait Islander mental health and wellbeing principles and practice* (2nd ed., pp. 55-68). Canberra: Department of The Prime Minister and Cabinet.

- Dudgeon, P., Bray, A., Smallwood, G., Walker, R., & Dalton, T. (2020). *Wellbeing and healing through connection and culture*. Sydney: Lifeline.
- Zubrick, S. R., Shepherd, C. C. J., Dudgeon, P., Gee, G., Paradies, Y., Scrine, C., & Walker, R. (2014). Social determinants of social and emotional wellbeing. In P. Dudgeon, H. Milroy & R. Walker (Eds.), *Working together: Aboriginal and Torres Strait Islander mental health and wellbeing principles and practice* (2nd edition ed., pp. 93-112 (chapter 116)). Canberra: Department of The Prime Minister and Cabinet.
- Dudgeon, P., Collova, J., Sutherland, S., Derry, K., & Milroy, H. (2021). *The impacts of COVID-19 on the wellbeing and mental health of Aboriginal and Torres Strait Islander peoples: a discussion paper*. Perth: Transforming Indigenous Mental Health and Wellbeing Grant, The University of Western Australia, Poche Centre for Indigenous Health.
- Furlong, Y., Finnie, T. (2020). Culture counts: the diverse effects of culture and society on mental health amidst COVID-19 outbreak in Australia. *Irish Journal of Psychological Medicine*, 37(3), 237-242. 10.1017/ipm.2020.37
- Australian Bureau of Statistics. (2019). *National Aboriginal and Torres Strait Islander Health Survey, 2018-19*. Canberra: Australian Bureau of Statistics.
- Australian Institute of Health and Welfare. (2021). *Admitted patients*. Retrieved 28 July 2021 from <https://www.aihw.gov.au/reports-data/myhospitals/sectors/admitted-patients>
- Australian Bureau of Statistics. (2021). *Causes of death, Australia 2020*. From <https://www.abs.gov.au/statistics/health/causes-death/causes-death-australia/2020>

Kidney health

- Kidney Health Australia. (2020). *Know your kidneys*. From <https://kidney.org.au/your-kidneys/know-your-kidneys>
- Australian Institute of Health and Welfare. (2020). *Chronic kidney disease*. Retrieved 15 July 2020 from <https://www.aihw.gov.au/reports/chronic-kidney-disease/chronic-kidney-disease/contents/what-is-chronic-kidney-disease>
- Australian Bureau of Statistics. (2014). *Australian Aboriginal and Torres Strait Islander health survey:*

- biomedical results, 2012-13* (ABS Catalogue no 4727.0.55.003). Canberra: Australian Bureau of Statistics.
4. Australian Bureau of Statistics. (2019). *National Aboriginal and Torres Strait Islander Health Survey, 2018-19*. Canberra: Australian Bureau of Statistics.
 5. Australian and New Zealand Dialysis and Transplant Registry. (2021). *End stage renal disease notifications, by Indigenous status, age, jurisdiction and year [2016 to 2020, unpublished]*. Australian and New Zealand Dialysis and Transplant Registry. Adelaide.
 6. Australian Bureau of Statistics. (2018). *Australian demographic statistics, Jun 2018*. Retrieved 20 December 2018 from <https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3101.0Jun%202018?OpenDocument>
 7. Australian Bureau of Statistics. (2019). *Estimates and projections, Aboriginal and Torres Strait Islander Australians, 2006 to 2031*. Canberra: Australian Bureau of Statistics.
 8. Australian Bureau of Statistics. (2003). *Australian demographic statistics quarterly: September quarter 2002* (ABS catalogue no. 3101.0). Canberra: Australian Bureau of Statistics.
 9. Australian Institute of Health and Welfare (2020). *Aboriginal and Torres Strait Islander Health Performance Framework 2020 summary report*. Canberra: Australian Institute of Health and Welfare.
 10. National Aboriginal Community Controlled Health Organisation, & Royal Australian College of General Practitioners. (2018). *National guide to a preventive health assessment for Aboriginal and Torres Strait Islander people: 3rd edition*. East Melbourne: Royal Australian College of General Practitioners.
 11. Steering Committee for the Review of Government Service Provision. (2020). *Overcoming Indigenous disadvantage: key indicators 2020*. Canberra: Productivity Commission.
 12. Hughes, J. T., Dembski, L., Kerrigan, V., Majoni, S. W., Lawton, P. D., & Cass, A. (2018). Gathering Perspectives - finding solutions for chronic and end stage kidney disease. *Nephrology*, 23(S1), 5-13.
 13. Garrard, E., & McDonald, S. (2019). *Improving access to and outcomes of kidney transplantation for Aboriginal and Torres Strait Islander people in Australia: performance report*. Sydney: The Transplantation Society of Australia and New Zealand.
 14. Schwartzkopff, K. M., Kelly, J., & Potter, C. (2020). Review of kidney health among Aboriginal and Torres Strait Islander people. *Australian Indigenous Health Bulletin*, 20(4). Retrieved from: <http://healthbulletin.org.au/articles/review-of-kidney-health-among-aboriginal-and-torres-strait-islander-people/>
 15. Kidney Health Australia. (2020). *Chronic kidney disease (CKD) management in primary care: 4th edition*. Melbourne: Kidney Health Australia.
 16. Australian Institute of Health and Welfare (2021). Admitted patients. Retrieved from: <https://www.aihw.gov.au/reports-data/myhospitals/sectors/admitted-patients>
 17. Australia and New Zealand Dialysis and Transplant Registry (2021). *The forty-fourth annual Australia and New Zealand Dialysis and Transplant Registry report 2021*. Adelaide: Australia and New Zealand Dialysis and Transplant Registry.
 18. Australia and New Zealand Dialysis and Transplant Registry. (2020). *The forty-third annual Australia and New Zealand Dialysis and Transplant Registry report 2020*. Adelaide: Australia and New Zealand Dialysis and Transplant Registry.
 19. Australian Bureau of Statistics (2021). Causes of death, Australia 2020. Retrieved from: <https://www.abs.gov.au/statistics/health/causes-death/causes-death-australia/2020>
 20. Australian Government Productivity Commission (2021). *Report on government services 2021, part E: health*. Canberra: Australian Government Productivity Commission.

Respiratory health

1. World Health Organization. (2017). *About chronic respiratory diseases*. Retrieved 2017 from http://www.who.int/respiratory/about_topic/en/
2. World Health Organization. (2016). *What are social determinants of health?* Retrieved 2016 from http://www.who.int/social_determinants/sdh_definition/en/
3. Australian Institute of Health and Welfare. (2016). *Australian Burden of Disease Study: impact and causes of illness and death in Aboriginal and Torres Strait Islander people 2011* (Australian Burden of Disease Study series no. 6, Cat no. BOD 7). Canberra: Australian Institute of Health and Welfare.
4. Australian Bureau of Statistics. (2019). *National Aboriginal and Torres Strait Islander Health Survey, 2018-19*. Canberra: Australian Bureau of Statistics.
5. Australian Institute of Health and Welfare. (2010). *Asthma, chronic obstructive pulmonary disease and other respiratory diseases in Australia* (AIHW Catalogue no ACM 20). Canberra: Australian



Institute of Health and Welfare.

6. Janu, E. K., Annabattula, B. I., Kumariah, S., Zajackowska, M., Whitehall, J. S., Edwards, M. J., . . . Masters, I. B. (2014). Paediatric hospitalisations for lower respiratory tract infections in Mount Isa. *Medical Journal of Australia*, 200(10), 591-594.
7. Hall, K. K., Chang, A. B., Anderson, J., Dunbar, M., Arnold, D., & O'Grady, K. F. (2017). Characteristics and respiratory risk profile of children aged less than 5 years presenting to an urban, Aboriginal-friendly, comprehensive primary health practice in Australia. *Journal of Paediatrics and Child Health*, 53(7), 636-643.
8. Steering Committee for the Review of Government Service Provision. (2020). *Overcoming Indigenous disadvantage: key indicators 2020*. Canberra: Productivity Commission.
9. Australian Bureau of Statistics. (2021). *Causes of death, Australia 2020*. Retrieved from <https://www.abs.gov.au/statistics/health/causes-death/causes-death-australia/2020>

Sexually transmitted infections

1. Australian Government Department of Health. (2018). *Fourth National Sexually Transmissible Infections Strategy 2018-2022*. Canberra: Australian Government Department of Health.
2. The Kirby Institute. (2020). *Australia's annual report card: Aboriginal & Torres Strait Islander people report*. Retrieved 2020 from <https://data.kirby.unsw.edu.au/atsi-report>

Environmental Health

1. Steering Committee for the Review of Government Service Provision. (2020). *Overcoming Indigenous disadvantage: key indicators 2020*. Canberra: Productivity Commission.
2. Australian Government Department of Health. (2019). *Report card for the implementation plan for the National Aboriginal and Torres Strait Islander Health Plan 2013-2023*. Canberra: Australian Government Department of Health.
3. Clifford, H. D., Pearson, G., Franklin, P., Walker, R., & Zosky, G. R. (2015). Environmental health challenges in remote Aboriginal Australian communities: clean air, clean water and safe housing. *Australian Indigenous Health Bulletin*, 15(2), 1-14.
4. Lansbury Hall, N., Memmott, P., Barnes, S.,

Redmond, A., Go-Sam, C., Nash, D., . . . Simpson, P. (2020). *Pilyii papulu purrukaj-ji (good housing to prevent sickness): a study of housing, crowding and hygiene-related infectious diseases in the Barkly Region, Northern Territory*. Brisbane: University of Queensland Global Change Institute.

5. enHealth. (2010). *Environmental health practitioner manual: a resource manual for environmental health practitioners working with Aboriginal and Torres Strait Islander communities*. Canberra: Australian Government Department of Health.
6. Australian Bureau of Statistics. (2018). *Census of population and housing: characteristics of Aboriginal and Torres Strait Islander Australians, 2016*.

Tobacco use

1. Australian Health Ministers' Advisory Council. (2017). *Aboriginal and Torres Strait Islander Health Performance Framework: 2017 report*. Canberra: Department of the Prime Minister and Cabinet.
2. Australian Bureau of Statistics. (2019). *National Aboriginal and Torres Strait Islander Health Survey, 2018-19*. Canberra: Australian Bureau of Statistics.
3. Australian Bureau of Statistics. (2016). *National Aboriginal and Torres Strait Islander Social Survey, 2014-15*. Canberra: Australian Bureau of Statistics.
4. Australian Institute of Health and Welfare. (2021). *Australian Burden of Disease Study 2018: key findings for Aboriginal and Torres Strait Islander people* (Cat. no: BOD 28). Canberra: Australian Institute of Health and Welfare.
5. Cohen, R., Maddox, R., Sedgwick, M., Thurber, K. A., Brinckley, M. M., Barrett, E. M., & Lovett, R. (2021). Tobacco related attitudes and behaviours in relation to exposure to the Tackling Indigenous Smoking program: evidence from the Mayi Kuwayu study. *International Journal of Environmental Research and Public Health*, 18(20). Retrieved from: <https://doi.org/10.3390/ijerph182010962>
6. Australian Institute of Health and Welfare. (2021). *Australia's mothers and babies [web report]*. Retrieved 18 November 2021 from <https://www.aihw.gov.au/reports/mothers-babies/australias-mothers-babies/contents/summary>

Alcohol use

1. Australian Government Department of Health. (2017). *National drug strategy 2017-2026*. Canberra: Australian Government Department of Health.
2. Australian Institute of Health and Welfare. (2020). *National Drug Strategy Household Survey 2019*

- (Drug Statistics series no. 32. PHE 270). Canberra: Australian Institute of Health and Welfare.
3. National Health and Medical Research Council. (2020). *Australian guidelines to reduce health risks from drinking alcohol*. Canberra: National Health and Medical Research Council.
 4. Australian Bureau of Statistics. (2019). *National Aboriginal and Torres Strait Islander Health Survey, 2018-19*. Canberra: Australian Bureau of Statistics.
 5. Steering Committee for the Review of Government Service Provision. (2020). *Overcoming Indigenous disadvantage: key indicators 2020*. Canberra: Productivity Commission.
 6. Australian Institute of Health and Welfare, & National Indigenous Australians Agency. (2020). *Aboriginal and Torres Strait Islander Health Performance Framework report*. Retrieved 9/12/2020 from <https://www.indigenoushpf.gov.au/>
 9. Australian Institute of Health and Welfare. (2021). *Alcohol and other drug treatment services in Australia annual report*. Retrieved 16 July 2021 from <https://www.aihw.gov.au/reports/alcohol-other-drug-treatment-services/alcohol-other-drug-treatment-services-australia/contents/about>
 10. Steering Committee for the Review of Government Service Provision (2020). *Overcoming Indigenous disadvantage: key indicators 2020*. Canberra: Productivity Commission.
 11. Penington Institute. (2021). *Australia's annual overdose report 2021*. Melbourne: Penington Institute.
 13. National Drug and Alcohol Research Centre. (2016). *What are inhalants?* (pp. 2). Sydney: National Drug and Alcohol Research Centre.
 12. Marel, C., MacLean, S., & Midford, R. (2016). *Review of volatile substance use among Aboriginal and Torres Strait Islander people* (Australian Indigenous HealthReviews no. 15). Perth: Australian Indigenous HealthInfoNet.

Illicit drug use

1. Stafford, J., & Breen, C. (2016). *Australian drug trends 2015: findings from the Illicit Drug Reporting System (IDRS)* (Australian Drug Trend Series no. 145). Sydney: National Drug and Alcohol Research Centre.
2. Australian Government Department of Health. (2017). *National drug strategy 2017-2026*. Canberra: Australian Government Department of Health.
3. Degenhardt, L., & Hall, W. (2012). Extent of illicit drug use and dependence, and their contribution to the global burden of disease. *The Lancet*, 379(9810), 55-70.
4. Australian Institute of Health and Welfare. (2016). *Australian Burden of Disease Study: impact and causes of illness and death in Aboriginal and Torres Strait Islander people 2011* (Australian Burden of Disease Study series no. 6, Cat no. BOD 7). Canberra: Australian Institute of Health and Welfare.
5. The Kirby Institute. (2018). *Bloodborne viral and sexually transmissible infections in Aboriginal and Torres Strait Islander people: annual surveillance report 2018*. Sydney: The Kirby Institute.
6. Australian Bureau of Statistics. (2016). *National Aboriginal and Torres Strait Islander Social Survey, 2014-15*. Canberra: Australian Bureau of Statistics.
7. Australian Bureau of Statistics. (2019). *National Aboriginal and Torres Strait Islander Health Survey, 2018-19*. Canberra: Australian Bureau of Statistics.
8. Australian Institute of Health and Welfare. (2020). *National Drug Strategy Household Survey 2019* (Drug Statistics series no. 32. PHE 270). Canberra: Australian Institute of Health and Welfare.
14. Australian Institute of Health and Welfare. (2018). *Aboriginal and Torres Strait Islander Health Performance Framework (HPF) report 2017*. Retrieved 5 December 2018 from <https://webarchive.nla.gov.au/awa/20190508233549/https://www.aihw.gov.au/reports/indigenous-health-welfare/health-performance-framework/contents/overview>
15. d'Abbs, P., Gillick, V., Hodson, S., Kavanagh, M., Payne, S., & Ray, T. (2019). *Longitudinal research into petrol sniffing and other substance abuse trends in Indigenous communities: final report*. Brisbane: The University of Queensland.

Core funding
is provided by the
Australian Government
Department of Health