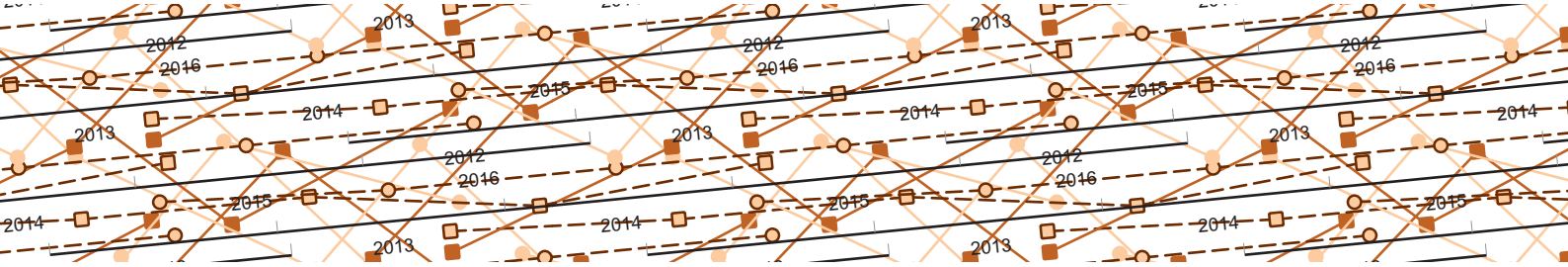
Bloodborne viral and sexually transmissible infections in Aboriginal and Torres Strait Islander people

Annual Surveillance Report 2017



UNSW SYDNEY

Kirby Institute

ISSN 2206-1622 (Online)

This publication and associated data are available at internet address kirby.unsw.edu.au

Suggested citation:
Kirby Institute. Bloodborne viral and sexually transmissible infections in Aboriginal and Torres Strait Islander people: annual surveillance report 2017. Sydney: Kirby Institute, UNSW Sydney; 2017.

Copy editor Juliet Richters, www.julietrichters.com.au
Design il Razzo, Email: admin@ilrazzo.com.au

The Kirby Institute for infection and immunity in society
UNSW Sydney, Sydney, NSW 2052

Telephone: 02 9385 0900 (International +61 2 9385 0900)
Email: recpt@kirby.unsw.edu.au

Bloodborne viral and sexually transmissible infections in Aboriginal and Torres Strait Islander people

Annual Surveillance Report 2017

Prepared by:

Muhammad Shahid Jamil
Praveena Gunaratnam
Hamish McManus
Rebecca Guy

for the Kirby Institute

Other contributors:

- Office of Health Protection, Australian Government Department of Health
- State/territory health departments
- Aditi Dey, Frank Beard, National Centre for Immunisation Research and Surveillance
- Denton Callander, Jane Costello, Jennifer Iversen, Kate Whitford, Melanie Simpson, Robert Monaghan, The Kirby Institute, UNSW Sydney
- James Ward, South Australian Health and Medical Research Institute

in collaboration with Australian networks in surveillance of HIV, viral hepatitis and sexually transmissible infections

The Kirby Institute is affiliated with the Faculty of Medicine, UNSW Sydney. It is funded by the Australian Government Department of Health to conduct national surveillance and epidemiological analyses to support the implementation of the five national strategies related to HIV, hepatitis B, hepatitis C, sexually transmissible infections, and the response to these infections in the Aboriginal and Torres Strait Islander population.

Contents

Preface

This report provides information on the occurrence of bloodborne viruses and sexually transmissible infections among the Aboriginal and Torres Strait Islander population in Australia. The report is published by the Kirby Institute for the purposes of stimulating and supporting discussion on ways to minimise the risk of transmission of these infections as well as the personal and social consequences within Aboriginal and Torres Strait Islander communities.

This report is published annually as an accompanying document to the *HIV, viral hepatitis and sexually transmissible infections in Australia: annual surveillance report*[1] and is overseen by the National Aboriginal Community Controlled Health Organisation (NACCHO) and the Annual Surveillance Report Advisory Committee.

The report is produced for use by a wide range of health service providers and consumers, and particularly Aboriginal and Torres Strait Islander health services and communities. It is available in hard copy (see inside front cover for contact details to request a copy) and at **kirby.unsw.edu.au.** Data tables and graphs are also available online at **kirby.unsw.edu.au**.

Unless specifically stated otherwise, all data provided in this report are to the end of 2016, as reported by 31 March 2017. Data in the report are provisional and subject to future revision.

The report could not have been prepared without the collaboration of a large number of organisations involved in health services throughout Australia. The ongoing contribution of these organisations, listed in the Acknowledgments, is gratefully acknowledged.

Abbreviations

ABS	Australian Bureau of Statistics
AIDS	acquired immune deficiency syndrome
BBV	bloodborne virus
HBsAg	hepatitis B surface antigen
HBV	hepatitis B virus
HCV	hepatitis C virus
HIV	human immunodeficiency virus
HPV	human papillomavirus
STI	sexually transmissible infection

Medical and epidemiological terms

age-standardised rate of infection: The proportion of infected people in a particular population, adjusted mathematically to account for the age structure of the population so that comparisons can be made between populations with different age structures (i.e. with more or fewer younger people).

AIDS: Acquired immunodeficiency syndrome, the spectrum of conditions caused by damage to the immune system in advanced HIV infection.

area of residence: Locations of residence, indicated by postcode, are classified into one of three categories: major cities, inner or outer regional areas, and remote or very remote areas (i.e. areas with relatively unrestricted, partially restricted and restricted access to goods and services).

bacterium: A type of single-celled micro-organism. Some bacteria cause illness in humans, and most can be treated with antibiotics.

chlamydia: A sexually transmissible infection caused by a bacterium (*Chlamydia trachomatis)*. The infection causes no symptoms in about 80% of cases. In people with symptoms, the infection causes inflammation of the urethra (the tube through which urine passes out of the body), leading to some pain and penile discharge in men, and to painful urination and bleeding between menstrual periods in women. Complications of chlamydia can be serious for women, including pelvic inflammatory disease, ectopic pregnancy and infertility. Throat and anal infections do not usually cause symptoms. Chlamydia is curable by antibiotics.

congenital: An infection or other condition existing since the person's birth. Congenital conditions are not necessarily genetically inherited; some are infections that are transmitted between mother and fetus or newborn.

diagnosis: A labelling or categorisation of a condition, usually by a doctor or other healthcare professional, on the basis of testing, observable signs and symptoms reported by the patient. 'Newly diagnosed infection' means that a person previously not known to have the infection has been tested and now found to have the infection.

donovanosis: A sexually transmissible infection caused by a bacterium, *Klebsiella* (or *Calymmatobacterium*) *granulomatis*. The most common symptom is the presence of one or more painless ulcers or lesions in the genital or anal regions. If not treated, the ulcers or lesions can progress and become complicated by other bacterial infections, ultimately resulting in damage to the affected part of the body. Donovanosis is curable by antibiotics. Donovanosis was once common in central and northern Australia, and is now very rare.

gonorrhoea: A sexually transmissible infection caused by a bacterium (*Neisseria gonorrhoeae*). Gonorrhoea has no symptoms in about 80% of women and 50% of men. Symptoms are similar to those of chlamydia, as are the complications. Most men with urethral gonorrhoea will eventually develop symptoms. Throat and anal infections do not usually cause symptoms. Gonorrhoea can be cured with antibiotics.

hepatitis B virus infection: A viral infection transmissible by blood and sexual contact, from mother to child at birth, and in institutional settings. Most healthy adults will not have any symptoms and are able to get rid of the virus without any problems. Some adults are unable to get rid of the virus, leading to chronic infection. The focus of this report is chronic hepatitis B infection. 'Newly diagnosed' hepatitis B infection means that a person previously not known to have the infection has been tested and now found to have the infection. 'Newly acquired' infections are those that have been acquired within the past two years.

hepatitis C virus infection: A viral infection transmissible by blood contact as well as from mother to newborn. Most healthy adults will not have any symptoms and are able to get rid of the virus without any problems. Some adults are unable to get rid of the virus, leading to chronic infection. The focus of this report is chronic hepatitis C infection. 'Newly diagnosed' hepatitis C infection means that a person previously not known to have the infection has been tested and now found to have the infection. 'Newly acquired' infections are those that have been acquired within the past two years.

human immunodeficiency virus (HIV) infection: HIV is transmissible by sexual and blood contact as well as from mother to child. If untreated, HIV infection can progress to AIDS. 'Newly diagnosed' HIV infection means that a person previously not known to have the infection has been tested and now found to have the infection. 'Newly acquired' HIV infection means the person has become infected within the past year. Primary HIV infection (or seroconversion illness) is a flu-like illness soon after infection with HIV.

human papillomavirus (HPV) infection: Of over 140 types of HPV that infect humans, about 40 affect the anal and genital area, mostly without causing any disease. This subset of HPV types is sexually transmissible and is occasionally transmitted from mother to child. Two HPV types (6 and 11) cause most genital warts. Two other HPV types (16 and 18) cause most cervical and anal cancers, and an increasing proportion of mouth and throat cancers. Many less common HPV types also occasionally cause cancers. Most people acquire at least one genital HPV infection through their lives, but the great majority clear the infection.

infection: The condition of having bacteria or viruses multiplying in the body. Many infections cause no symptoms, so the person may be unaware they have an infection unless they are tested.

notifiable disease: A disease is notifiable if doctors and/or laboratories are required to report cases to the authorities for disease surveillance, i.e. monitoring of disease at population level.

person-years: A measure of the incidence of a condition (e.g. a disease or pregnancy) over variable time periods. If 100 people are exposed to the risk of an infection for a year, or 50 people are exposed for two years, the number of infections can be reported 'per 100 person-years'.

symptom: A physical or mental indication of a disease or condition experienced by the patient.

syphilis, infectious: An infection caused by the bacterium *Treponema pallidum*. It is transmissible by sexual contact as well as from mother to child. Congenital syphilis occurs when the fetus is infected during pregnancy. Infectious syphilis is defined as infection of less than two years' duration. The main symptoms include a painless ulcer at the site of infection within the first few weeks of infection, followed by other symptoms (e.g. rash) a couple of months later. Often symptoms are not noticed. In the absence of treatment, there will then be a period of several years without any symptoms, with a chance of a range of complications over decades that can involve the skin, bone, central nervous system and cardiovascular system. Infectious syphilis is fully curable with a single injection of long-acting penicillin.

virus: A very small microscopic infectious agent that multiplies inside living cells. Antibiotics are not effective against viral infections, so treatment requires antiviral drugs.

For more information on sexually transmissible infections see the *Australian STI management guidelines for use in primary care*.[2]

Summary

HIV infection

- In Australia, HIV is mostly transmitted sexually, but also through injecting risk behaviour.
- In 2016, there were 46 new HIV diagnoses in Aboriginal and Torres Strait Islander people in Australia, accounting for 5% of all HIV diagnoses (1013) and increasing from 33 new diagnoses in 2012.
- Aboriginal and Torres Strait Islander status completeness was high (>92%) for HIV notifications in all health jurisdictions for each of the past 10 years, and therefore data from all state and territories are included.
- The age-standardised rate of HIV notifications in the Aboriginal and Torres Strait Islander population increased by 33% from 4.8 per 100 000 in 2012 to 6.4 per 100 000 in 2016 compared to a 22% decline over five years in the Australian-born non-Indigenous population. In 2016 the notification rate was 2.2 times as high as in the Australian-born non-Indigenous population (2.9 per 100 000).
- In 2016, the HIV notification rate in Aboriginal and Torres Strait Islander people was 6.7 per 100 000 people aged 35 years and above and 5.7 per 100 000 of those aged under 35 years. In both age groups the rate was more than twice the rate among Australian-born non-Indigenous people.
- HIV notification rates in Aboriginal and Torres Strait Islander males were stable between 2007 and 2011, but increased by 90% from 6.2 per 100 000 in 2011 to 11.7 per 100 000 in 2016. The HIV notification rate in the Australian-born non-Indigenous male population fell by 15% in the same period (from 6.6 per 100 000 in 2011 to 5.6 per 100 000 in 2016).
- In the past five years, a higher proportion of HIV diagnoses among the Aboriginal and Torres Strait Islander population were attributed to heterosexual sex (20%) and injecting drug use (14%) than in the Australian-born non-Indigenous population (15% and 3%, respectively).
- There were an estimated 574 Aboriginal and Torres Strait Islander people with HIV in Australia in 2016. Of those, an estimated 111 (20%) were undiagnosed, compared to an estimated 7% of Australian-born non-Indigenous people with HIV.
- Based on the test for immune function (CD4+ cell count), a quarter (26%) of the new HIV diagnoses among Aboriginal and Torres Strait Islander people in 2016 were classified as late diagnoses (CD4+ cell count of less than 350 cells/μL). These diagnoses are likely to have been in people who had acquired HIV at least four years prior to diagnosis without being tested.
- For detailed findings see pp. 18–27.

Hepatitis C infection

- In Australia, hepatitis C transmission is strongly associated with injecting risk behaviour.
- There were 11 949 hepatitis C diagnoses in Australia in 2016, of which 1122 (9%) were among the Aboriginal and Torres Strait Islander population, 4414 (37%) among the non-Indigenous population, and a further 6431 (54%) in people whose Indigenous status was not reported.
- Notification rates were based on data from five jurisdictions (the Northern Territory, Queensland, South Australia, Tasmania and Western Australia) where Aboriginal and Torres Strait Islander status was at least 50% complete for hepatitis C notifications for each of the past five years (2012–2016).
- The rate of hepatitis C diagnoses in the Aboriginal and Torres Strait Islander population in 2016 was 173 per 100 000, 3.8 times as high as the 45 per 100 000 in the non-Indigenous population.
- In the past five years, there was a 25% increase in the notification rate of hepatitis C diagnoses in the Aboriginal and Torres Strait Islander population (from 138 per 100 000 in 2012 to 173 per 100 000 in 2016), whereas the rate in the non-Indigenous population remained stable (43 per 100 000 in 2012 and 45 per 100 000 in 2016).
- The rate of newly acquired hepatitis C (hepatitis C diagnosis with evidence of acquisition in the 24 months prior to diagnosis) in the Aboriginal and Torres Strait Islander population in 2016 was 13.4 times that of the non-Indigenous population (29.5 vs 2.2 per 100 000, respectively).
- Receptive syringe sharing, a key risk factor for hepatitis C transmission, increased by 56% over the past 10 years (18% in 2007 to 28% in 2016) among Aboriginal and Torres Strait Islander respondents to the Australian Needle and Syringe Program Survey and was higher than among non-Indigenous survey respondents in 2016 (17%).
- Among Aboriginal and Torres Strait Islander respondents to the Australian Needle and Syringe Program Survey in 2016, 18% of those who self-reported having chronic hepatitis C had received treatment in the past 12 months, a sixfold increase from 3% in 2015 but a lower proportion than among non-Indigenous respondents in 2016 (23%).
- For detailed findings see pp. 28–47.

Hepatitis B infection

- Hepatitis B in adolescents and adults is transmitted through a variety of pathways, including both injecting drug use and sexual transmission. However, most Australians living with chronic hepatitis B acquired it at birth or in early childhood.

- There were 6555 diagnoses of hepatitis B infection in Australia in 2016, of which 176 (3%) were among Aboriginal and Torres Strait Islander people and 2718 (41%) were among non-Indigenous people. There were a further 3661 (56%) notifications for which Indigenous status was not reported.

- Notification rates are based on data from five jurisdictions (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia), where Aboriginal and Torres Strait Islander status was at least 50% complete for hepatitis B notifications for each the past five years (2012–2016).

- In the past five years (2012–2016), the notification rate of newly diagnosed hepatitis B infection in the Aboriginal and Torres Strait Islander population halved from 62 per 100 000 in 2012 to 31 per 100 000 in 2016, with declines in all age groups but the greatest decline in people under 40 years of age.

- In 2016, the notification rate of newly diagnosed hepatitis B infection for the Aboriginal and Torres Strait Islander population was 1.3 times as high as for the non-Indigenous population (31 per 100 000 vs 23 per 100 000, respectively). This represents a decrease from 2012, when the notification rate of newly diagnosed hepatitis B infection for the Aboriginal and Torres Strait Islander population was 2.6 times as high as for the non-Indigenous population (62 per 100 000 vs 24 per 100 000).

- Data from linkage studies among pregnant Aboriginal women in the Northern Territory and New South Wales show hepatitis B prevalence rates are much lower in women born from 1988 onwards, when childhood hepatitis B vaccination was introduced, than in those born in the pre-vaccine period, with reductions of around 80%.

- For detailed findings see pp. 48–63.

Sexually transmissible infections

- For detailed findings see pp. 64–93.

Chlamydia

- Chlamydia is the most frequently diagnosed sexually transmissible infection in Australia. In 2016, there were a total of 71 751 chlamydia notifications in Australia, of which 6925 (10%) were among the Aboriginal and Torres Strait Islander population, 29 094 (41%) were among the non-Indigenous population, and Aboriginal and Torres Strait Islander status was not reported for 35 732 (50%) notifications. Data for 2015 and 2016 from Victoria were unavailable at the time of reporting.

- Notification rates are based on data from four jurisdictions (the Northern Territory, Queensland, South Australia and Western Australia), where Aboriginal and Torres Strait Islander status was at least 50% complete for chlamydia notifications for each of the past five years (2012–2016).

- The chlamydia notification rate for the Aboriginal and Torres Strait Islander population of 1194 per 100 000 people in 2016 was 2.8 times that of the non-Indigenous notification rate (419 per 100 000), increasing to five times higher in remote/very remote areas.

- In 2016, 81% of notifications among the Aboriginal and Torres Strait Islander population were in people aged 15–29 years compared with 77% in the non-Indigenous population.

- The chlamydia notification rate in Australia in both the Aboriginal and Torres Strait Islander population and the non-Indigenous population has remained relatively stable since 2012, with variation by jurisdiction.

Gonorrhoea

- There were a total of 23 887 gonorrhoea notifications in Australia in 2016, of which 3779 (16%) were in the Aboriginal and Torres Strait Islander population, 11 658 (49%) were in the non-Indigenous population, and 8450 (35%) were in people whose Aboriginal and Torres Strait Islander status was not reported.

- Notification rates are based on data from seven jurisdictions (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia), where Aboriginal and Torres Strait Islander status was at least 50% complete for gonorrhoea notifications for each of the past five years (2012–2016).

- In 2016, the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population was nearly seven times that of the non-Indigenous population (582 vs 84 per 100 000 population), increasing to 30 times higher in remote and very remote areas.

- In 2016, 71% of cases of gonorrhoea among Aboriginal and Torres Strait Islander population were diagnosed among people aged 15–29 years compared with 53% in the non-Indigenous population.

- In Aboriginal and Torres Strait Islander people, the number of gonorrhoea diagnoses among men and women was nearly equal in 2016. In contrast, diagnoses in non-Indigenous people are predominantly in men, in urban settings.

Syphilis

- There were a total of 3367 infectious syphilis notifications in Australia in 2016, of which 530 (16%) notifications were among Aboriginal and Torres Strait Islander people, 2502 (74%) were among the non-Indigenous population, and 335 (10%) for people whose Aboriginal and Torres Strait Islander status was not reported.

- Infectious syphilis notification rates include all jurisdictions, as Aboriginal and Torres Strait Islander status was at least 50% complete for infectious syphilis notifications for each of the 10 years 2007–2016.

- In 2016, the infectious syphilis notification rate in the Aboriginal and Torres Strait Islander population was 5.4 times as high as the non-Indigenous population (67 vs 12 per 100 000 population), increasing to 50 times as high in remote and very remote areas.

- In 2016, 60% of infectious syphilis notifications among the Aboriginal and Torres Strait Islander population were among people aged 15–29 years compared with 32% in the non-Indigenous population.

- The notification rate of infectious syphilis among the Aboriginal and Torres Strait Islander population declined by 39% between 2007 and 2009, and then increased threefold between 2010 and 2016 from 22 per 100 000 in 2010 to 67 per 100 000 in 2016.

- Between 2012 and 2016, the greatest increase in the notification rate of infectious syphilis among the Aboriginal and Torres Strait Islander population was in the 20–29 years age group, from 56 per 100 000 to 149 per 100 000.

- In Aboriginal and Torres Strait Islander people, the number of infectious syphilis notifications among men and women was nearly equal in 2016. In contrast, diagnoses in non-Indigenous people are predominantly in men, in urban settings.

- There were 16 congenital syphilis cases over the period 2012–2016, of which 10 (63%) were in the Aboriginal and Torres Strait Islander population. The notification rate of congenital syphilis in the Aboriginal and Torres Strait Islander population was 5.4 per 100 000 live births in 2016, which is 18 times as high as the rate of 0.3 per 100 000 in the non-Indigenous population.

Donovanosis

- In the five years 2012–2016 there have been only two notifications of donovanosis, one in 2012 and one in 2014.

Human papillomavirus

- Since the national vaccination program for human papillomavirus (HPV) was introduced in 2007, there has been a large reduction in the proportion of Aboriginal and Torres Strait Islander people at their first visit at sexual health clinics being diagnosed with genital warts, a drop of 88% among men and 100% among women aged 21 years or younger.

Interpretation

The higher and increasing rate of both HIV and hepatitis C diagnoses in Aboriginal and Torres Strait Islander people in the past five years is in contrast to declining HIV rate in Australian-born non-Indigenous population and stable hepatitis C rate in the non-Indigenous population. The divergence in HIV rates possibly relates to a number of factors including higher levels of condomless anal sex among Aboriginal and Torres Strait Islander gay and bisexual men,[4] less access to and uptake of biomedical prevention strategies, and a difference in the HIV epidemiology, with a higher proportion of HIV diagnoses among Aboriginal and Torres Strait Islander people attributed to heterosexual sex and injecting drug use.

The higher rates of hepatitis C diagnosis in Aboriginal and Torres Strait Islander people may reflect differences in injecting practices, and in particular higher rates of syringe sharing. The difference could also be accounted for by disportionate rates of Aboriginal and Torres Strait Islander people being in prison each year, a setting where hepatitis C screening generally occurs on entry. Increases in HIV and hepatitis C diagnosis rates demonstrate the need for additional culturally appropriate prevention measures in this vulnerable population, as outlined in the national strategies.[5–9]

The decline in hepatitis B diagnoses in younger Aboriginal and Torres Strait Islander people suggests that immunisation programs for hepatitis B have had a clear benefit and have reduced the gap in hepatitis B diagnosis rates between Aboriginal and Torres Strait Islander people and the non-Indigenous population. However, hepatitis B notification rates in Aboriginal and Torres Strait Islander people in older age groups remain high compared to the non-Indigenous population, highlighting the need for a continued focus on hepatitis B testing and vaccination among Aboriginal and Torres Strait Islander people.

There has been some success in controlling sexually transmissible diseases (STIs) in Aboriginal and Torres Strait Islander people. Donovanosis, once a frequently diagnosed STI among remote Aboriginal populations, is now close to elimination, and genital warts, once the most common STI managed at sexual health clinics, have declined by 88% in Aboriginal and Torres Strait Islander men and 100% in Aboriginal and Torres Strait Islander women at their first visit since the introduction of a national vaccination program for HPV in 2007.

In contrast, rates of chlamydia, gonorrhoea and infectious syphilis were three to seven times as high in Aboriginal and Torres Strait Islander people in 2016 as in the non-Indigenous population, with the difference greater in remote/very remote areas. Since 2011, there has also been a resurgence of infectious syphilis in regional and remote communities after years of declining rates, in the Northern Territory, Queensland, South Australia and Western Australia. This resurgence has also brought cases of congenital syphilis, which in 2016 was 18 times as common among Aboriginal and Torres Strait Islander babies as among non-Indigenous babies. Considerable efforts are under way to control syphilis in the affected jurisdictions. There is an ongoing need for health promotion and strategies to detect infections early.

Social determinants of health, such as poverty and discrimination, can also influence risk factors for bloodborne viruses and STIs as well as health service utilisation amongst Aboriginal and Torres Strait Islander people,[10] and must be addressed in the development of culturally appropriate and relevant prevention, testing and treatment strategies.

Overview

Aboriginal and Torres Strait Islander status completeness

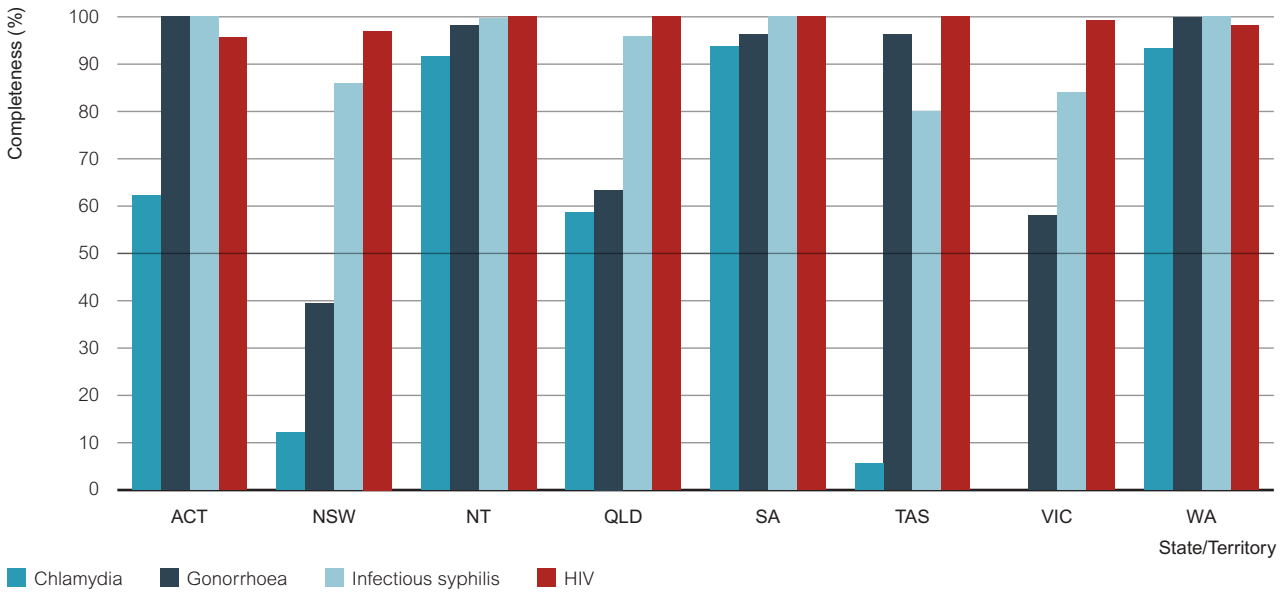
Incomplete information on Aboriginal and Torres Strait Islander identification has the potential to underestimate the true extent of bloodborne virus and sexually transmissible infections in the Aboriginal and Torres Strait Islander population.

In 2016, all jurisdictions reported the Aboriginal and Torres Strait Islander status of the patient for at least 50% of diagnoses of HIV, infectious syphilis, newly acquired hepatitis C and newly acquired hepatitis B (infections acquired within the last two years). However, Aboriginal and Torres Strait Islander status was reported for less than 50% of diagnoses in the following jurisdictions (Figures 1 and 2):

- **Chlamydia:** New South Wales, Tasmania and Victoria
- **Newly diagnosed hepatitis B:** New South Wales, Victoria and Queensland
- **Newly diagnosed hepatitis C:** New South Wales and Victoria.
- **Gonorrhoea:** New South Wales

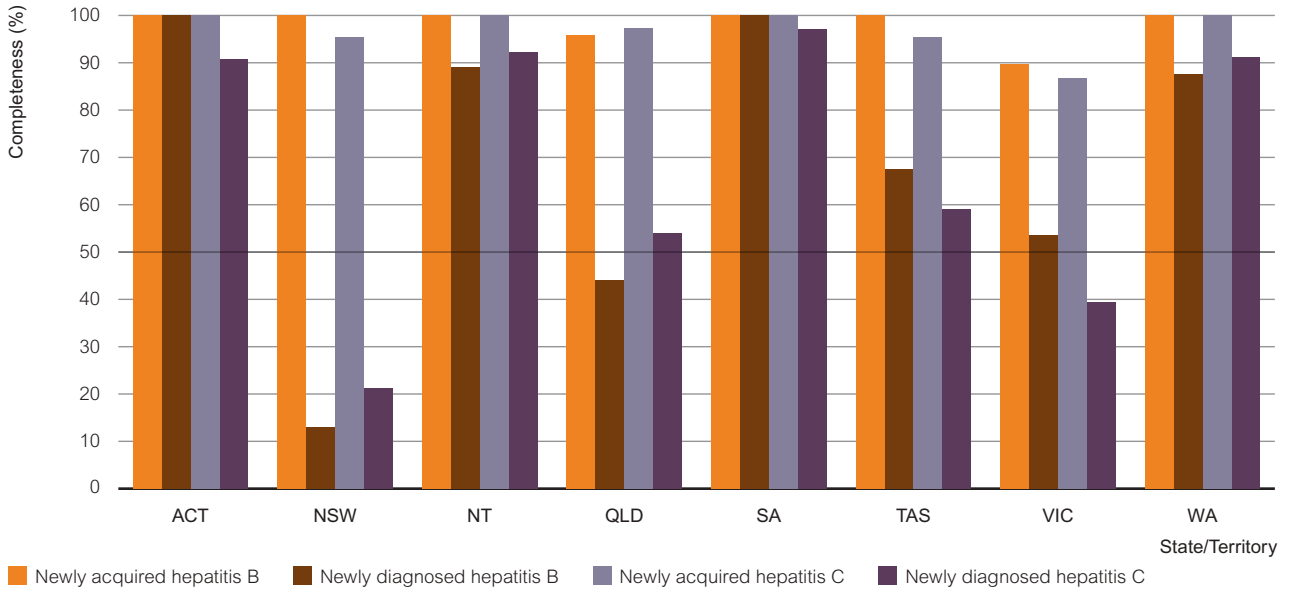
Time trends in diagnoses of specific infections by jurisdiction were included in this report if information on Aboriginal and Torres Strait Islander status was available for at least 50% of diagnoses of the infection in every one of the past five years. Jurisdictions which met the 50% threshold in 2016 (Figures 1 and 2) but not in other years were not included in this report.

Figure 1 Reporting of Aboriginal and Torres Strait Islander status at notification, for selected sexually transmissible infections, 2016, by state or territory



Source: National Notifiable Diseases Surveillance System. (See Methodology for details.)

Figure 2 Reporting of Aboriginal and Torres Strait Islander status at notification of viral hepatitis diagnosis, 2016, by state or territory

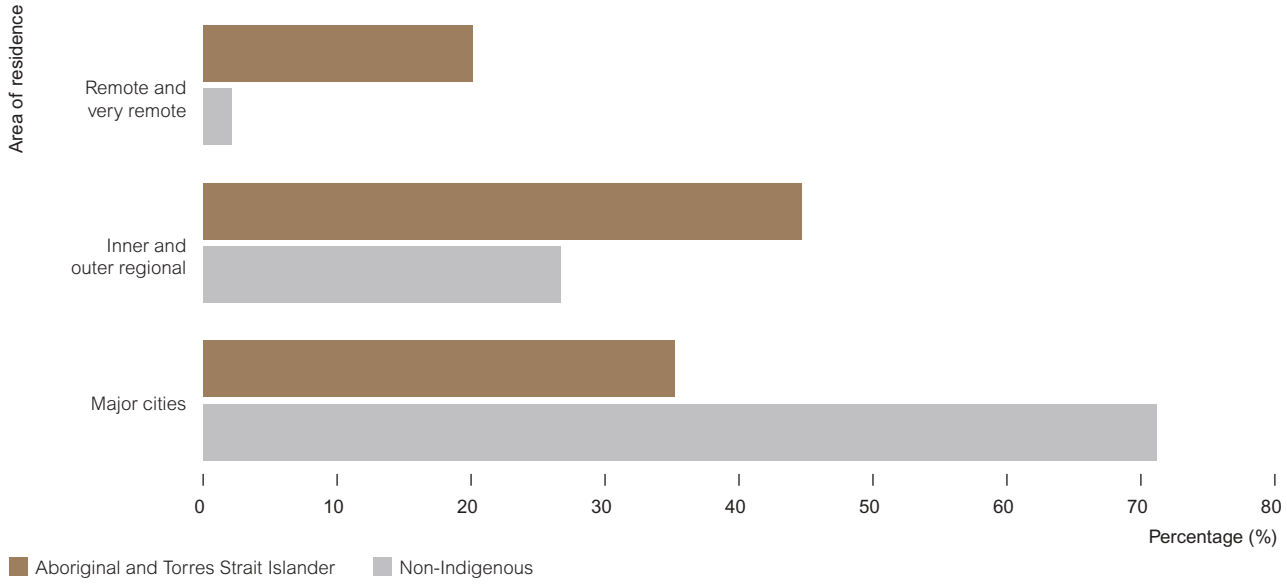


Source: National Notifiable Diseases Surveillance System.[3]

Area of residence

According to the latest Census (2016), 20% of the Aboriginal and Torres Strait Islander population lived in remote or very remote areas, 45% in inner or outer regional areas and 35% in major cities, compared with 2%, 27% and 71% of the non-Indigenous population respectively (Figure 3). (See Methodology for further information.)

Figure 3 Area of residence, 2016, by Aboriginal and Torres Strait Islander status



Source: Australian Bureau of Statistics 2016.

Aboriginal and Torres Strait Islander population in Australia

Aboriginal and Torres Strait Islander people make up 3% of the total Australian population, with the greatest proportion living in New South Wales (31%) and Queensland (29%) (Table 1).

Table 1 Aboriginal and Torres Strait Islander population in Australia, 2016, by state/territory

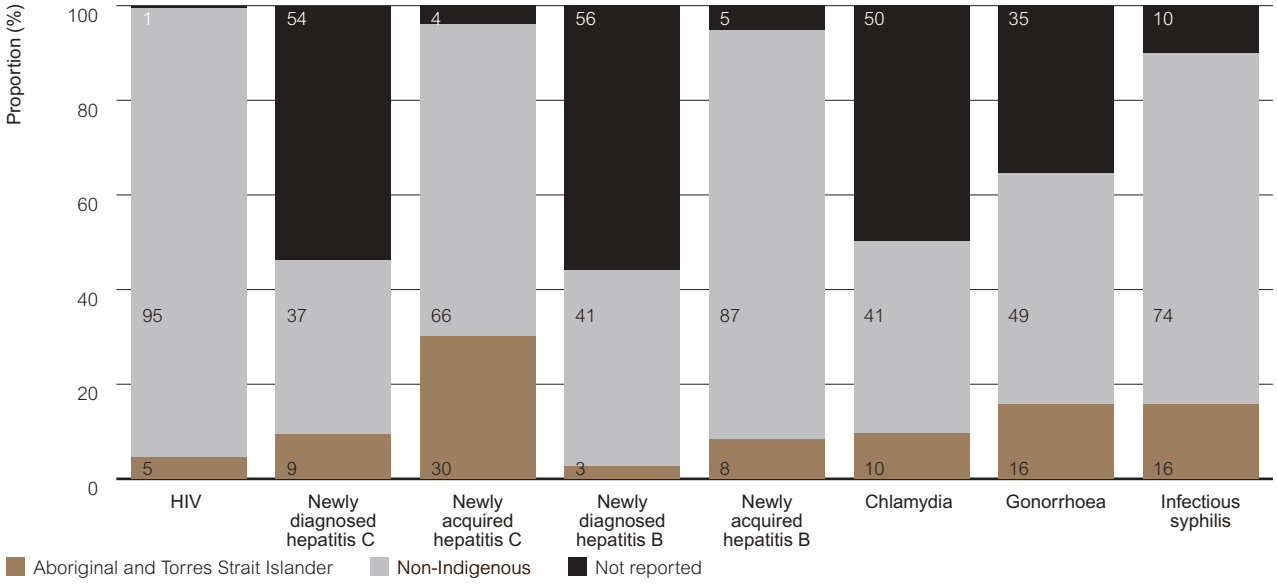
State/Territory	Estimated resident Aboriginal and Torres Strait Islander population	Proportion of total Australian Aboriginal and Torres Strait Islander population
Australian Capital Territory	7 121	1%
New South Wales	230 564	31%
Northern Territory	74 679	10%
Queensland	213 712	29%
South Australia	41 613	6%
Tasmania	27 114	4%
Victoria	53 817	7%
Western Australia	97 907	13%
Total	**746 815**	**100%**

Source: Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 2011–2026.

Number of diagnoses and rates in Aboriginal and Torres Strait Islander people

While Aboriginal and Torres Strait Islander people make up 3% of the total Australian population, they accounted for a disproportionate level (3% to 30%) of all sexually transmissible infection and bloodborne virus diagnoses in 2016 (Figure 4). For many infections this proportion would be a lower limit, due to the incompleteness of reporting of Aboriginal and Torres Strait Islander status (see Figures 2 and 3 above).

Figure 4 Proportion of all notifications by Aboriginal and Torres Strait Islander status, 2016



Note: Proportions may not add to 100% due to rounding.
Source: Australian National Notifiable Disease Surveillance System.

In 2016, rates of notification of most STIs and bloodborne viruses were around two to five times as high as in the non-Indigenous population, with the exception of newly acquired hepatitis C, for which the notification rate was 13 times as high (Table 2, Figure 5).

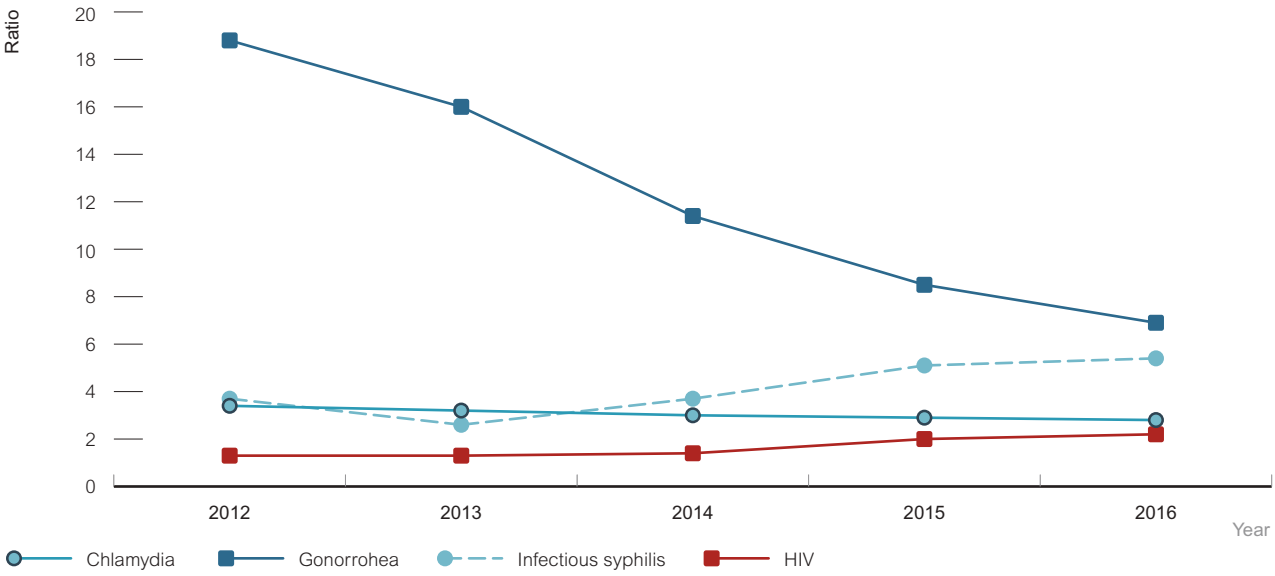
Table 2 Number and rate[a] of notifications of sexually transmissible infections and bloodborne viruses in Australia,[b] 2016, by Aboriginal and Torres Strait Islander status

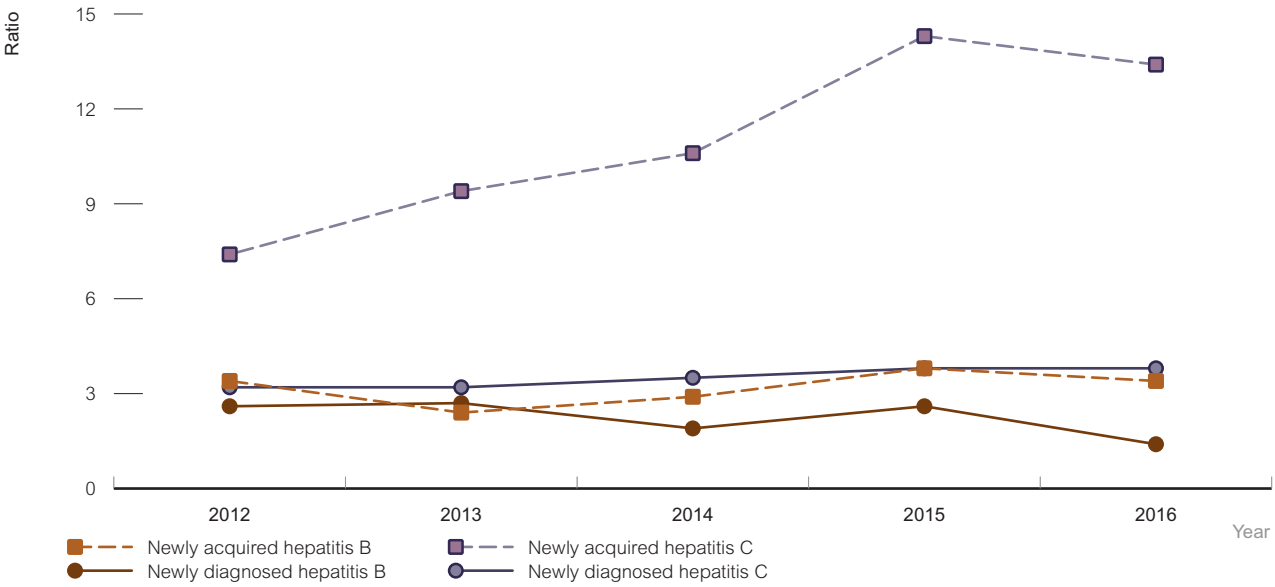
	Aboriginal and Torres Strait Islander		Non-Indigenous		Ratio of Aboriginal and Torres Strait Islander to non-Indigenous rates	Excluded jurisdictions[c]
Notifications of sexually transmissible infections and viral hepatitis	Number[a]	Rate[b]	Number	Rate[b]		
Chlamydia	6 925	1 194	29 094	419	2.8	ACT, NSW, TAS, VIC
Gonorrhoea	3 779	582	11 658	84	7.0	NSW
Infectious syphilis	530	67	2 502	12	5.4	None
HIV	46	6	517	3	2.2	None
Newly acquired hepatitis B	13	2	136	1	3.4	ACT
Newly diagnosed hepatitis B	176	31	2 718	23	1.4	NSW, QLD, VIC
Newly acquired hepatitis C	216	30	473	2	13.4	NT
Newly diagnosed hepatitis C	1 122	173	4 414	45	3.8	ACT, NSW, VIC

[a] Jurisdictions in which Aboriginal and Torres Strait Islander status was reported for ≥50% of diagnoses in each of the past five years.
[b] Age-standardised rate per 100 000 population.
[c] Jurisdictions in which Aboriginal and Torres Strait Islander status was reported for less than 50% of diagnoses.
Source: National Notifiable Disease Surveillance System.

Between 2012 and 2016 the difference in the age-standardised notification rate between Aboriginal and Torres Strait Islander and non-Indigenous populations increased for infectious syphilis, HIV, newly acquired hepatitis C and newly diagnosed hepatitis C. There was a large decrease in the difference for gonorrhoea, from 20 times as high in 2012 to 7 times as high in Aboriginal and Torres Strait Islander as in non-Indigenous people in 2016. Smaller decreases were observed for and newly diagnosed hepatitis B, while the difference in newly acquired hepatitis B remained stable.

Figure 5 The ratio of Aboriginal and Torres Strait Islander to non-Indigenous notification rates, 2012–2016, by condition





Source: National Notifiable Disease Surveillance System.

1 HIV

Details of HIV notifications are given in this chapter. Please see p. 4 for summary.

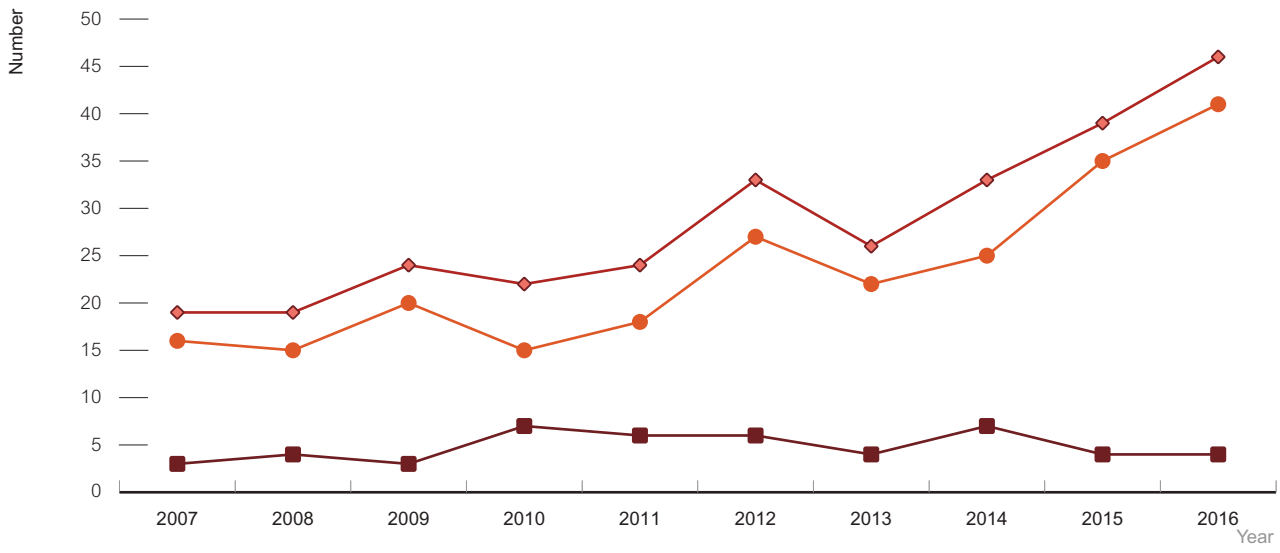
1.1 New diagnoses

All jurisdictions have high completeness rates (>90%) for Aboriginal and Torres Strait Islander status in HIV notifications for each of the last 10 years and thus data from all jurisdictions are included.

In 2016, of the 1013 notifications of newly diagnosed HIV infections, 46 (5%) were identified as in the Aboriginal and Torres Strait Islander population, and there were a further 6 (1%) in people whose Indigenous status was not reported.

Between 2007 and 2011, the number of notifications in the Aboriginal and Torres Strait Islander population remained steady (range 19–24) (Figure 1.1.1, Table 1.1.1), but almost doubled from 24 in 2011 to 46 in 2016. There was an increase of 52% in the number of notifications in Aboriginal and Torres Strait Islander men in the last five years compared with relatively stable numbers over the same period in women.

Figure 1.1.1 Newly diagnosed HIV notifications in Aboriginal and Torres Strait Islander people, 2007–2016, by sex



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Women	3	4	3	7	6	6	4	7	4	4
Men	16	15	20	15	18	27	22	25	35	41
Total	19	19	24	22	24	33	26	33	39	46

Note: Total includes transgender persons.

Source: State and territory health authorities; includes all states and territories due to high completeness (>95%) of Aboriginal and Torres Strait Islander status in all years.

The median age at HIV diagnosis in Aboriginal and Torres Strait Islander people was 30 years in 2016 (33 years over the last 10 years) (Table 1.1.1). The best indicator of how long a person has had HIV is the CD4+ cell count per microlitre (cells/μL), which is above 500 in most people without HIV, and declines on average by 50–100 per year in people with HIV.[11] The proportion of new HIV diagnoses with a late diagnosis, defined by a CD4+ cell count less than 350 cells/μL at diagnosis, was 33% over the past 10 years (Table 1.1.1).

During the 10-year period 2007–2016, notifications of newly diagnosed HIV infection among the Aboriginal and Torres Strait Islander population were reported from Queensland (35%), New South Wales (28%), Victoria (12%), Western Australia (11%), South Australia (6%), the Northern Territory (5%) and Tasmania (3%) (Table 1.1.1). In this period, half (51%) of all HIV diagnoses were attributed to male-to-male sex, 19% to heterosexual sex, 15% to injecting drug use and 10% to both male-to-male sex and injecting drug use (Table 1.1.1).

Table 1.1.1 Characteristics of cases of newly diagnosed HIV infection in Aboriginal and Torres Strait Islander people, 2007–2016.

	Year of HIV diagnosis										
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2007–2016[a]
Characteristic											
Total[b]	19	19	24	22	24	33	26	33	39	46	285
Sex											
Male	16	15	20	15	18	27	22	25	35	41	234
Female	3	4	3	7	6	6	4	7	4	4	48
Median age (years)	33	36	37	35	32	27	36	34	37	30	33
Newly acquired HIV infection *n* (%)[c]	5 (26.3)	6 (31.6)	7 (29.2)	5 (22.7)	5 (20.8)	10 (30.3)	9 (34.6)	8 (24.2)	12 (30.8)	15 (32.6)	82 (28.8)
Late and advanced HIV infection status at HIV diagnosis (%)[d]											
Late HIV diagnosis	40.0	33.3	40.9	25.0	34.8	37.5	40.0	30.0	29.4	26.2	32.7
Advanced HIV diagnosis	13.3	20.0	31.8	10.0	30.4	29.2	25.0	20.0	14.7	14.3	20.4
State/Territory, *n*											
Australian Capital Territory	0	0	0	0	0	0	0	0	0	0	0
New South Wales	8	8	9	7	6	11	8	7	7	10	81
Northern Territory	0	1	0	1	2	2	1	1	1	5	14
Queensland	5	2	8	8	8	14	9	14	13	20	101
South Australia	1	4	2	1	1	1	2	0	2	2	16
Tasmania	0	0	1	0	1	0	2	2	2	0	8
Victoria	3	0	1	3	1	5	4	6	7	5	33
Western Australia	2	4	3	2	5	0	0	3	7	4	30
HIV exposure category, %											
Male-to-male sex	47.4	47.4	41.7	54.6	62.5	69.7	23.1	39.4	53.9	58.7	50.9
Male-to-male sex and injecting drug use	15.8	5.3	12.5	4.6	0.0	6.1	19.2	9.1	10.3	15.2	10.2
Injecting drug use[e]	15.8	36.8	8.3	18.2	4.2	6.1	23.1	27.3	15.4	4.4	14.7
Heterosexual sex	21.1	10.5	16.7	13.6	25.0	18.2	30.8	15.2	18.0	19.6	19.0
Mother with/at risk of HIV infection	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.4
Other/undetermined exposure	0.0	0.0	20.8	9.1	4.2	0.0	3.9	9.1	2.6	2.2	4.9

[a] Not adjusted for multiple reporting.

[b] Newly acquired HIV infection was defined as newly diagnosed infection with a negative or indeterminate HIV antibody test result or a diagnosis of primary HIV infection within one year of HIV diagnosis. Includes transgender persons.

[c] Denominator is all diagnoses for which a CD4+ count was available .

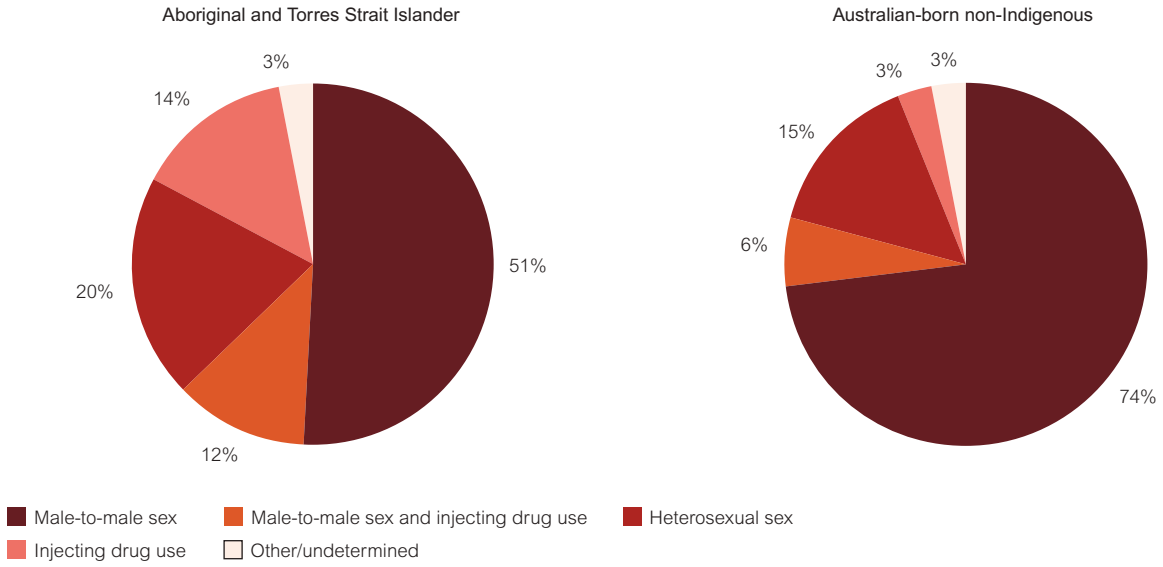
[d] Late HIV diagnosis was defined as newly diagnosed HIV infection with a CD4+ cell count of less than 350 cells/μL, and advanced HIV infection as newly diagnosed infection with a CD4+ cell count of less than 200 cells/μL. Newly acquired HIV diagnoses are included in the non-late category.

[e] Excludes men who have sex with men.

Source: State and territory health authorities; includes all states and territories.

In the five-year period 2012–2016, a higher proportion of notifications of newly diagnosed HIV infection among the Aboriginal and Torres Strait Islander population than in the Australian-born non-Indigenous population was attributed to injecting drug use (14% vs 3%) and heterosexual contact (20% vs 15%) (Figure 1.1.2).

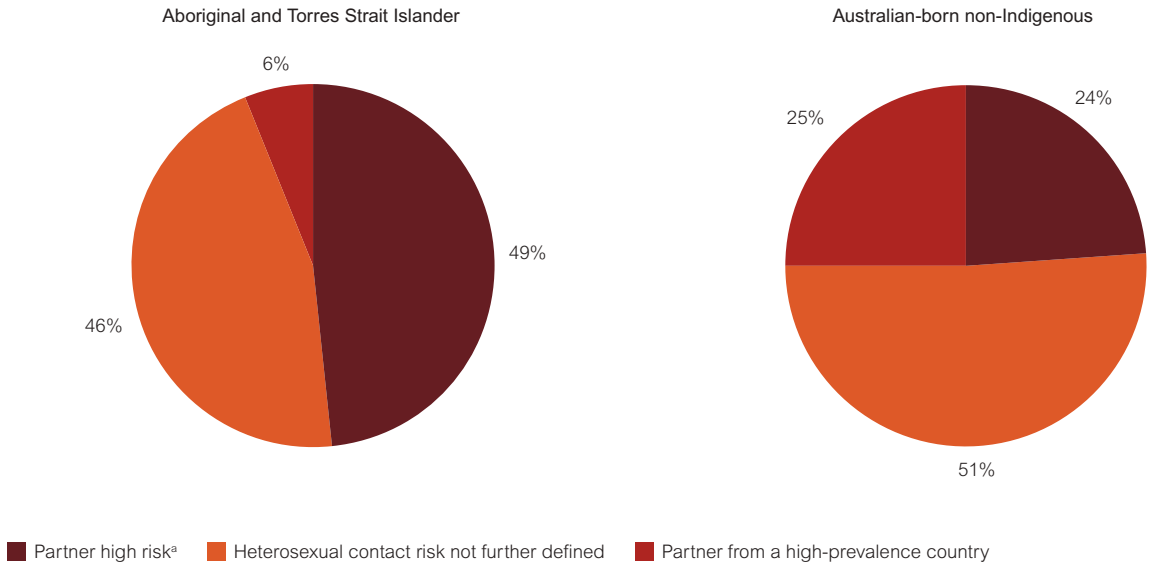
Figure 1.1.2 Newly diagnosed HIV infection and HIV exposure category, 2012–2016, by Aboriginal and Torres Strait Islander status



Source: State and territory health authorities; includes all states and territories.

Of the heterosexually acquired HIV diagnoses in the five-year period 2012–2016, a higher proportion among the Aboriginal and Torres Strait Islander population was attributed to a partner at high HIV risk than among the Australian-born non-Indigenous population (49% vs 24%) and a lower proportion to a partner from a high-HIV-prevalence country (national prevalence above 1%) (6% vs 25%) (Figure 1.1.3).

Figure 1.1.3 Proportion of newly diagnosed HIV notifications by heterosexual exposure category, 2012–2016, by Aboriginal and Torres Strait Islander status



[a] Includes heterosexual sex with a person who injects drugs, a bisexual male, someone who received blood/tissue, a person with haemophilia/clotting disorder, or someone with HIV whose exposure could not be determined.

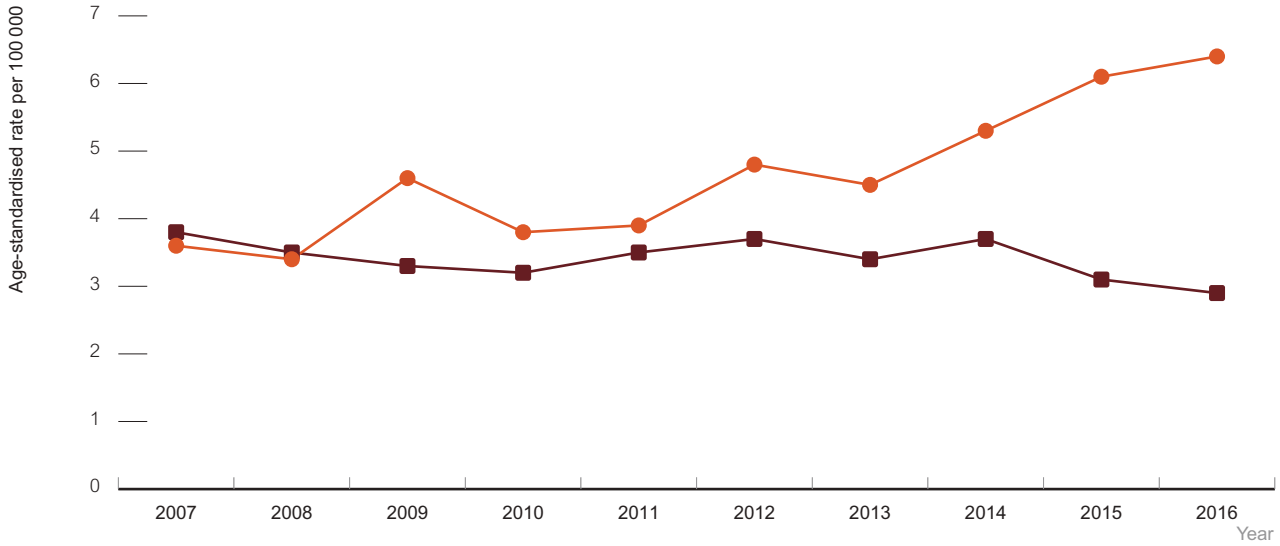
Source: State and territory health authorities; includes all states and territories.

When comparing HIV notification rates among the Aboriginal and Torres Strait Islander and the non-Indigenous populations, the non-Indigenous population is restricted to those born in Australia. This was done to exclude HIV diagnoses in overseas-born people, in whom trends can fluctuate in response to immigration patterns, and to focus on HIV infection endemic to Australia.

To enable more appropriate comparison between the Aboriginal and Torres Strait Islander and non-Indigenous populations, the rate of diagnosis per 100 000 people was calculated, taking into account the age structures of each population (age-standardised rates). The rate of newly diagnosed HIV infection in the Aboriginal and Torres Strait Islander population was 3.6 per 100 000 in 2007, remaining fairly stable until 2011, and increasing since then to 6.4 per 100 000 in 2016. In the Australian-born non-Indigenous population, the rate declined from 3.8 per 100 000 in 2007 to 2.9 per 100 000 in 2016 (Figure 1.1.4).

The notification rates of newly diagnosed HIV infection in the Aboriginal and Torres Strait Islander population are based on small numbers, and may reflect localised occurrences rather than national patterns.

Figure 1.1.4 Newly diagnosed HIV notification rate per 100 000 Australian-born population, 2007–2016, by Aboriginal and Torres Strait Islander status



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Australian-born Non-Indigenous	3.8	3.5	3.3	3.2	3.5	3.7	3.4	3.7	3.1	2.9
Aboriginal and Torres Strait Islander	3.6	3.4	4.6	3.8	3.9	4.8	4.5	5.3	6.1	6.4

Source: State and territory health authorities; includes all states and territories.

From 2007 to 2016, notification rates in people under 35 years of age in the Aboriginal and Torres Strait Islander population were similar to the Australian-born non-Indigenous population, except in 2016, when the rate was higher among Aboriginal and Torres Strait Islander people (Figure 1.1.5). In comparison, notification rates among those aged 35 years or over have been higher in the Aboriginal and Torres Strait Islander population in all years except 2007 and 2012, with notification rates in the Aboriginal and Torres Strait Islander population more than twice as high in the last two years.

Figure 1.1.5 Newly diagnosed HIV notification rate per 100 000 population, 2007–2016, by Aboriginal and Torres Strait Islander status and age group

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander <35 years	2.8	1.8	2.0	2.2	3.0	5.0	2.0	3.6	3.7	5.7
Australian-born non-Indigenous <35 years	2.7	2.7	2.6	2.5	2.9	3.1	2.7	3.4	2.7	2.5
Aboriginal and Torres Strait Islander ≥35 years	3.9	5.9	7.8	6.0	4.9	4.2	7.3	6.6	8.6	6.7
Australian-born non-Indigenous ≥35 years	4.5	3.9	3.7	3.6	3.8	3.9	3.9	3.7	3.3	3.1

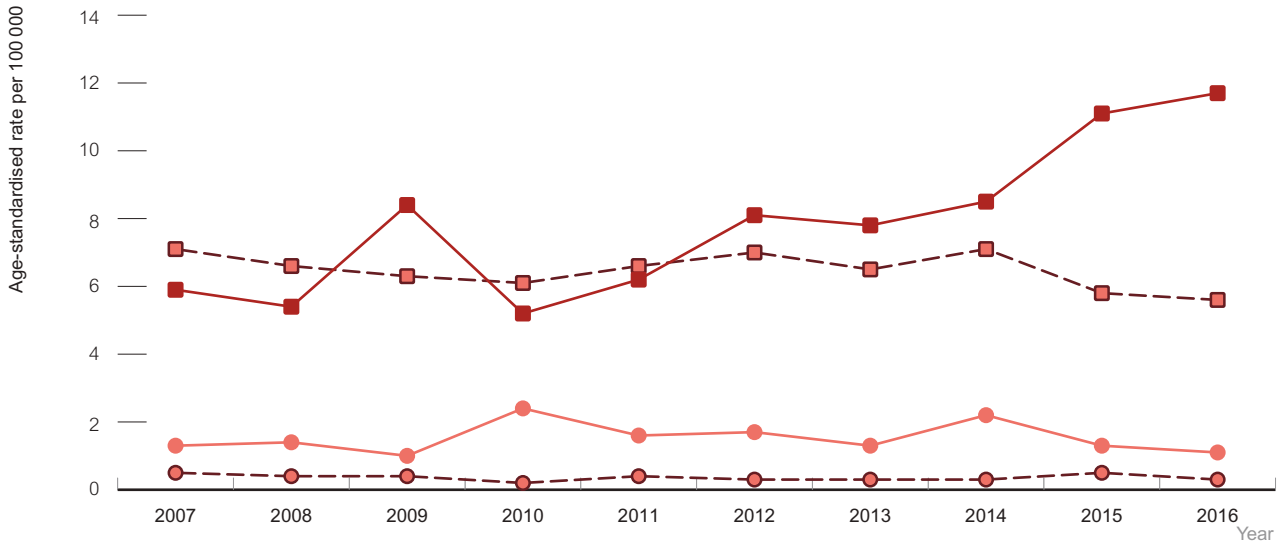
Source: State and territory health authorities; includes all states and territories.

Between 2007 and 2011, notification rates of newly diagnosed HIV infection in the Aboriginal and Torres Strait Islander male population were similar to the non-Indigenous Australian-born male population. Since 2011 the notification rate of newly diagnosed HIV infection in the Aboriginal and Torres Strait Islander male population has nearly doubled (from 6.2 per 100 000 in 2011 to 11.7 per 100 000 in 2016), compared with a 15% decrease in the non-Indigenous Australian-born male population (from 6.6 per 100 000 in 2011 to 5.6 per 100 000 in 2016) (Figure 1.1.6).

These trends suggest that the divergence in HIV notification rates between the two populations is associated with increased notifications in Aboriginal and Torres Strait Islander males.

Between 2007 and 2016, the notification rates of newly diagnosed HIV infection among Aboriginal and Torres Strait Islander females were lower than among Aboriginal and Torres Strait Islander males, and fluctuated over time, but were 2 to 12 times as high as among the non-Indigenous Australian-born female population (Figure 1.1.6).

Figure 1.1.6 Newly diagnosed HIV notification rate per 100 000 Australian-born population, 2007–2016, by Aboriginal and Torres Strait Islander status and sex



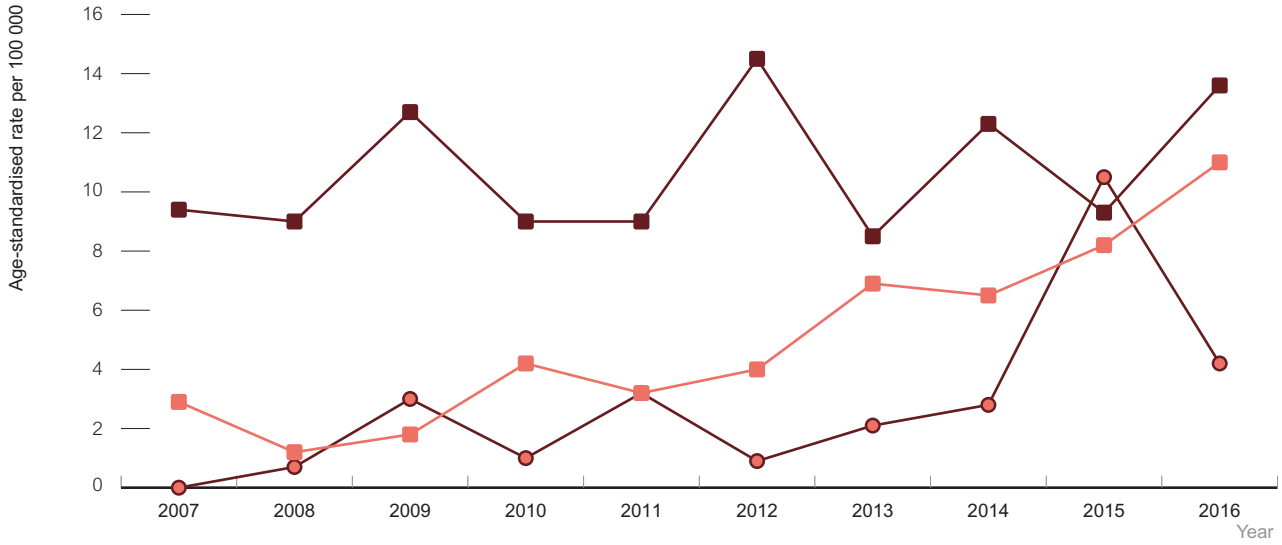
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander men	5.9	5.4	8.4	5.2	6.2	8.1	7.8	8.5	11.1	11.7
Australian-born Non-Indigenous men	7.1	6.6	6.3	6.1	6.6	7.0	6.5	7.1	5.8	5.6
Aboriginal and Torres Strait Islander women	1.3	1.4	1.0	2.4	1.6	1.7	1.3	2.2	1.3	1.1
Australian-born Non-Indigenous women	0.5	0.4	0.4	0.2	0.4	0.3	0.3	0.3	0.5	0.3

Source: State and territory health authorities; includes all states and territories.

HIV

The HIV notification rates in the Aboriginal and Torres Strait Islander population have fluctuated across all regions in the 10-year period 2007 to 2016, but are all higher in 2016 than 10 years ago (Figure 1.1.7). Notification rates have been highest in urban areas in all years except 2015, where the notification rate in remote settings was the highest. Caution should be taken in interpretation of these increases, as they represent a small number of notifications.

Figure 1.1.7 Newly diagnosed HIV notification rate per 100 000 in Aboriginal and Torres Strait Islander people, 2007–2016, by area of residence



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Urban	9.4	9.0	12.7	9.0	9.0	14.5	8.5	12.3	9.3	13.6
Regional	2.9	1.2	1.8	4.2	3.2	4.0	6.9	6.5	8.2	11.0
Remote	0.0	0.7	3.0	1.0	3.2	0.9	2.1	2.8	10.5	4.2

Source: State and territory health authorities; includes all states and territories.

1.2 Prevalence

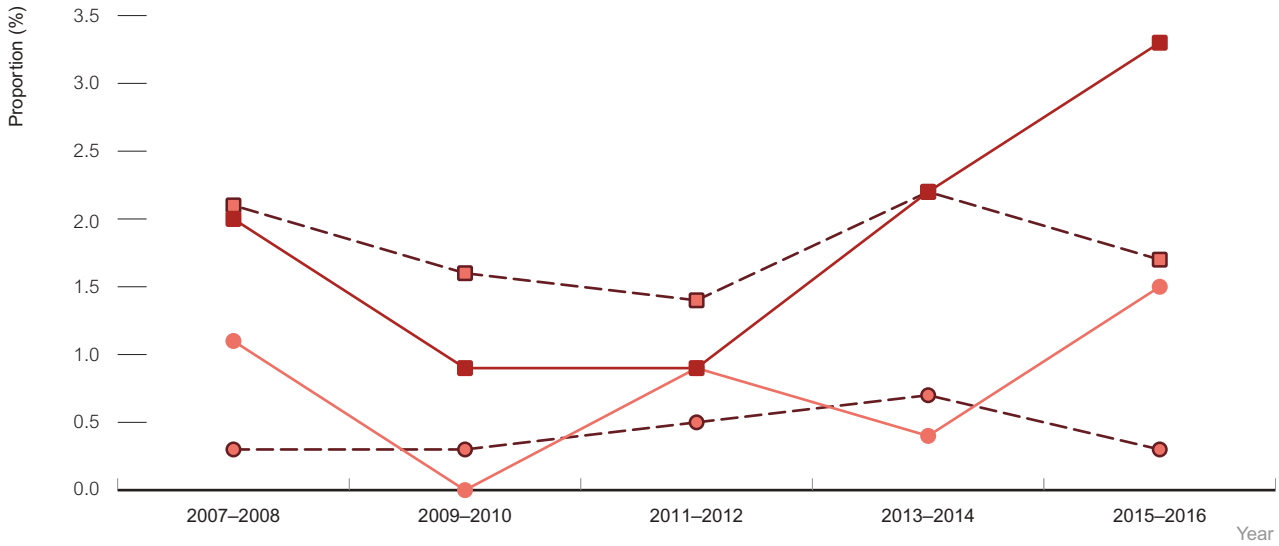
There were an estimated 574 (range 470 to 726) Aboriginal and Torres Strait Islander people living with HIV in Australia in 2016. Of those, an estimated 111 (20%) were undiagnosed, compared to 7% of Australian-born non-Indigenous people with HIV. For further information and methods for estimating the number of undiagnosed people please see *HIV, viral hepatitis t sexually transmissible infections in Australia: annual surveillance report 2017*.[1]

Periodic surveys have also measured HIV prevalence among subpopulations of Aboriginal and Torres Strait Islander people.

The National Prison Entrants' Bloodborne Virus Survey is a triennial survey of prison entrants conducted over a two-week period.[12] The most recent survey found no cases of HIV.

Data routinely collected from the Australian Needle and Syringe Program Survey provide an insight into the demographics, risk behaviour and bloodborne virus prevalence among people who inject drugs who attend needle and syringe programs. In the period from 2007 to 2016, the proportion of participants in the Australian Needle and Syringe Program Survey identifying as Aboriginal and Torres Strait Islander increased from 10% to 18%. The Australian Needle and Syringe Program Survey of people who inject drugs attending needle and syringe programs found the prevalence of HIV among Aboriginal and Torres Strait Islander respondents between 2007 and 2016 was 3% or lower overall (data not shown), but generally higher in men than women (Figure 1.2.1).

Figure 1.2.1 HIV prevalence in needle and syringe program participants, 2007–2016, by Aboriginal and Torres Strait Islander status and sex



	2007–2008	2009–2010	2011–2012	2013–2014	2015–2016
Aboriginal and Torres Strait Islander men (%)	2.0	0.9	0.9	2.2	3.3
Non-Indigenous men (%)	2.1	1.6	1.4	2.2	1.7
Aboriginal and Torres Strait Islander women (%)	1.1	0.0	0.9	0.4	1.5
Non-Indigenous women (%)	0.3	0.3	0.5	0.7	0.3

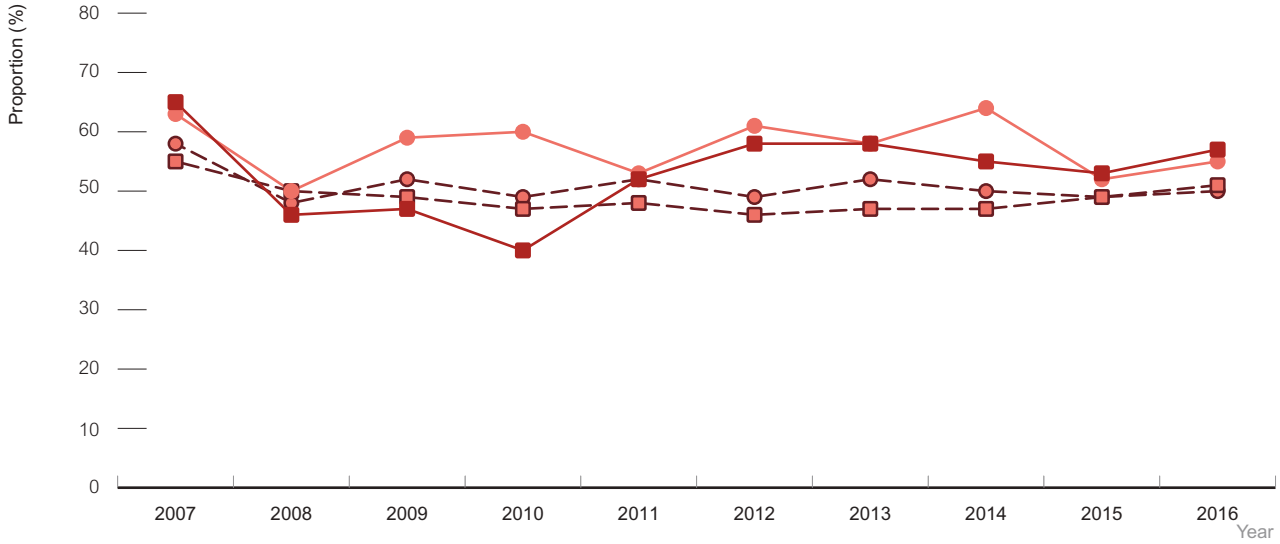
Note: Data presented in two-year groupings due to small numbers.
Source: Australian Needle and Syringe Program Survey

1.3 Testing

National testing guidelines recommend HIV testing in a number of contexts, including after HIV risk exposure, during antenatal care, and for particular priority populations.[13] The *Fourth national Aboriginal and Torres Strait Islander blood-borne viruses and sexually transmissible infections strategy 2014–2017*[9] prioritises annual testing for STIs, including HIV.

The Australian Needle and Syringe Program Survey has shown consistently each year that a higher proportion of Aboriginal and Torres Strait Islander women than non-Indigenous women attending needle and syringe programs (55% vs 50% in 2016) reported having had a HIV test in the past 12 months. Similarly, a higher proportion of Aboriginal and Torres Strait Islander men than non-Indigenous men attending needle and syringe programs reported a HIV test in the past 12 months each year since 2011 (57% vs 51% in 2016) (Figure 1.3.1). These data may not be representative of all Aboriginal and Torres Strait Islander people who inject drugs.

Figure 1.3.1 Proportion of people who inject drugs seen at needle and syringe programs who reported an HIV antibody test in the past 12 months, 2007–2016, by Aboriginal and Torres Strait Islander status and sex



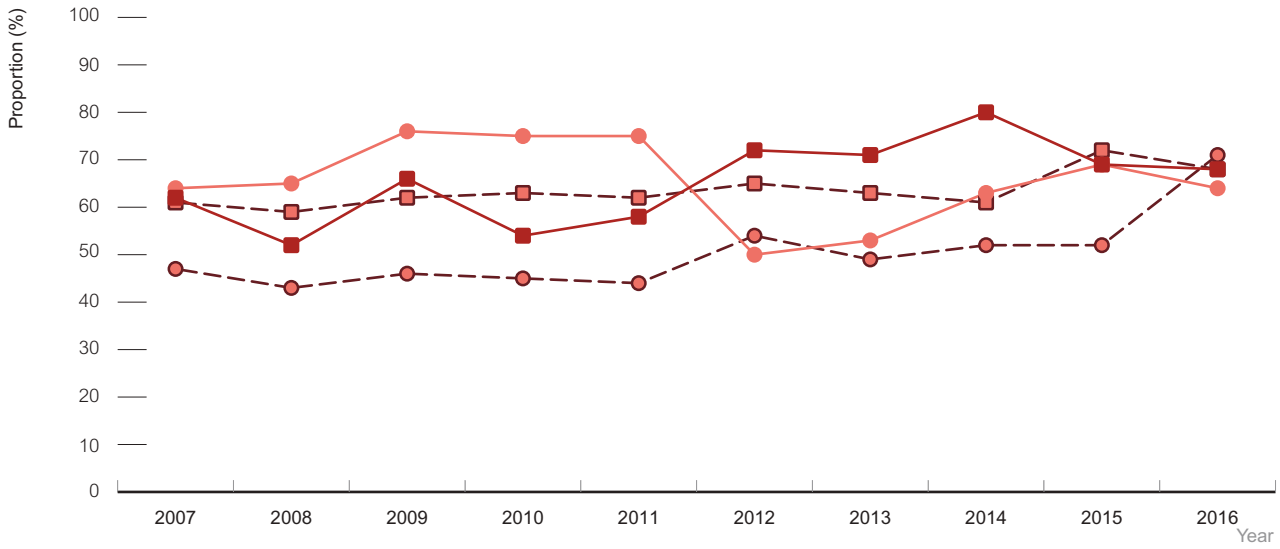
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander men (%)	65	46	47	40	52	58	58	55	53	57
Non-Indigenous men (%)	55	50	49	47	48	46	47	47	49	51
Aboriginal and Torres Strait Islander women (%)	63	50	59	60	53	61	58	64	52	55
Non-Indigenous women (%)	58	48	52	49	52	49	52	50	49	50

Source: Australian Needle and Syringe Program Survey.

1.4 Condom use

According to the Australian Needle and Syringe Program Survey, in all years between 2007 and 2016 except 2012 and 2016, a higher proportion of Aboriginal and Torres Strait Islander female participants (50% to 76%) reported inconsistent condom use with casual partners in the last month than non-Indigenous female participants (34% to 71%) (Figure 1.4.1). The proportions of inconsistent condom use in the Aboriginal and Torres Strait Islander men attending needle and syringe programs fluctuated (between 52% and 80%) and was the same as non-Indigenous men in 2016 at 68% (Figure 1.4.1). As above, this data may not be representative of Aboriginal and Torres Strait Islander people who who inject drugs.

Figure 1.4.1 Prevalence of inconsistent condom use with casual partners in the last month[a] among people who inject drugs attending needle and syringe programs, 2007–2016, by Aboriginal and Torres Strait Islander status and sex



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander men (%)	62	52	66	54	58	72	71	80	69	68
Non-Indigenous men (%)	61	59	62	63	62	65	63	61	72	68
Aboriginal and Torres Strait Islander women (%)	64	65	76	75	75	50	53	63	69	64
Non-Indigenous women (%)	47	43	46	45	44	54	49	52	52	71

[a] Denominator is those who had had sex with one or more casual partners in the last month.

Source: Australian Needle and Syringe Program Survey.

HIV

2 Viral hepatitis

Details of hepatitis C and hepatitis B are given in this chapter. Please see p. 5 for summary.

2.1 Hepatitis C

Newly diagnosed hepatitis C infections

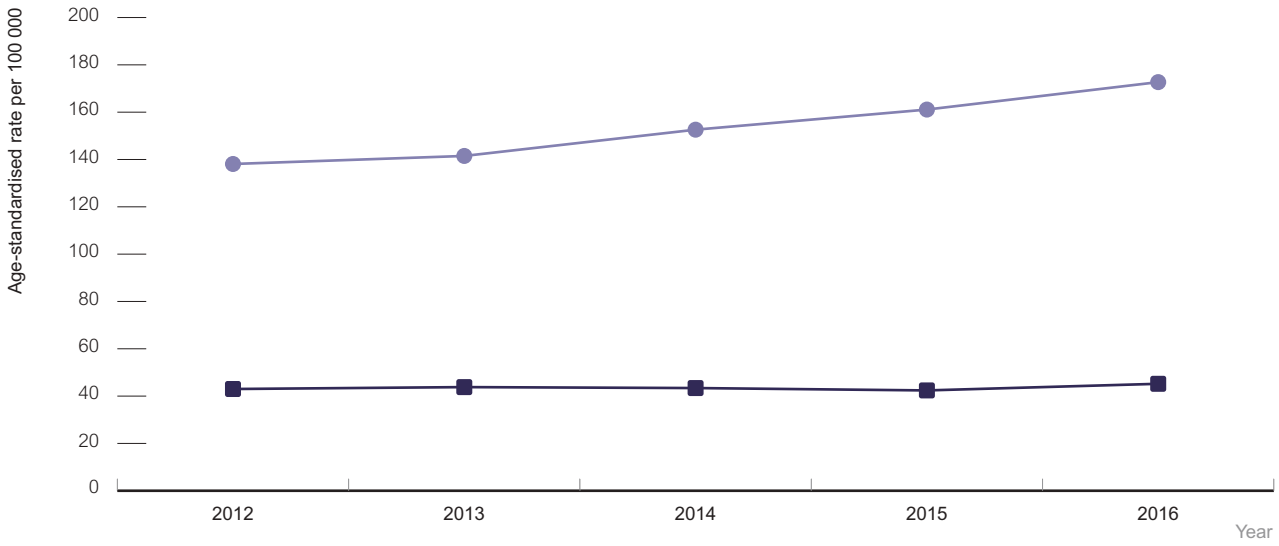
This section focuses on newly diagnosed hepatitis C infection, which means that a person previously not known to have the infection has been tested and now found to have the infection.

A total of 11 949 notifications of newly diagnosed hepatitis C were reported in Australia in 2016; 1122 (9%) occurred among the Aboriginal and Torres Strait Islander population, 4414 (37%) were among the non-Indigenous population, and there were a further 6431 (54%) notifications among people whose Indigenous status was not reported.

In the five-year period 2012–2016, Aboriginal and Torres Strait Islander status was reported for at least 50% of notifications per year in the Northern Territory, Queensland, South Australia, Tasmania and Western Australia. Incomplete information on Aboriginal and Torres Strait Islander status can underestimate the true extent of diagnoses of these infections in the Aboriginal and Torres Strait Islander population and may not reflect national trends.

In the five-year period 2012–2016, the age-standardised notification rate of newly diagnosed hepatitis C infection in the Aboriginal and Torres Strait Islander population increased by 25% from 138.1 per 100 000 in 2012 to 172.7 per 100 000 in 2016, whereas the rate in the non-Indigenous population remained stable at 43.0 per 100 000 in 2012 to 45.2 per 100 000 in 2016 (Figure 2.1.1).

Figure 2.1.1 Newly diagnosed hepatitis C notification rate per 100 000 population, 2012–2016, by Aboriginal and Torres Strait Islander status

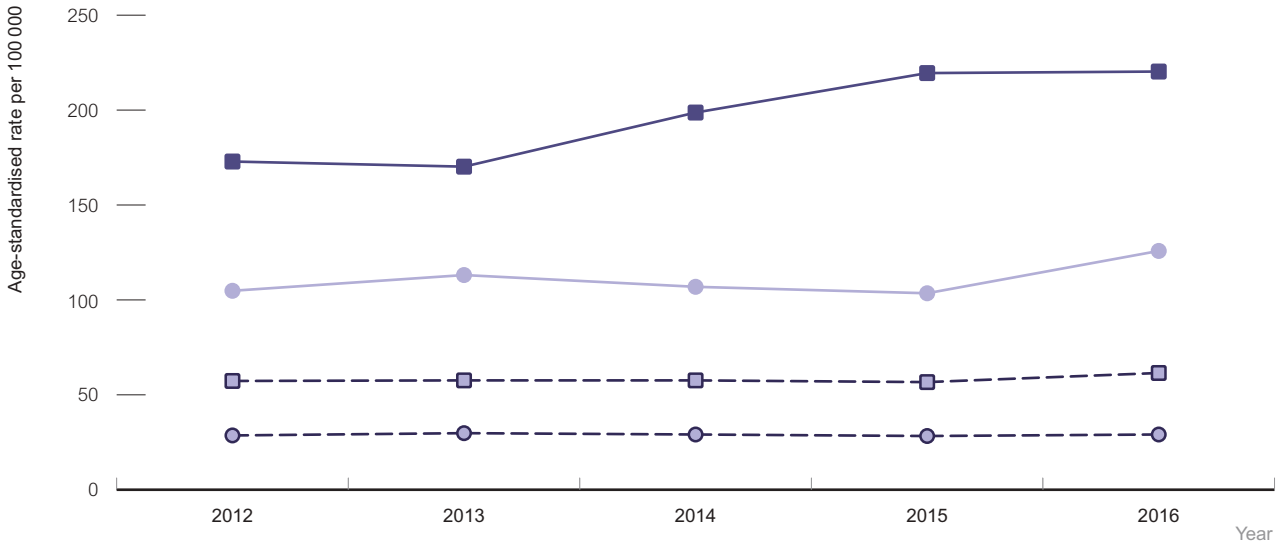


	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander	138.1	141.5	152.6	161.1	172.7
Non-Indigenous	43.0	43.8	43.4	42.4	45.2

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, South Australia, Tasmania, Queensland and Western Australia) for each of the five years 2012–2016.

In all years 2012–2016, the hepatitis C notification rate was higher in both male and female Aboriginal and Torres Strait Islander people than in the non-Indigenous population (Figure 2.1.2). In Aboriginal and Torres Strait Islander males, the hepatitis C notification rate increased by 27% from 172.9 in 2012 to 220.3 per 100 000 in 2016, and in females increased by 20% from 104.8 in 2012 to 125.8 per 100 000 in 2016; the rate in non-Indigenous males and females remained stable.

Figure 2.1.2 Newly diagnosed hepatitis C notification rate per 100 000, 2012–2016, by Aboriginal and Torres Strait Islander status and sex



	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander men	172.9	170.2	198.7	219.5	220.3
Non-Indigenous men	57.3	57.6	57.6	56.7	61.5
Aboriginal and Torres Strait Islander women	104.8	113.1	106.9	103.5	125.8
Non-Indigenous women	28.6	29.8	29.1	28.3	29.1

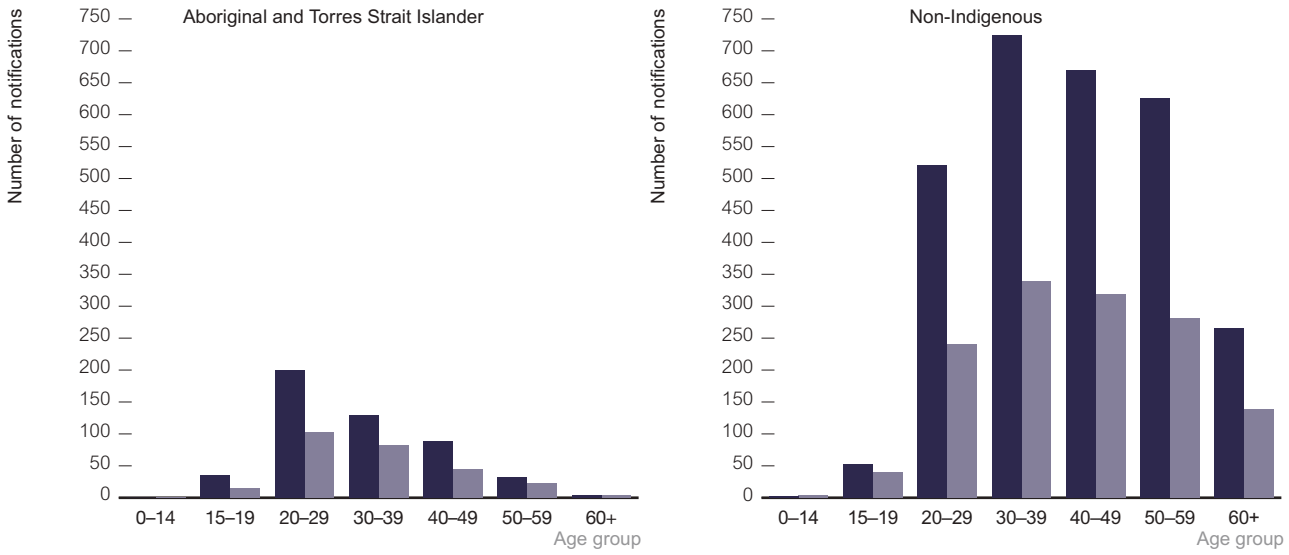
Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2011–2015.

HCV

In 2016, the majority (over 90%) of notifications of newly diagnosed hepatitis C infection in both the Aboriginal and Torres Strait Islander and the non-Indigenous population occurred in people aged over 20 years (Figure 2.1.3).

In 2016, of notifications of newly diagnosed hepatitis C infection in the Aboriginal and Torres Strait Islander population, 64% were in males and 36% in females, and similarly in the non-Indigenous population, 68% of newly diagnosed hepatitis C infections were in males and 32% in females (Figure 2.1.3).

Figure 2.1.3 Number of notifications of newly diagnosed hepatitis C infection, 2016, by Aboriginal and Torres Strait Islander status, age and sex



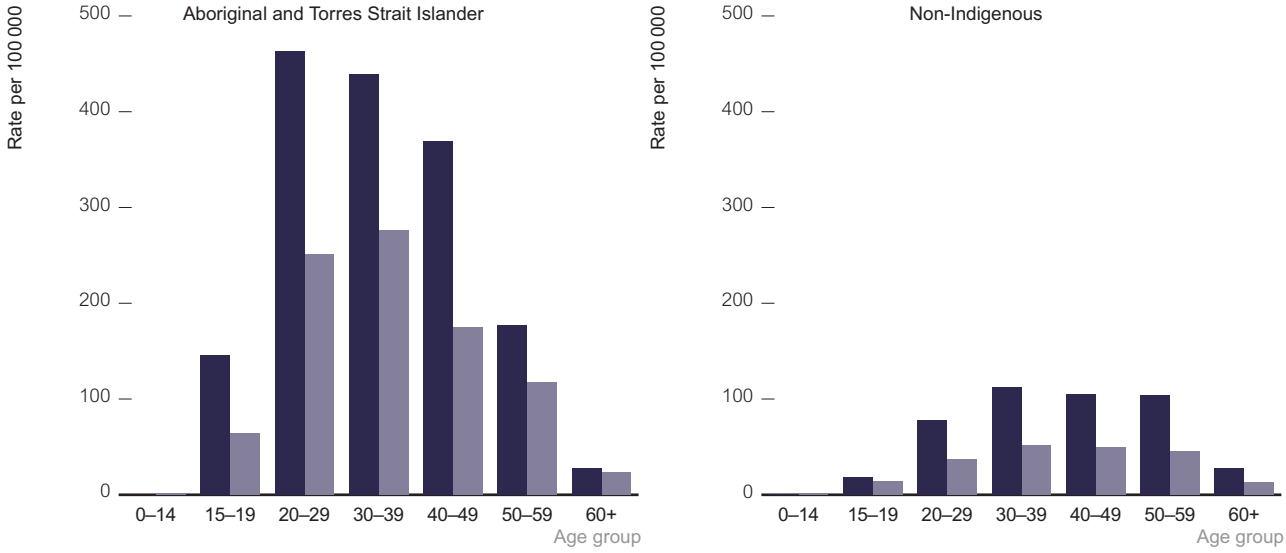
	Aboriginal and Torres Strait Islander							Non-Indigenous						
	0–14	15–19	20–29	30–39	40–49	50–59	60+	0–14	15–19	20–29	30–39	40–49	50–59	60+
Men	0	35	199	129	89	32	4	3	53	521	724	670	625	265
Women	1	15	103	83	45	23	4	4	40	240	339	318	281	138

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, South Australia, Tasmania, Queensland and Western Australia) for each of the five years 2012–2016.

The greatest difference between notification rates of newly diagnosed hepatitis C infection between the Aboriginal and Torres Strait Islander population and non-Indigenous population was observed in the younger age groups. The notification rates of newly diagnosed hepatitis C infection in the Aboriginal and Torres Strait Islander male population aged 15–19 and 20–29 years in 2016 were eight and six times as high as the rates in the non-Indigenous population in the same age groups, and in the 30–39 and 40–49 age groups four times higher (Figure 2.1.4).

Similar findings were observed in females: notification rates in the Aboriginal and Torres Strait Islander female population aged 15–19, 20–29 and 30–39 were five to seven times as high as in the non-Indigenous population and four times as high in the 40–49 age group (Figure 2.1.4).

Figure 2.1.4 Newly diagnosed hepatitis C notification rate per 100 000 population, 2016, by Aboriginal and Torres Strait Islander status, sex and age group



	Aboriginal and Torres Strait Islander							Non-Indigenous						
	0–14	15–19	20–29	30–39	40–49	50–59	60+	0–14	15–19	20–29	30–39	40–49	50–59	60+
Men	0.0	146.0	463.1	438.9	368.8	176.6	27.3	0.3	18.3	78.0	111.9	105.2	104.0	28.0
Women	1.3	64.5	251.3	275.9	174.6	117.5	23.5	0.5	14.5	36.8	52.1	49.1	45.6	13.3

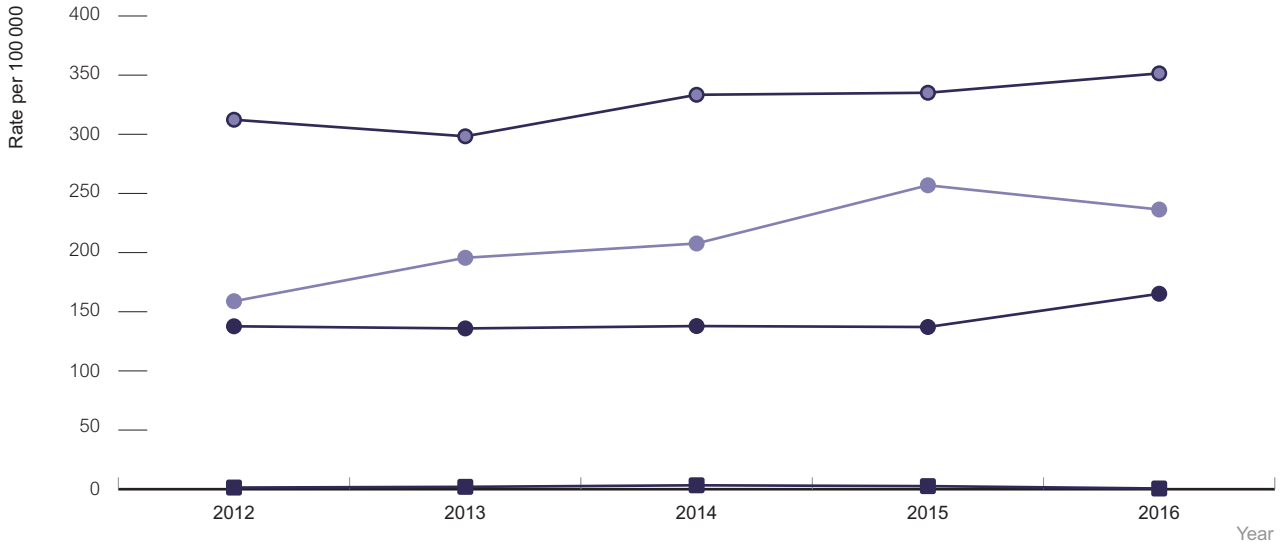
Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, Queensland, South Australia, Tasmania and Western Australia) for each of the five years 2012–2016.

HCV

In the five-year period 2012–2016, the hepatitis C notification rate in Aboriginal and Torres Strait Islander people aged 15–24 years increased by 49% from 158.9 per 100 000 in 2012 to 236.4 per 100 000 in 2016, compared to increases of 13% in the 25–39 age group and 20% in the 40+ age group (Figure 2.1.5).

As the primary route of transmission of hepatitis C is injecting drug use, a practice that typically starts in late adolescence or early adulthood, trends in the rate of diagnoses in those under 25 years can be a proxy for the incidence of hepatitis C infection.[14] Between 2012 and 2016, the hepatitis C notification rate in Aboriginal and Torres Strait Islander people aged 25 years and under increased by 50%, but decreased by 14% in non-Indigenous people in the same age group (Figure 2.1.6).

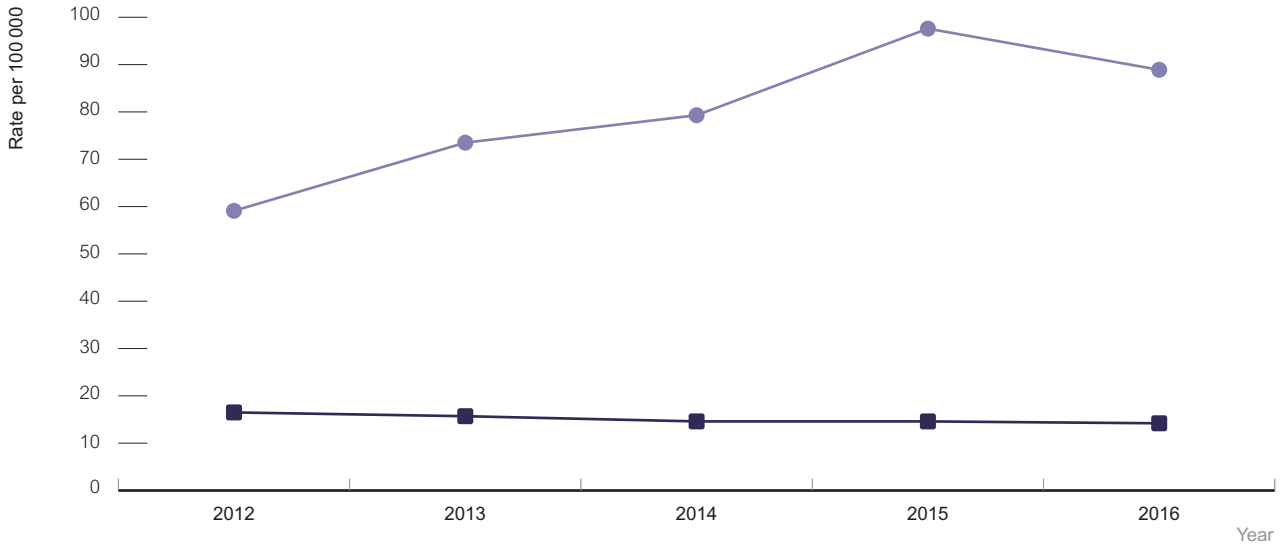
Figure 2.1.5 Newly diagnosed hepatitis C notification rate in Aboriginal and Torres Strait Islander people per 100 000 population, 2012–2016, by age group



	2012	2013	2014	2015	2016
0–14	1.4	2.0	3.3	2.6	0.6
15–24	158.9	195.6	207.7	256.9	236.4
25–39	312.3	298.3	333.4	335.1	351.5
40+	137.7	135.9	137.9	137.1	165.2

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, Queensland, South Australia, Tasmania and Western Australia) for each of the five years 2012–2016.

Figure 2.1.6 Hepatitis C notification rate per 100 000 in people aged 25 years and younger, 2012–2016, by Aboriginal and Torres Strait Islander status



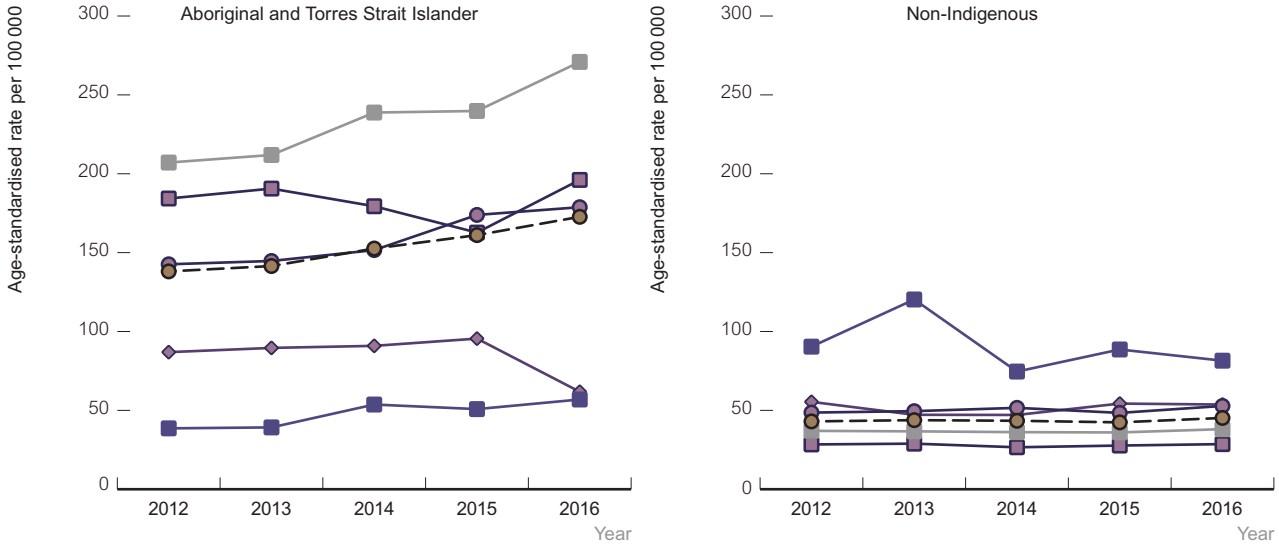
	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander	59.1	73.5	79.3	97.6	88.9
Non-Indigenous	16.5	15.7	14.6	14.6	14.2

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, Queensland, South Australia, Tasmania and Western Australia) for each of the five years 2012–2016.

HCV

In Queensland, South Australia and Western Australia in 2016, the rate of hepatitis C notification was three to seven times as great in the Aboriginal and Torres Strait Islander population as in the non-Indigenous population, and it has increased in all three jurisdictions since 2012 (Figure 2.1.7). In the Northern Territory, the rate of hepatitis C notification was slightly lower in the Aboriginal and Torres Strait Islander population than the non-Indigenous population in 2016 (56.9 vs 81.5 per 100 000), while in Tasmania it was slightly higher (61.8 vs 53.7 per 100 000) (Figure 2.1.7).

Figure 2.1.7 Newly diagnosed hepatitis C notification rate per 100 000 people, 2012–2016, by Aboriginal and Torres Strait Islander status and state/territory

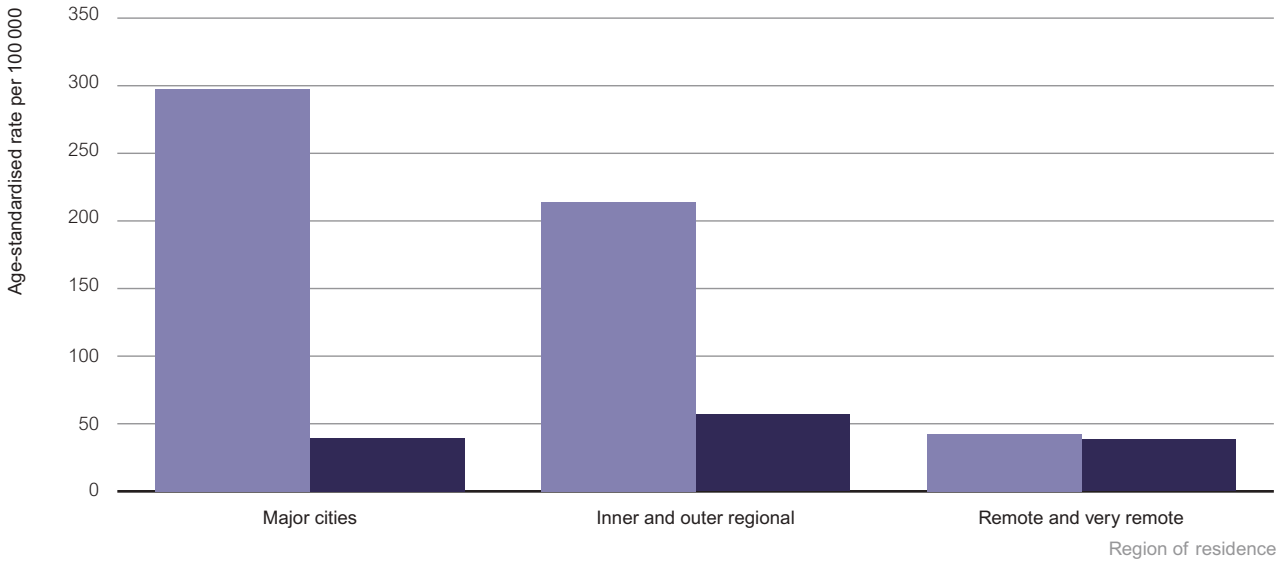


	Aboriginal and Torres Strait Islander					Non-Indigenous				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
Australia	138.1	141.5	152.6	161.1	172.7	43.0	43.8	43.4	42.4	45.2
NT	38.6	39.2	53.7	50.8	56.9	90.4	120.3	74.6	88.6	81.5
TAS	86.9	89.6	90.9	95.5	61.8	55.4	47.2	47.1	54.3	53.7
WA	207.1	211.9	238.8	239.8	270.9	37.0	36.7	36.2	36.0	38.1
SA	184.3	190.6	179.4	162.7	196.1	28.4	28.9	26.6	27.7	28.6
QLD	142.6	144.7	151.6	173.9	178.8	48.6	49.5	51.6	48.4	52.8

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, Queensland, South Australia, Tasmania and Western Australia) for each of the five years 2012–2016.

In 2016, the notification rate of newly diagnosed hepatitis C infection among the Aboriginal and Torres Strait Islander population in major cities was eight times as high as in the non-Indigenous population. Similarly, in inner/outer regional areas, the rate among Aboriginal and Torres Strait Islander people was four times as high as in the non-Indigenous population resident in the same areas. Rates in Aboriginal and Torres Strait Islander and non-Indigenous populations were similar in remote/very remote areas (Figure 2.1.8).

Figure 2.1.8 Hepatitis C notification rate per 100 000 population, 2016, by Aboriginal and Torres Strait Islander status and area of residence



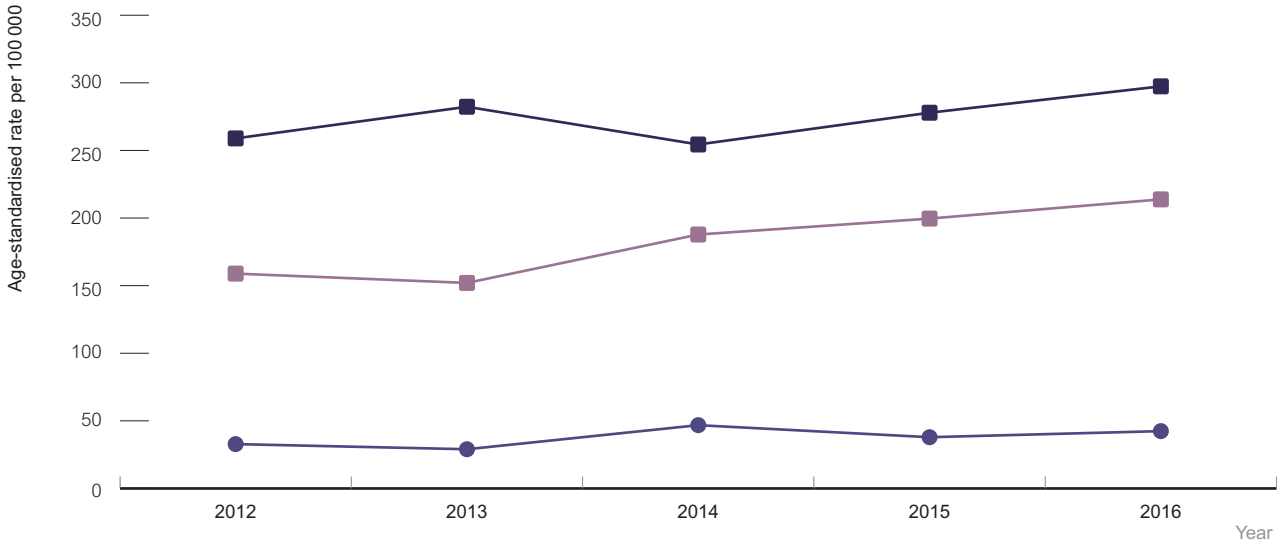
	Major cities	Inner and outer regional	Remote and very remote
Aboriginal and Torres Strait Islander	297.4	213.8	42.4
Non-Indigenous	39.5	56.9	38.4

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% in 2016 (Northern Territory, Queensland, South Australia, Tasmania and Western Australia).

HCV

Between 2012 and 2016 the notification rate of newly diagnosed hepatitis C infection in Aboriginal and Torres Strait Islander people increased in major cities by 15%, in inner/outer regional areas by 35%, and in remote/very remote areas by 29% (Figure 2.1.9).

Figure 2.1.9 Newly diagnosed hepatitis C notification rate in Aboriginal and Torres Strait Islander people, per 100 000 population, 2012–2016, by area of residence



	2012	2013	2014	2015	2016
Major cities	258.9	282.3	254.4	277.9	297.4
Inner and outer regional	158.9	152.0	187.8	199.6	213.8
Remote and very remote	32.8	29.0	46.8	37.9	42.4

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, South Australia, Tasmania, Queensland and Western Australia) for each of the five years 2012–2016.

Newly acquired hepatitis C infection

This section focuses on newly acquired hepatitis C infection. Infection is recorded as newly acquired if a person previously known not to have hepatitis C within the last two years has been tested and now found to have it. These data on newly acquired infections should be interpreted with caution, as they are likely to underestimate the true number of newly acquired infections in the community for a number of reasons. Infections are rarely symptomatic in the early stages and most cases therefore remain undetected. Also, even if testing is conducted, it may be difficult to be sure that an infection was newly acquired unless the person has had a recent negative test before the positive diagnosis or clinical evidence of newly acquired hepatitis C.

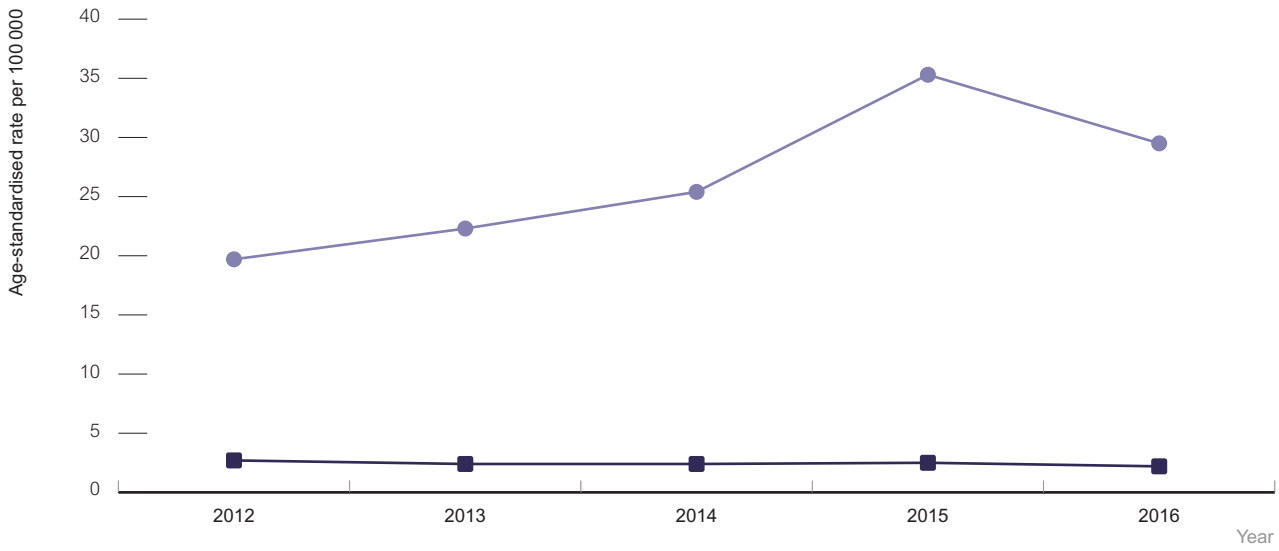
Aboriginal and Torres Strait Islander status was reported for at least 50% of notifications of newly acquired hepatitis C infection in all jurisdictions, and therefore included here. Increases from previous years in the reported number of newly acquired reflect the inclusion of data from Queensland for the first time.

In 2016, of the 717 newly acquired hepatitis C infections notified, 216 (30%) were notified in the Aboriginal and Torres Strait Islander population, 473 (66%) in the non-Indigenous population and 28 (4%) were in people whose Aboriginal and Torres Strait Islander status was not recorded.

In 2016, the age-standardised notification rate of newly acquired hepatitis C infection in the Aboriginal and Torres Strait Islander population was 13 times that of the non-Indigenous population (29.5 vs 2.2 per 100 000) (Figure 2.1.10).

In the five-year period 2012–2016, the notification rate of newly acquired hepatitis C infection in the Aboriginal and Torres Strait Islander population increased from 19.7 in 2012 to 29.5 per 100 0000 in 2016 (Figure 2.1.10). Over the same period, the notification rates of newly acquired hepatitis C were stable (2.2 to 2.7 per 100 000) in the non-Indigenous population.

Figure 2.1.10 Newly acquired hepatitis C notification rate per 100 000 population, 2012–2016, by Aboriginal and Torres Strait Islander status

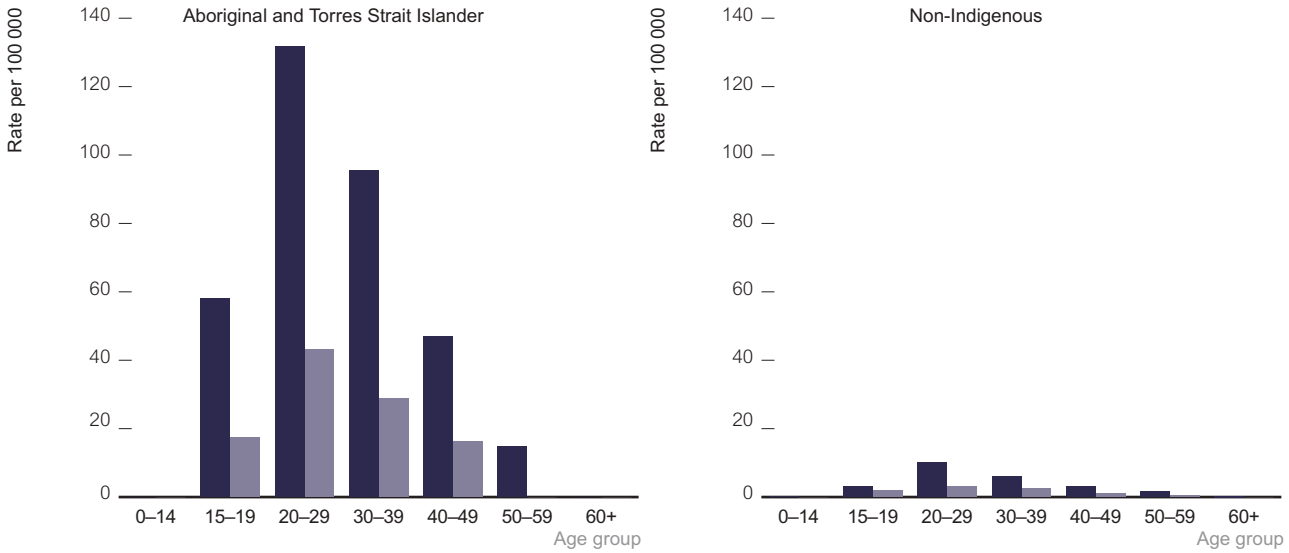


	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander	19.7	22.3	25.4	35.3	29.5
Non-Indigenous	2.7	2.4	2.4	2.5	2.2

Source: Australian National Notifiable Disease Surveillance System.

In 2016 the rate of newly acquired hepatitis C notifications was highest in the age group 20–29 years, and was 13 times as high among Aboriginal and Torres Strait Islander men as among non-Indigenous men within this age group (131.8 vs 10.0 per 100 000). Similarly, rates were 13 times as high among Aboriginal and Torres Strait Islander women as among non-Indigenous women aged 20–29 (43.1 vs 3.2 per 100 000) (Figure 2.1.11).

Figure 2.1.11 Newly acquired hepatitis C notification rate per 100 000 population, 2016, by Aboriginal and Torres Strait Islander status and age group



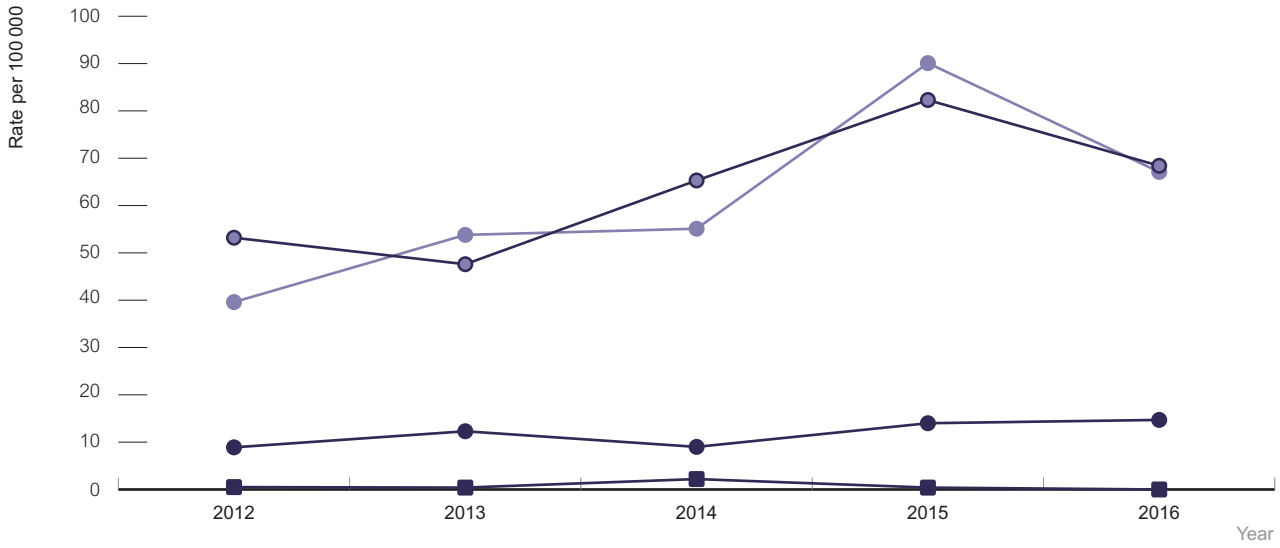
	0–14	15–19	20–29	30–39	40–49	50–59	60+
Men	0.0	58.1	131.8	95.4	47.0	14.8	0.0
Women	0.0	17.3	43.1	28.8	16.2	0.0	0.0

	0–14	15–19	20–29	30–39	40–49	50–59	60+
Men	0.1	3.0	10.0	6.0	3.0	1.7	0.3
Women	0.0	1.9	3.2	2.4	1.0	0.5	0.0

Source: Australian National Notifiable Disease Surveillance System

Between 2012 and 2016 in the Aboriginal and Torres Strait Islander population, the notification rate of newly acquired hepatitis C in the age group 15–24 years increased by 69% from 39.6 per 100 000 in 2012 to 67.1 per 100 000 in 2016 (Figure 2.1.12). Notification rates of newly acquired hepatitis C fluctuated in those aged 25–39 and remained stable in Aboriginal and Torres Strait Islander people aged 40 years and older (Figure 2.1.12).

Figure 2.1.12 Newly acquired hepatitis C notification rate in Aboriginal and Torres Strait Islander people per 100 000 population, 2012–2016, by age group



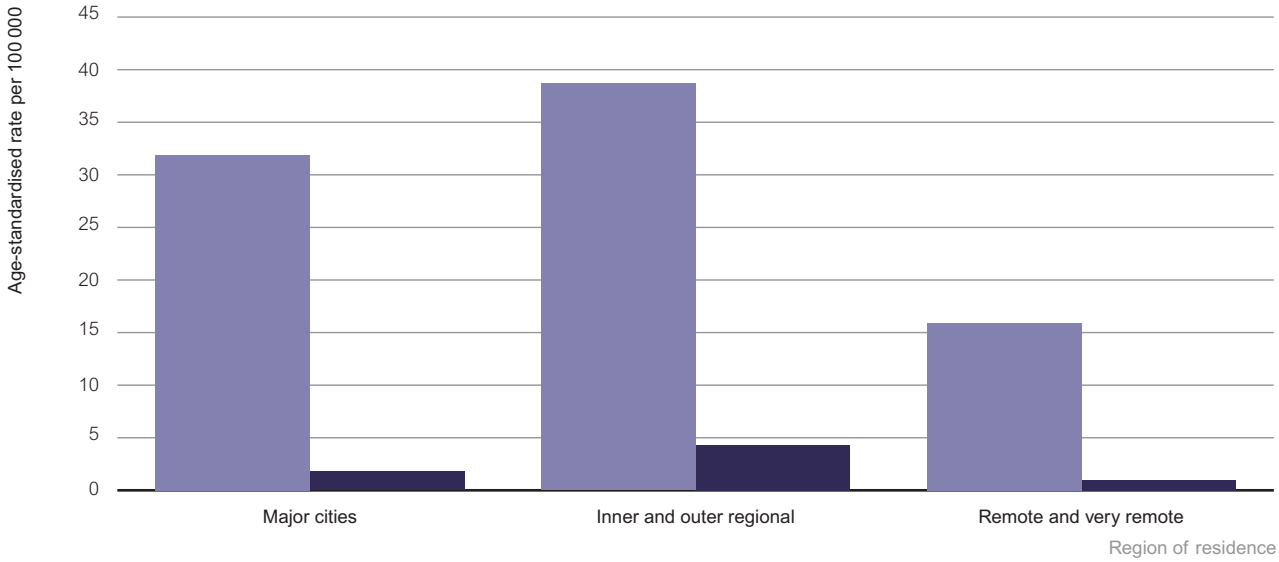
	2012	2013	2014	2015	2016
0–14	0.5	0.4	2.2	0.4	0.0
15–24	39.6	53.8	55.1	90.1	67.1
25–39	53.2	47.6	65.3	82.3	68.4
40+	8.9	12.3	9	14	14.7

Source: Australian National Notifiable Disease Surveillance System.

HCV

In 2016 rates of newly acquired hepatitis C in the Aboriginal and Torres Strait Islander population were 18 times as high as in the non-Indigenous population in major cities, 9 times as high in inner/outer regional areas, and 16 times as high in remote/very remote areas (Figure 2.1.13).

Figure 2.1.13 Newly acquired hepatitis C notification rate per 100 000 population, 2016, by Aboriginal and Torres Strait Islander status and area of residence

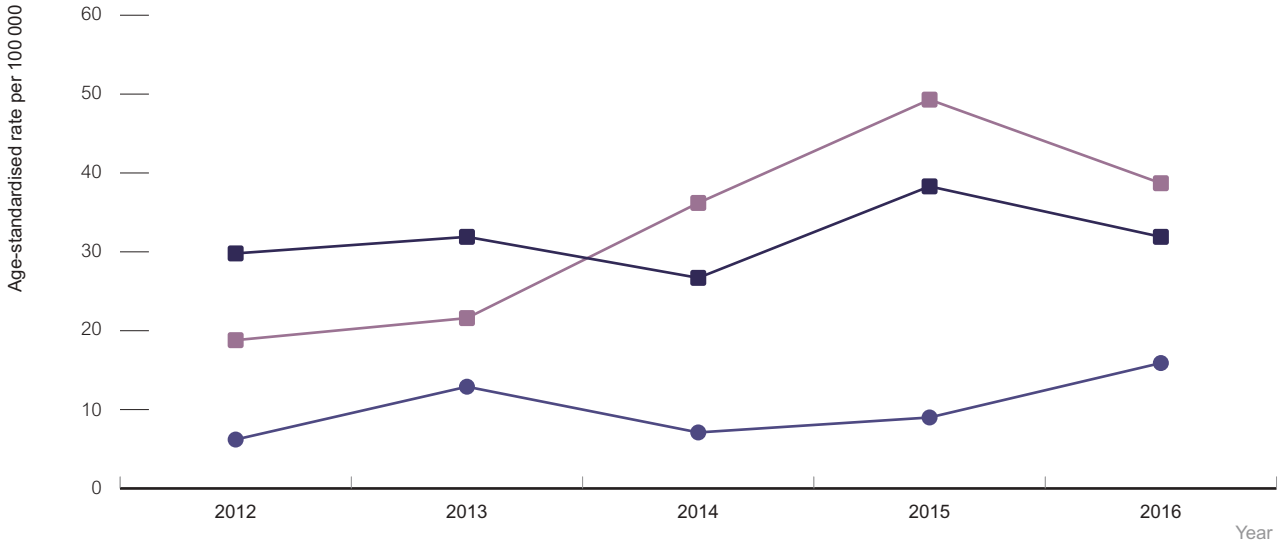


	Major cities	Inner and outer regional	Remote and very remote
Aboriginal and Torres Strait Islander	31.9	38.7	15.9
Non-Indigenous	1.8	4.3	1.0

Source: Australian National Notifiable Disease Surveillance System.

From 2012 to 2016, notification rates of newly acquired hepatitis C in the Aboriginal and Torres Strait Islander population remained stable in major cities, but increased by 106% in inner/outer regional areas, and by 156% in remote/very remote areas (Figure 2.1.14).

Figure 2.1.14 Newly acquired hepatitis C notification rate per 100 000 population, 2012–2016, by area of residence



	2012	2013	2014	2015	2016
Major cities	29.8	31.9	26.7	38.3	31.9
Inner and outer regional	18.8	21.6	36.2	49.3	38.7
Remote and very remote	6.2	12.9	7.1	9.0	15.9

Source: Australian National Notifiable Disease Surveillance System

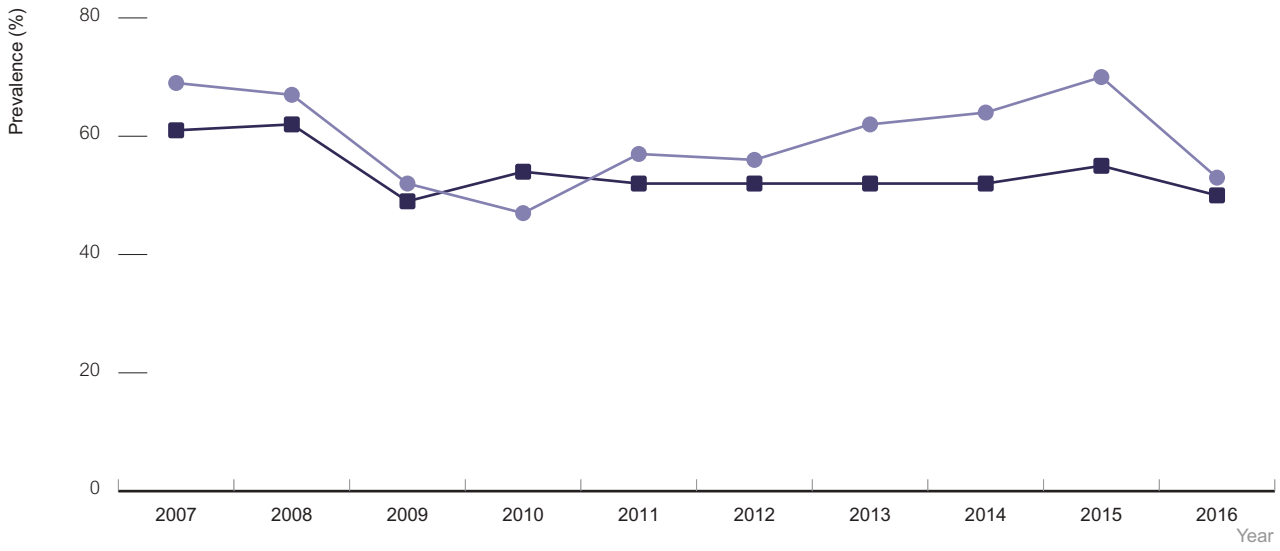
HCV

Hepatitis C prevalence

Australia's epidemic of chronic hepatitis C is concentrated among key populations including people who inject drugs, people from high-prevalence countries (defined as countries where the prevalence of hepatitis C is higher than 3.5%) and HIV-positive gay and bisexual men.

Over the past 10 years, hepatitis C antibody prevalence was higher among Aboriginal and Torres Strait Islander than non-Indigenous respondents in each of the Australian Needle and Syringe Program Surveys, except in 2010 (Figure 2.1.15). The hepatitis C antibody prevalence among Aboriginal and Torres Strait Islander participants increased from 57% in 2011 to 70% in 2015 and then decreased to 53% in 2016. This compares with a stable prevalence in non-Indigenous respondents at 52% to 55% over the past five years (Figure 2.1.15).

Figure 2.1.15 Hepatitis C antibody prevalence in needle and syringe program participants, 2007–2016, by Aboriginal and Torres Strait Islander status

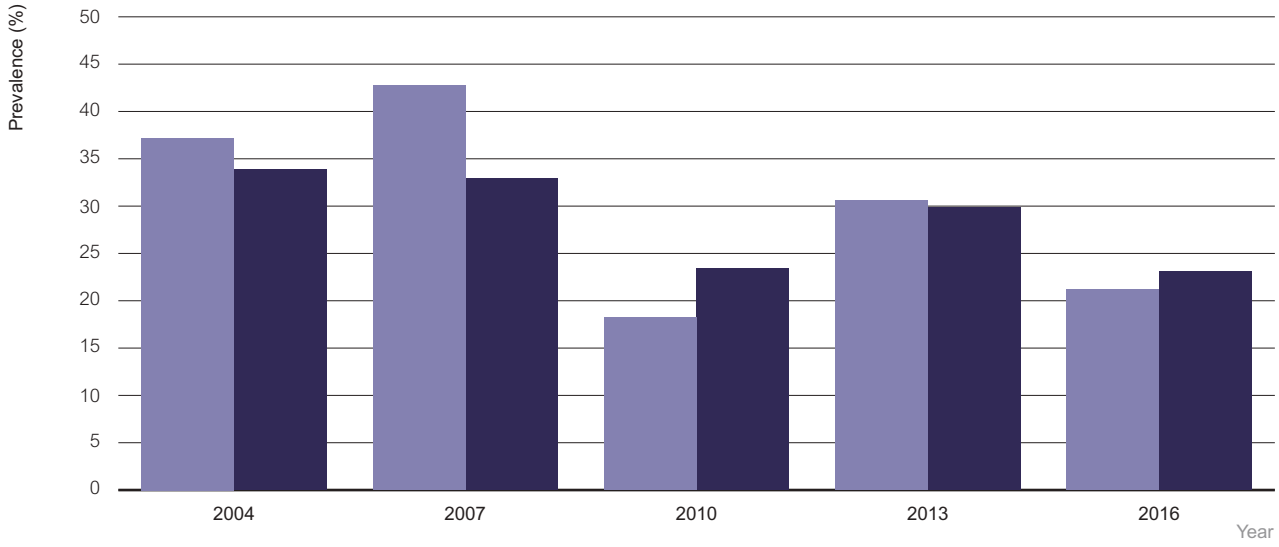


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander (%)	69	67	52	47	57	56	62	64	70	53
Non-Indigenous (%)	61	62	49	54	52	52	52	52	55	50

Source: Australian Needle and Syringe Program Survey.

Aboriginal and Torres Strait Islander people have higher rates of risk factors for hepatitis C acquisition, including incarceration and receptive sharing of syringes. In 2016, 27% of prisoners (compared to 2% of the general population over 18 years of age) were Aboriginal and Torres Strait Islander.[15] Hepatitis C prevalence was higher among Aboriginal and Torres Strait Islander prison entrants in each year of the National Prison Entrants' Bloodborne Virus Survey except 2010 and 2016, when prevalence was higher in non-Indigenous prison entrants (Figure 2.1.16).

Figure 2.1.16 Hepatitis C antibody prevalence among a sample of incoming Australian prisoners, by year of survey, and Aboriginal and Torres Strait Islander status



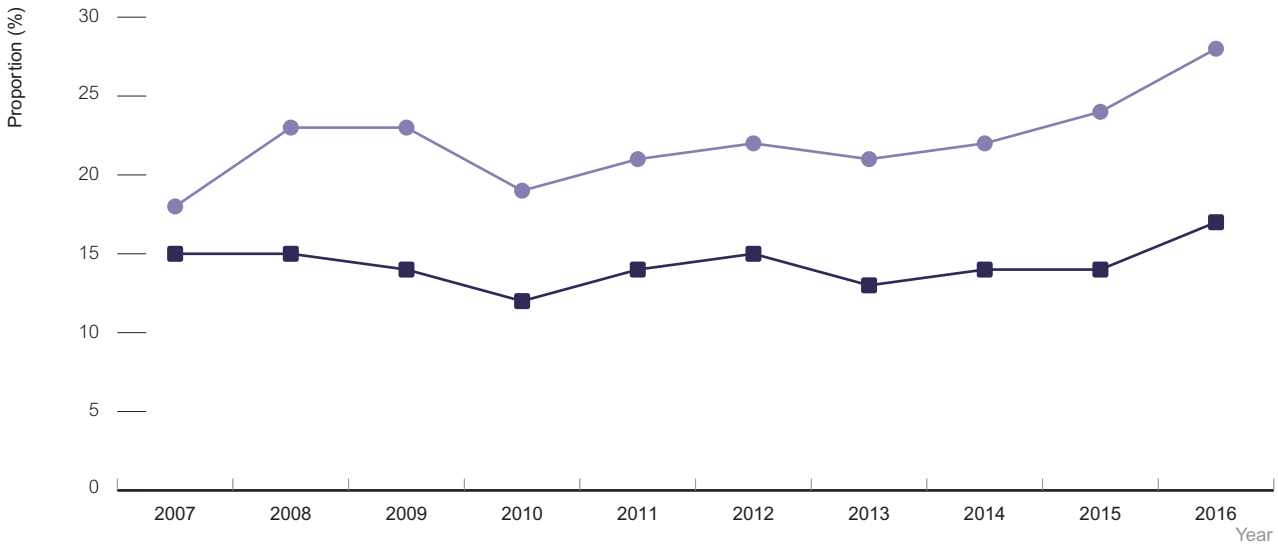
	2004	2007	2010	2013	2016
Aboriginal and Torres Strait Islander (%)	37.2	42.7	18.2	30.6	21.2
Non-Indigenous (%)	33.9	32.9	23.4	29.9	23.1

Source: National Prison Entrants' Bloodborne Virus Survey, 2004, 2007, 2010, 2013 and 2016.

Injecting drug use

The proportion of Aboriginal and Torres Strait Islander people attending needle and syringe programs who reported receptive syringe sharing increased from 18% in 2007 to 28% in 2016; this proportion was higher than in non-Indigenous participants in 2016 (28% versus 17%) (Figure 2.1.17). Receptive syringe sharing was determined by the question: 'How many times in the last month did you reuse a needle and syringe after someone else had used it, including your sex partner (even if it was cleaned)?'.

Figure 2.1.17 Prevalence of receptive syringe sharing[a] by needle and syringe program participants, 2007–2016, by Aboriginal and Torres Strait Islander status



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander (%)	18	23	23	19	21	22	21	22	24	28
Non-Indigenous (%)	15	15	14	12	14	15	13	14	14	17

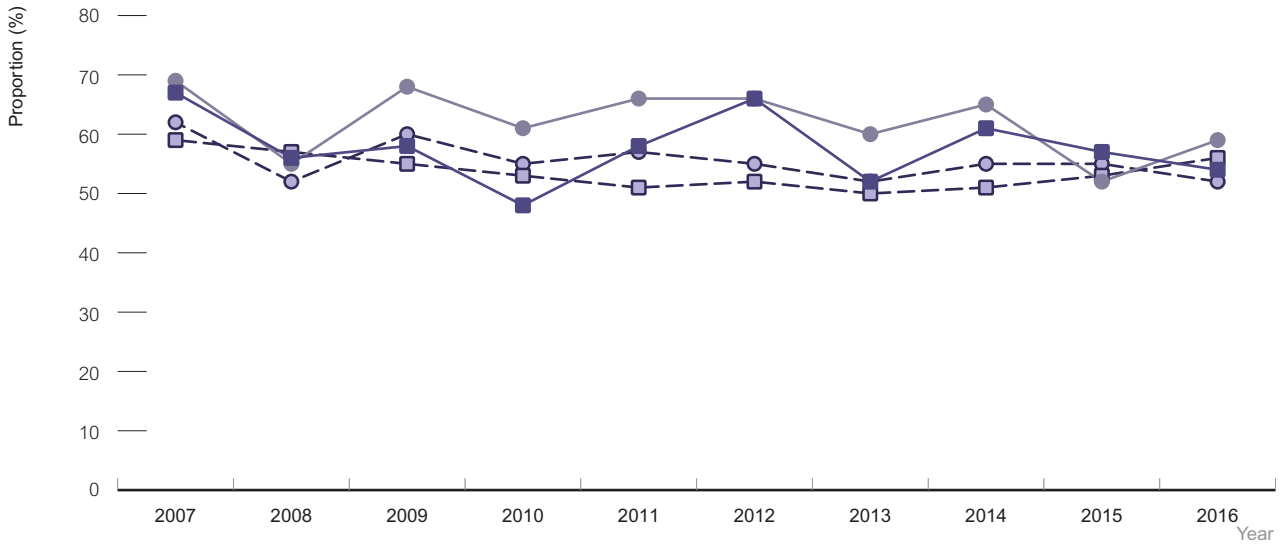
[a] Denominator includes only those who injected in the last month.

Source: Australian Needle and Syringe Program Survey.

Testing

Among respondents of the Australian Needle and Syringe Program Survey, the proportion of Aboriginal and Torres Strait Islander women who were hepatitis C antibody negative and reported an antibody test in the past 12 months was higher than among non-Indigenous respondents in all years except 2008 and 2015 (Figure 2.1.18). The proportion of Aboriginal and Torres Strait Islander men who were hepatitis C antibody negative and reported an antibody test in the past 12 months was also higher than among non-Indigenous responders in all years except 2008, 2010 and 2016 (Figure 2.1.18).

Figure 2.1.18 Proportion of people who inject drugs seen at needle and syringe programs who were hepatitis C antibody negative and reported a hepatitis C antibody test in the past 12 months, 2007–2016, by Aboriginal and Torres Strait Islander status



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander men (%)	67	56	58	48	58	66	52	61	57	54
Non-Indigenous men (%)	59	57	55	53	51	52	50	51	53	56
Aboriginal and Torres Strait Islander women (%)	69	55	68	61	66	66	60	65	52	59
Non-Indigenous women (%)	62	52	60	55	57	55	52	55	55	52

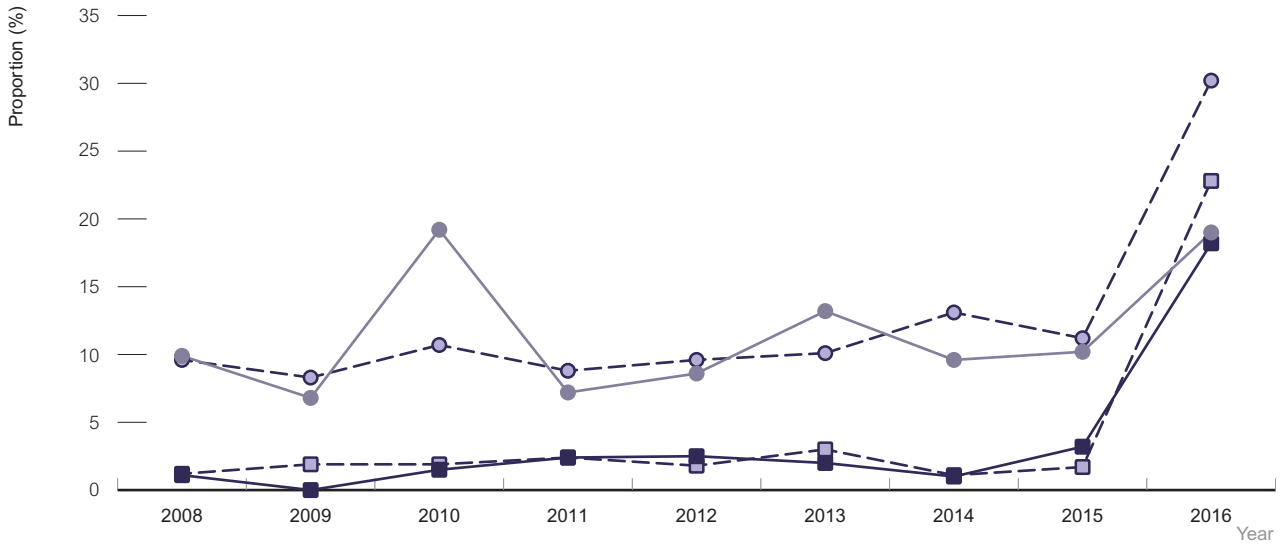
Source: Australian Needle and Syringe Program Survey.

HCV

Treatment

In 2016, among Aboriginal and Torres Strait Islander participants in the Australian Needle and Syringe Program Survey, 19% reported a lifetime history of hepatitis C treatment, and 18% reported treatment in the last 12 months, an increase from 10% and 3% respectively in 2015 (Figure 2.1.19). In 2016, Aboriginal and Torres Strait Islander participants had lower lifetime (19% vs 30%) and recent (18% vs 23%) uptake of treatment than non-Indigenous participants. Increases in treatment uptake between 2015 and 2016 reflect interferon-free direct-acting antiviral regimens becoming available in Australia in March 2016.

Figure 2.1.19 Hepatitis C antiviral therapy in the past 12 months and ever for hepatitis C antibody-positive needle and syringe program participants, 2008–2016, by Aboriginal and Torres Strait Islander status

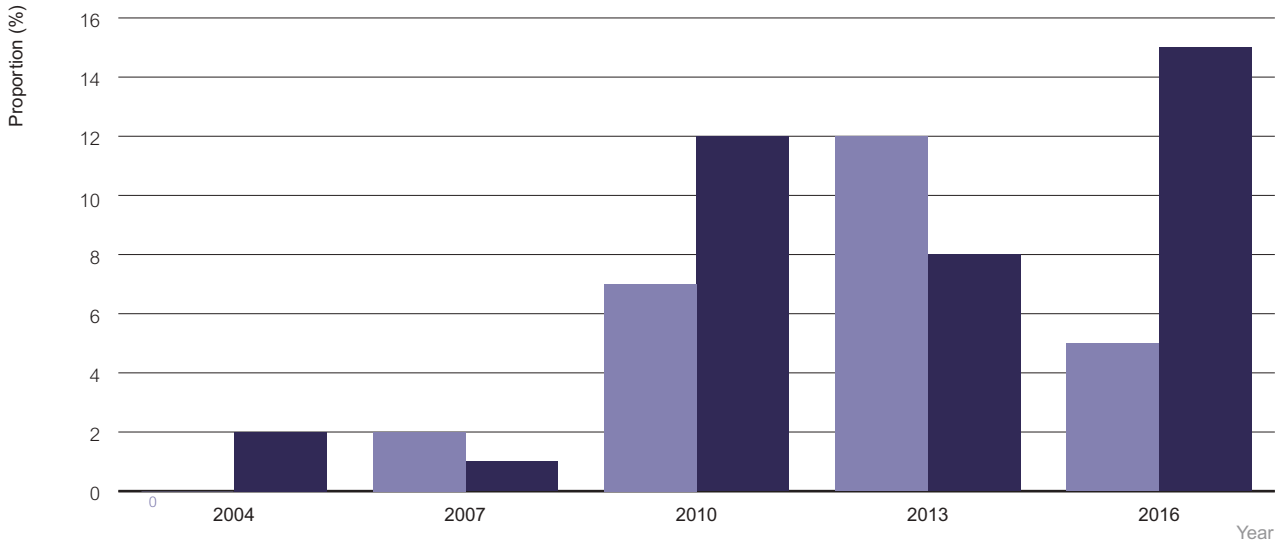


	2008	2009	2010	2011	2012	2013	2014	2015	2016
Lifetime history of treatment, Aboriginal and Torres Strait Islander (%)	9.9	6.8	19.2	7.2	8.6	13.2	9.6	10.2	19.0
Treatment in the last 12 months, Aboriginal and Torres Strait Islander (%)	1.1	0.0	1.5	2.4	2.5	2.0	1.0	3.2	18.2
Lifetime history of treatment, non-Indigenous (%)	9.6	8.3	10.7	8.8	9.6	10.1	13.1	11.2	30.2
Treatment in the last 12 months, non-Indigenous (%)	1.2	1.9	1.9	2.4	1.8	3.0	1.1	1.7	22.8

Source: Australian Needle and Syringe Program Survey

In 2016, of Aboriginal and Torres Strait Islander prison entrants in the National Prison Entrants' Bloodborne Virus Survey with chronic hepatitis C, 5% reported ever having received treatment for hepatitis C, compared to 15% of non-Indigenous respondents to the survey. The proportion reporting ever having received treatment has fluctuated between 0% and 12% for Aboriginal and Torres Strait Islander prison entrants and between 1% and 15% for non-Indigenous prison entrants between 2004 and 2016 (Figure 2.1.20). Caution should be taken in interpretation of these small numbers, as differences may not be statistically significant.

Figure 2.1.20 Proportion of prison entrants with hepatitis C reporting ever having received hepatitis C treatment, by year of survey and Aboriginal and Torres Strait Islander status



	2004	2007	2010	2013	2016
Aboriginal and Torres Strait Islander (%)	0	2	7	12	5
Non-Indigenous (%)	2	1	12	8	15

Source: National Prison Entrants' Bloodborne Virus Survey; 2004 data excludes Australian Capital Territory, Northern Territory, South Australia and Victoria, 2007 data excludes Northern Territory and 2016 data excludes New South Wales and Western Australia.

2 Viral hepatitis

2.2 Hepatitis B

Newly diagnosed hepatitis B infections

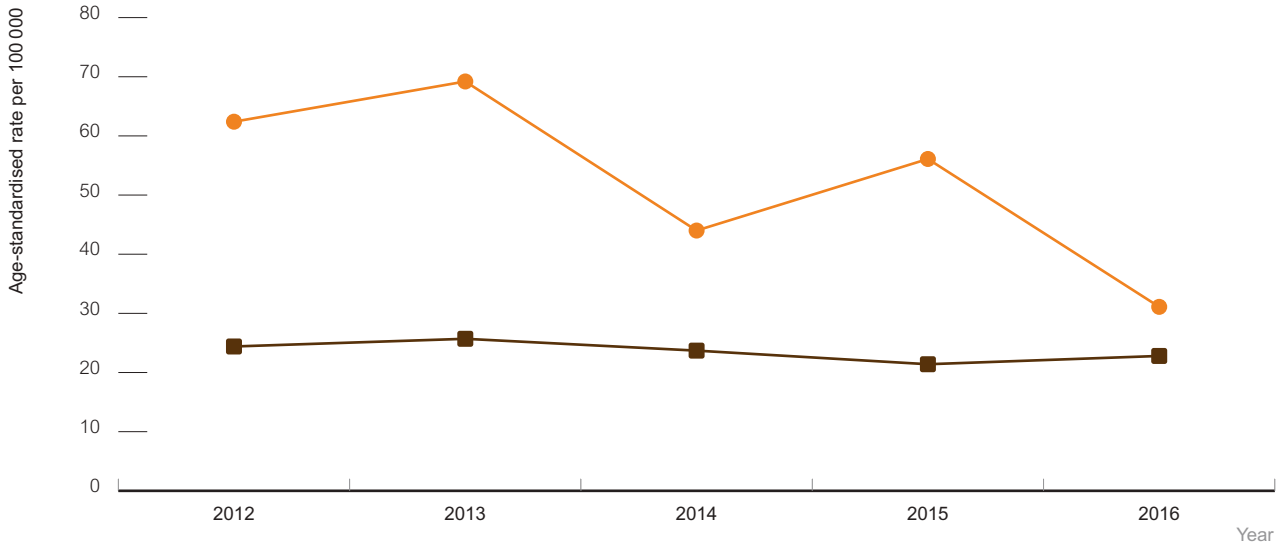
This section focuses on newly diagnosed hepatitis B infection, which means that a person previously not known to have the infection has been tested and now found to have the infection. These diagnoses include newly acquired infections (previous negative test in the past two years) plus those with a previous test more than two years ago or where the time period is unknown.

There were a total of 6555 notifications of newly diagnosed hepatitis B infection in Australia in 2016. Of these 176 (3%) were among the Aboriginal and Torres Strait Islander population, 2718 (41%) were among the non-Indigenous population, and 3661 (56%) were among people whose Indigenous status was not reported.

In the five-year period 2012–2016, Aboriginal and Torres Strait Islander status was recorded in at least 50% of notifications per year in the Australian Capital Territory, the Northern Territory, South Australia, Tasmania and Western Australia.

In 2016, the age-standardised notification rate of newly diagnosed hepatitis B infection for the Aboriginal and Torres Strait Islander population was 1.4 times as high as for the non-Indigenous population (31.1 per 100 000 vs 22.8 per 100 000) (Figure 2.2.1). This represents a decrease from 2012, when the notification rate of newly diagnosed hepatitis B infection for the Aboriginal and Torres Strait Islander population was 2.6 times as high as in the non-Indigenous population (62.4 per 100 000 vs 24.4 per 100 000).

Figure 2.2.1 Newly diagnosed hepatitis B notification rate per 100 000 population, 2012–2016, by Aboriginal and Torres Strait Islander status

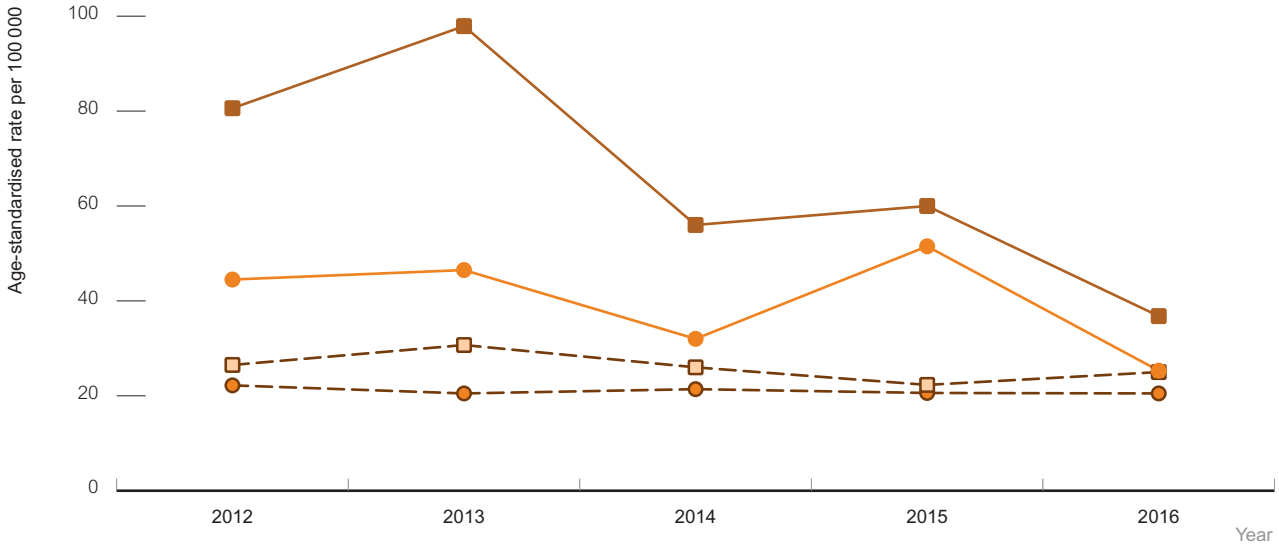


	2012	2013	2014	2015	2016
Non-Indigenous	24.4	25.7	23.7	21.4	22.8
Aboriginal and Torres Strait Islander	62.4	69.2	44.0	56.1	31.1

Source: Australian National Notifiable Disease System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2012–2016.

Notification rates of newly diagnosed hepatitis B infection have been consistently higher in Aboriginal and Torres Strait Islander males than in Aboriginal and Torres Strait Islander females but have decreased over time in males (from 80.6 per 100 000 in 2012 to 36.8 per 100 000 in 2016) and fluctuated in females (25.3 to 51.5 per 100 000). (Figure 2.2.2).

Figure 2.2.2 Newly diagnosed hepatitis B notification rate per 100 000 population, 2012–2016, by Aboriginal and Torres Strait Islander status and sex



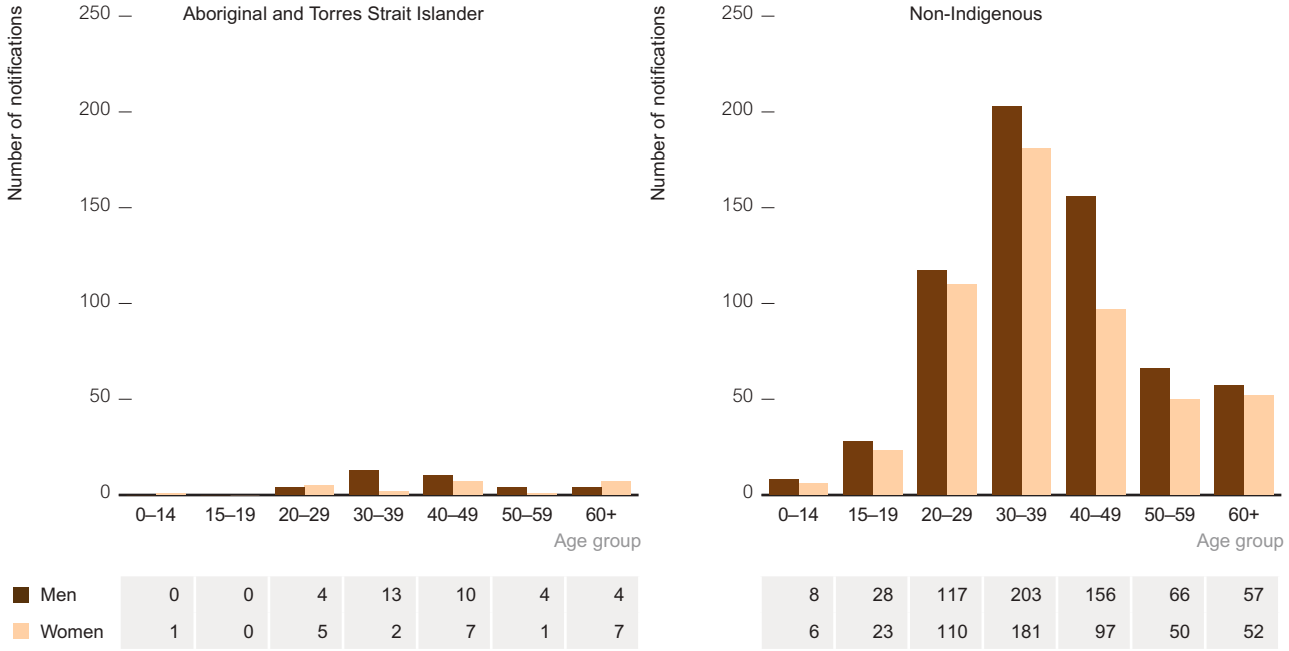
	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander men	80.6	97.9	56.0	60.0	36.8
Non-Indigenous men	26.5	30.7	26.0	22.3	25.0
Aboriginal and Torres Strait Islander women	44.5	46.5	32.0	51.5	25.3
Non-Indigenous women	22.2	20.5	21.4	20.6	20.5

Source: Australian National Notifiable Disease System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania, and Western Australia) for each of the five years 2012–2016.

HBV

In 2016, 98% of notifications of newly diagnosed hepatitis B infection in the Aboriginal and Torres Strait Islander, and 94% in the non-Indigenous populations, were in those aged 20 years and over (Figure 2.2.3).

Figure 2.2.3 Number of cases of newly diagnosed hepatitis B, 2016, by Aboriginal and Torres Strait Islander status and age group

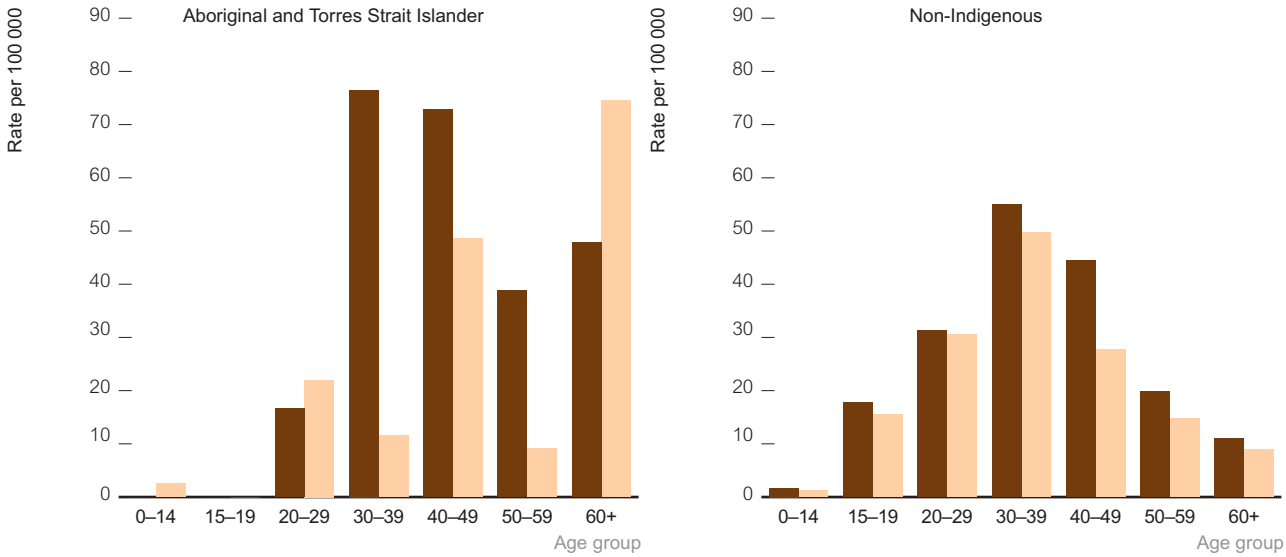


	Aboriginal and Torres Strait Islander							Non-Indigenous						
	0–14	15–19	20–29	30–39	40–49	50–59	60+	0–14	15–19	20–29	30–39	40–49	50–59	60+
Men	0	0	4	13	10	4	4	8	28	117	203	156	66	57
Women	1	0	5	2	7	1	7	6	23	110	181	97	50	52

Source: Australian National Notifiable Disease System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2012–2016.

In 2016, Aboriginal and Torres Strait Islander people experienced higher rates of newly diagnosed hepatitis B infection than non-Indigenous people, particularly among men and women aged 40 years and over (Figure 2.2.4). Among younger age groups, rates were higher for non-Indigenous than for Aboriginal and Torres Strait Islander males and females.

Figure 2.2.4 Newly diagnosed hepatitis B notification rate per 100 000 population, 2016, by Aboriginal and Torres Strait Islander status, age group and sex



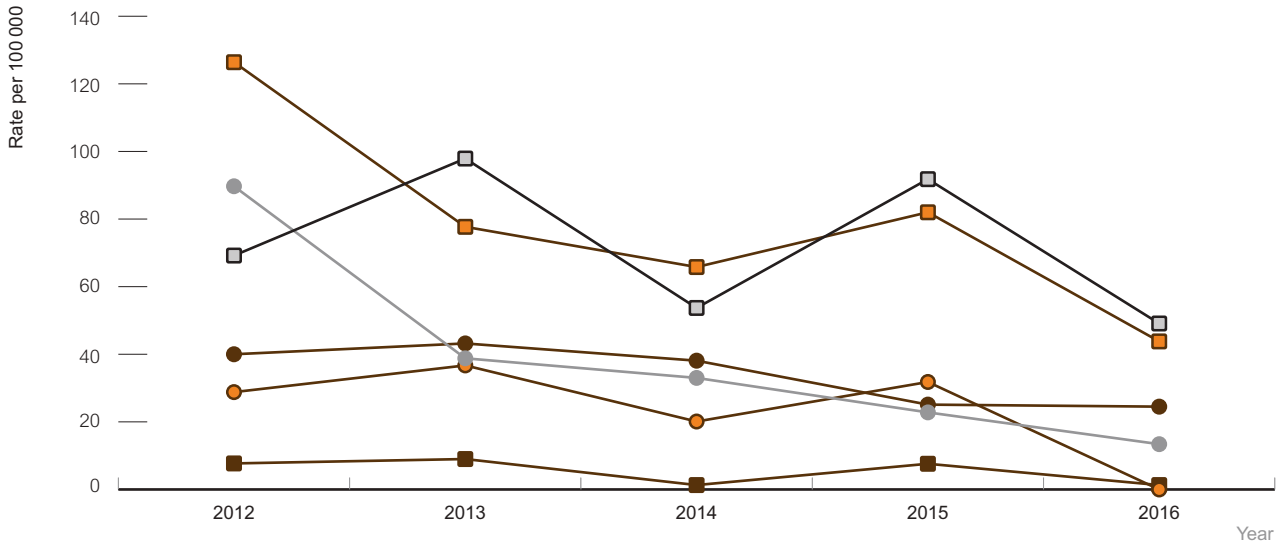
	0–14	15–19	20–29	30–39	40–49	50–59	60+
Aboriginal and Torres Strait Islander							
Men	0.0	0.0	16.6	76.5	72.9	38.9	47.8
Women	2.6	0.0	22.0	11.6	48.6	9.1	74.5
Non-Indigenous							
Men	1.7	17.8	31.3	55.0	44.4	19.8	11.0
Women	1.3	15.5	30.5	49.7	27.7	14.8	9.0

Source: Australian National Notifiable Disease System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2012–2016.

HBV

The rate of newly diagnosed hepatitis B has declined in Aboriginal and Torres Strait Islander people in all age groups, with fluctuations in some years (Figure 2.2.5). The highest rates in 2016 were found in older age groups, at 43.8 per 100 000 for those aged 30–39 and 49.1 per 100 000 for those 40 years and over, reflecting the impact of childhood and adolescent vaccination programs on younger groups.

Figure 2.2.5 Newly diagnosed hepatitis B notification rate per 100 000 population, 2012–2016, in Aboriginal and Torres Strait Islander people, by age group

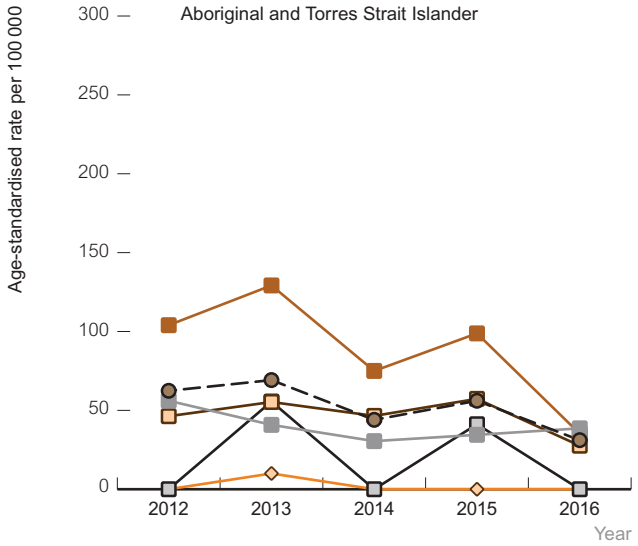


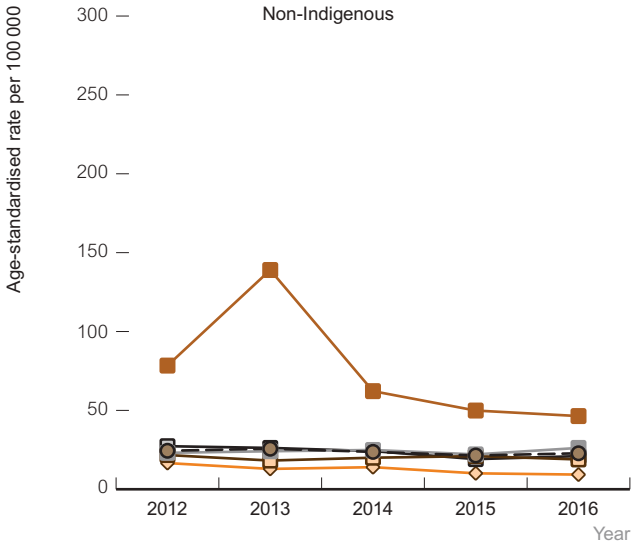
	2012	2013	2014	2015	2016
0–14	7.7	9.0	1.3	7.6	1.3
15–19	28.8	36.7	20.1	31.8	0.0
20–24	40.0	43.2	38.1	25.1	24.5
25–29	89.7	38.8	33.0	22.8	13.4
30–39	126.4	77.7	65.8	82.0	43.8
40+	69.2	97.9	53.7	91.8	49.1

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2012–2016.

In 2016, the age-standardised rate of newly diagnosed hepatitis B infection was highest in Western Australia and the Northern Territory among both Aboriginal and Torres Strait Islander and non-Indigenous people (Figure 2.2.6). From 2012 to 2016, rates of newly diagnosed hepatitis B infection among the Aboriginal and Torres Strait Islander population declined by 195% in the Northern Territory, 68% in South Australia and 46% in Western Australia (Figure 2.2.6). The spike in notifications in 2013 can be attributed to hepatitis B testing in irregular maritime arrivals in Darwin.[16]

Figure 2.2.6 Newly diagnosed hepatitis B notification rate per 100 000 population, 2012–2016, by Aboriginal and Torres Strait Islander status and State/Territory





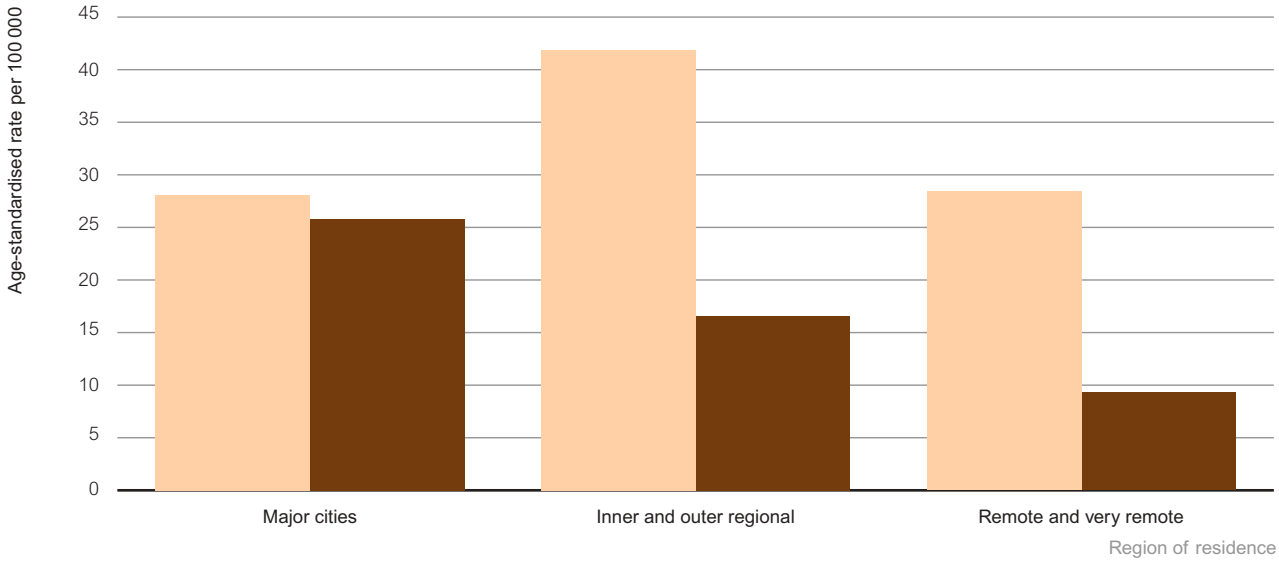
	Aboriginal and Torres Strait Islander					Non-Indigenous				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
Australia	62.4	69.2	44.0	56.1	31.1	24.4	25.7	23.7	21.4	22.8
ACT	0.0	55.6	0.0	41.2	0.0	27.3	26.2	24.2	19.1	21.0
NT	104.0	129.2	75.0	98.8	35.2	78.4	139.0	62.2	49.9	46.4
SA	46.3	55.3	46.5	57.3	27.6	21.7	18.2	20.0	21.0	18.9
TAS	0.0	10.0	0.0	0.0	0.0	16.6	12.9	14.0	10.1	9.3
WA	56.1	40.8	30.5	34.5	38.6	23.1	24.1	24.9	22.1	26.2

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2012–2016.

HBV

In 2016, the rates of newly diagnosed hepatitis B infection in the Aboriginal and Torres Strait Islander population were higher than in the non-Indigenous population in all areas of residence, but the difference was greater in regional and remote areas (Figure 2.2.7).

Figure 2.2.7 Newly diagnosed hepatitis B notification rate per 100 000 population, 2016, by Aboriginal and Torres Strait Islander status and area of residence

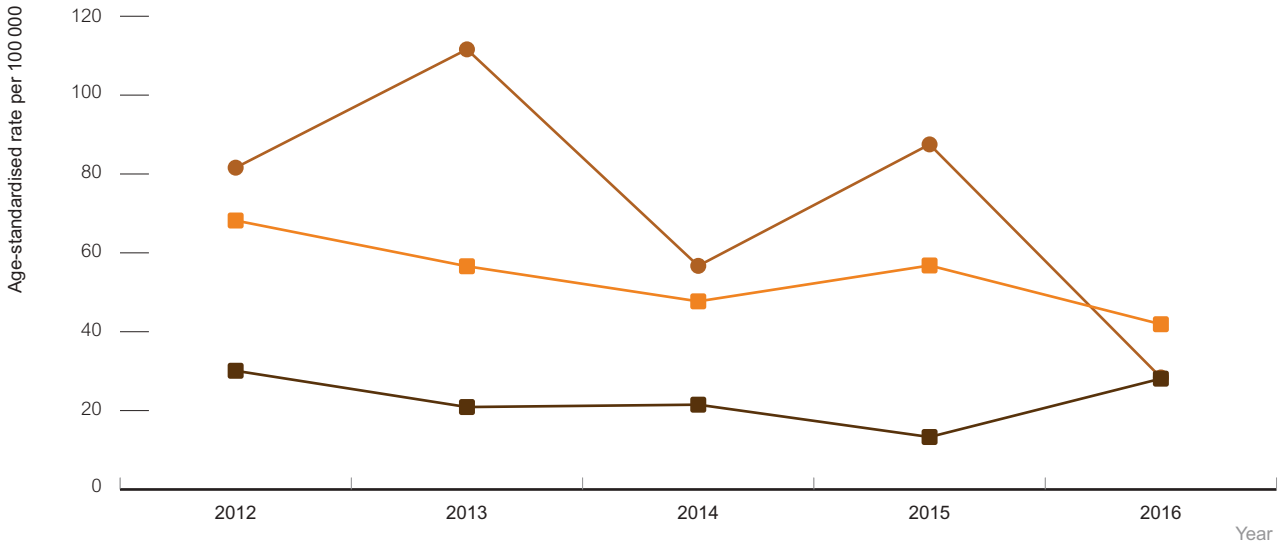


	Major cities	Inner and outer regional	Remote and very remote
Aboriginal and Torres Strait Islander	28.1	41.9	28.4
Non-Indigenous	25.8	16.6	9.3

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2012–2016.

Rates of hepatitis B notification among Aboriginal and Torres Strait Islander people are higher in inner/outer regional areas and remote/very remote areas of residence than in major cities. Notification rates decreased in inner/outer regional areas between 2012 and 2016 by 39%, from 68.2 to 41.9 per 100 000, and in remote/very remote areas by 65% from 81.6 per 100 000 to 28.4 per 100 000 (Figure 2.2.8).

Figure 2.2.8 Newly diagnosed hepatitis B notification rate per 100 000 population, 2012–2016, in Aboriginal and Torres Strait Islander people, by area of residence



	2012	2013	2014	2015	2016
Major cities	30.1	20.9	21.5	13.3	28.1
Inner and outer Regional	68.2	56.6	47.7	56.8	41.9
Remote and very remote	81.6	111.6	56.7	87.5	28.4

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2012–2016.

HBV

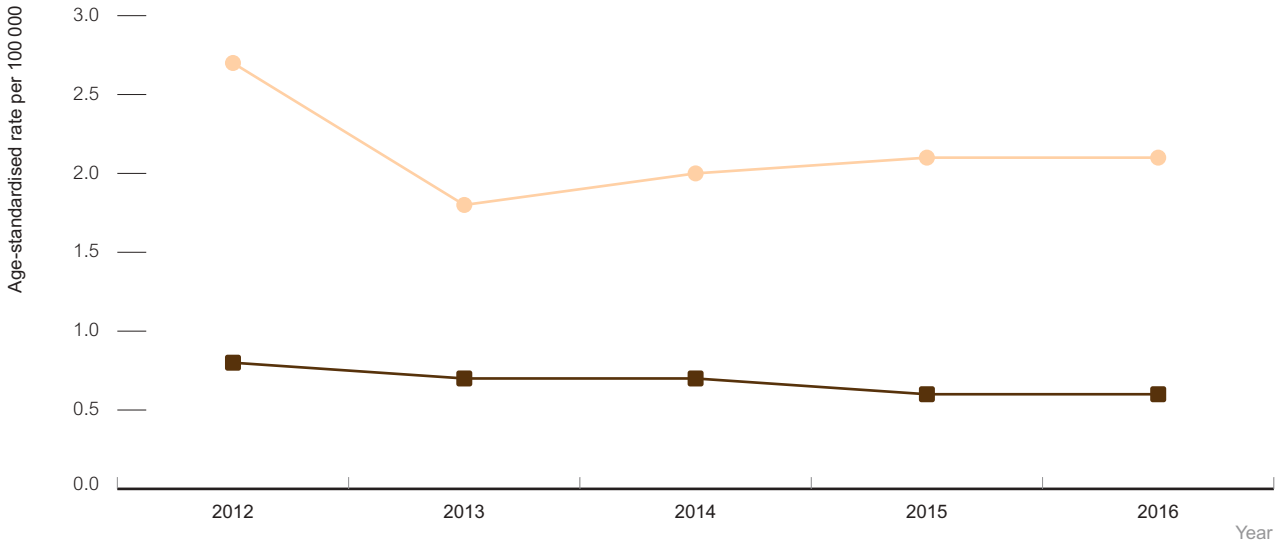
Newly acquired hepatitis B infection

This section focuses on newly acquired hepatitis B infection. Newly acquired hepatitis B infection is defined as newly diagnosed hepatitis B infection in a person previously known not to have the infection within the last two years. Determination of a case as 'newly acquired' is heavily reliant on public health follow-up, with the method and intensity of follow-up varying by jurisdiction and over time.

For each of the five years 2012–2016, information on Aboriginal and Torres Strait Islander status was reported for at least 50% of notifications of newly acquired hepatitis B infection in all jurisdictions. Of the 157 notifications of newly acquired hepatitis B infection in 2016, 13 (8%) were in the Aboriginal and Torres Strait Islander population and 136 (87%) in the non-Indigenous population, and 8 notifications (5%) did not report Aboriginal and Torres Strait Islander status.

In the five-year period 2012–2016 the age-standardised notification rate of newly acquired hepatitis B infection in the Aboriginal and Torres Strait Islander population fluctuated between 1.8 and 2.7 per 100 000 and was stable (between 0.6 and 0.8 per 100 000) in the non-Indigenous population over the same time period (Figure 2.2.9).

Figure 2.2.9 Newly acquired hepatitis B notification rate per 100 000 population, 2012–2016, by Aboriginal and Torres Strait Islander status

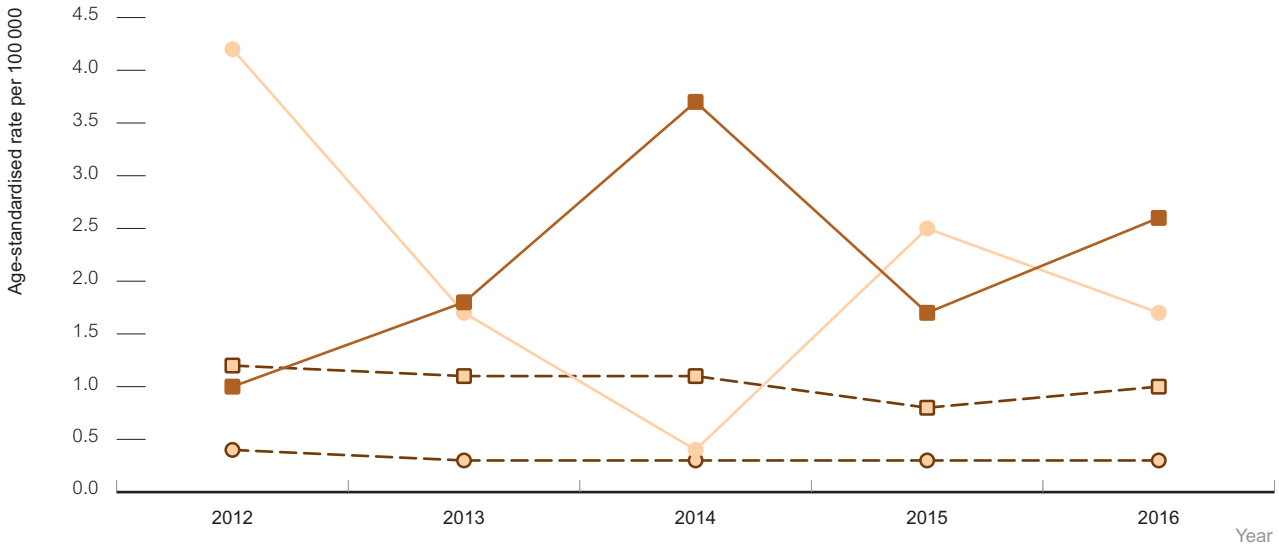


	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander	2.7	1.8	2.0	2.1	2.1
Non-Indigenous	0.8	0.7	0.7	0.6	0.6

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (New South Wales, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2012–2016.

The rate of newly acquired hepatitis B infection in males and females in the Aboriginal and Torres Strait Islander population was higher than the non-Indigenous population in most years, except 2012 when the rate was slightly lower in Aboriginal and Torres Strait Islander males than in non-Indigenous males (1.0 vs 1.2 per 100 000) (Figure 2.2.10).

Figure 2.2.10 Newly acquired hepatitis B notification rate per 100 000 population, 2012–2016, by Aboriginal and Torres Strait Islander status and sex

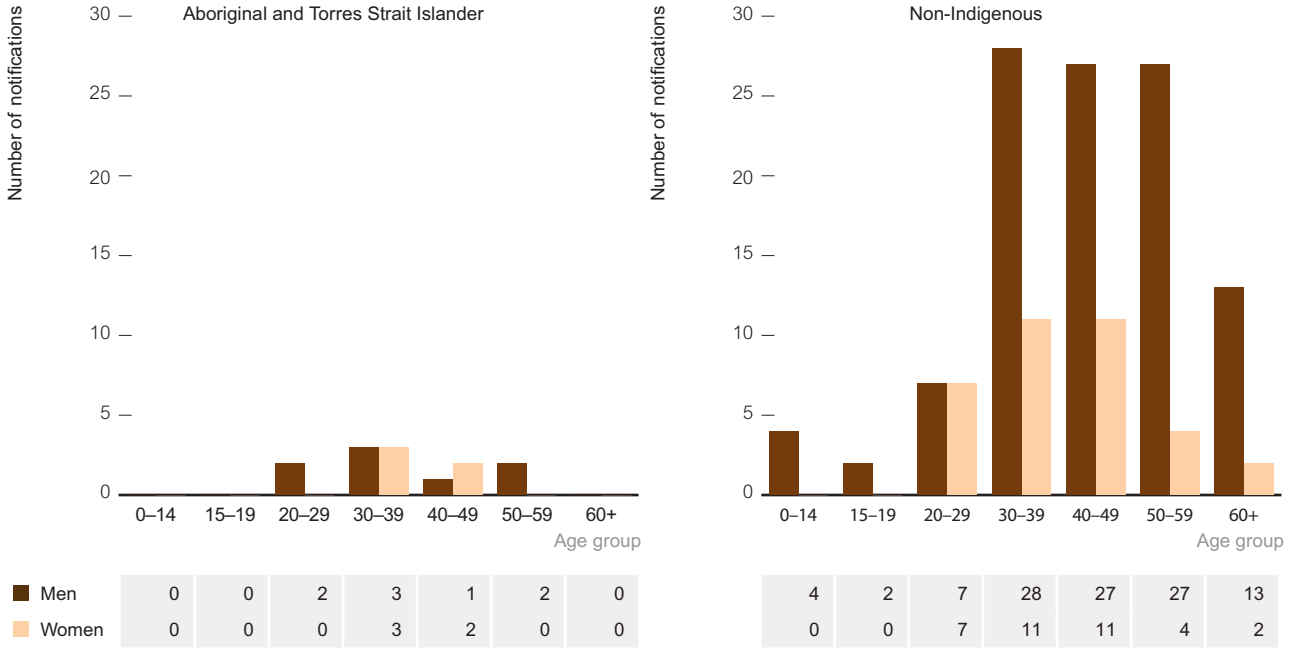


	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander men	1.0	1.8	3.7	1.7	2.6
Non-Indigenous men	1.2	1.1	1.1	0.8	1.0
Aboriginal and Torres Strait Islander women	4.2	1.7	0.4	2.5	1.7
Non-Indigenous women	0.4	0.3	0.3	0.3	0.3

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (New South Wales, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2012–2016.

In 2016, the male-to-female ratio of newly acquired hepatitis B infection in the Aboriginal and Torres Strait islander population was 1.6:1 compared with 3.1:1 in the non-Indigenous population (Figure 2.2.11).

Figure 2.2.11 Number of newly acquired hepatitis B notifications, 2016, by Aboriginal and Torres Strait Islander status, sex and age group

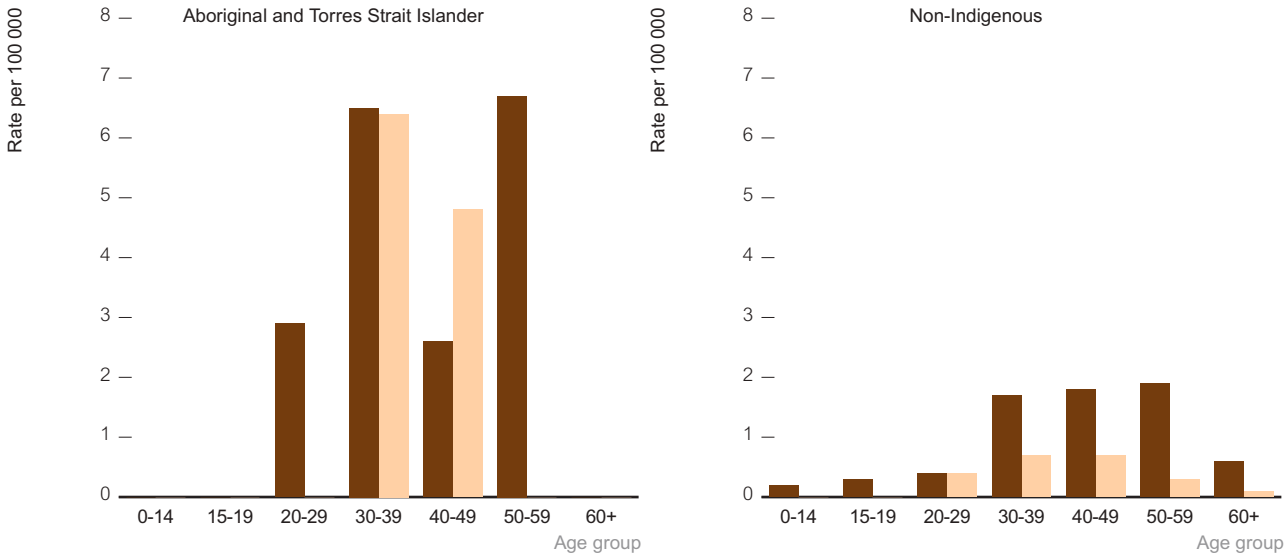


	Aboriginal and Torres Strait Islander							Non-Indigenous						
	0–14	15–19	20–29	30–39	40–49	50–59	60+	0–14	15–19	20–29	30–39	40–49	50–59	60+
Men	0	0	2	3	1	2	0	4	2	7	28	27	27	13
Women	0	0	0	3	2	0	0	0	0	7	11	11	4	2

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (New South Wales, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2012–2016.

In 2016, the notification rate of newly acquired hepatitis B infection in the Aboriginal and Torres Strait Islander male population was higher in nearly all age groups (20–29, 30–39, 40–49 and 50–59 years) than the corresponding rate in the non-Indigenous population (Figure 2.2.12). Notification rates of newly acquired hepatitis B were highest in Aboriginal and Torres Strait Islander men aged 50–59 years.

Figure 2.2.12 Newly acquired hepatitis B notification rate per 100 000 population, 2016, by Aboriginal and Torres Strait Islander status, sex, and age group



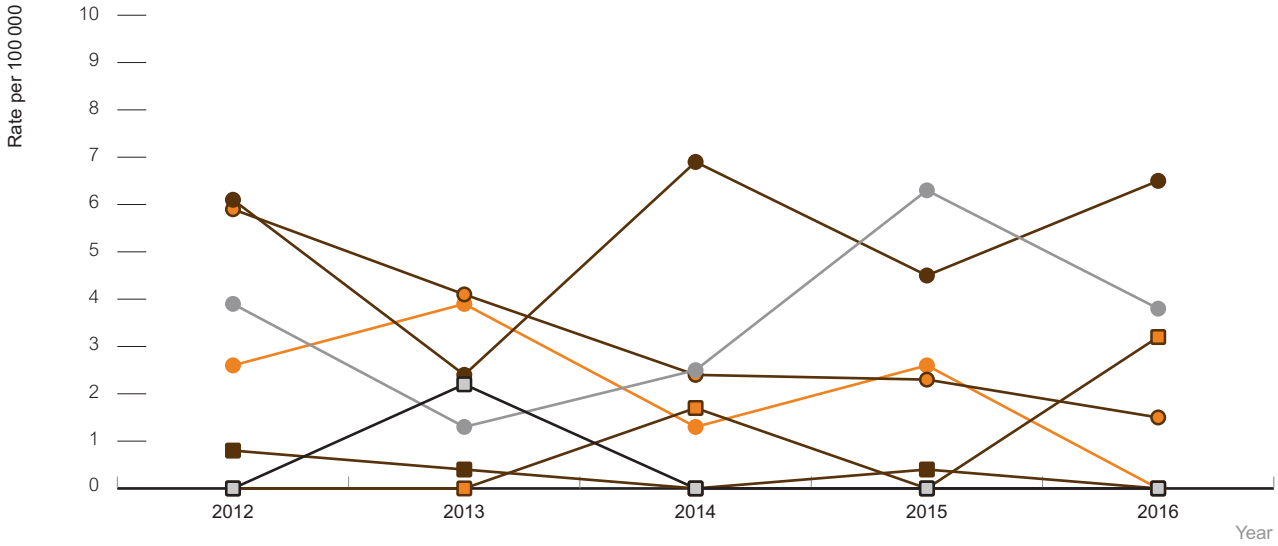
	Aboriginal and Torres Strait Islander							Non-Indigenous						
	0-14	15-19	20-29	30-39	40-49	50-59	60+	0-14	15-19	20-29	30-39	40-49	50-59	60+
Men	0.0	0.0	2.9	6.5	2.6	6.7	0.0	0.2	0.3	0.4	1.7	1.8	1.9	0.6
Women	0.0	0.0	0.0	6.4	4.8	0.0	0.0	0.0	0.0	0.4	0.7	0.7	0.3	0.1

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for 2016.

HBV

Between 2012 and 2016, the notification rate of newly acquired hepatitis B infection in the Aboriginal and Torres Strait Islander population fluctuated in all age groups except 20–29 years, where there was a steady decline (Figure 2.2.13). The rate was highest in people aged 30–39 years in 2016, at 6.5 per 100 000.

Figure 2.2.13 Newly acquired hepatitis B notification rate per 100 000 population, 2012–2016, in Aboriginal and Torres Strait Islander people, by age group



	2012	2013	2014	2015	2016
0–14	0.8	0.4	0.0	0.4	0.0
15–19	2.6	3.9	1.3	2.6	0.0
20–29	5.9	4.1	2.4	2.3	1.5
30–39	6.1	2.4	6.9	4.5	6.5
40–49	3.9	1.3	2.5	6.3	3.8
50–59	0.0	0.0	1.7	0.0	3.2
60+	0.0	2.2	0.0	0.0	0.0

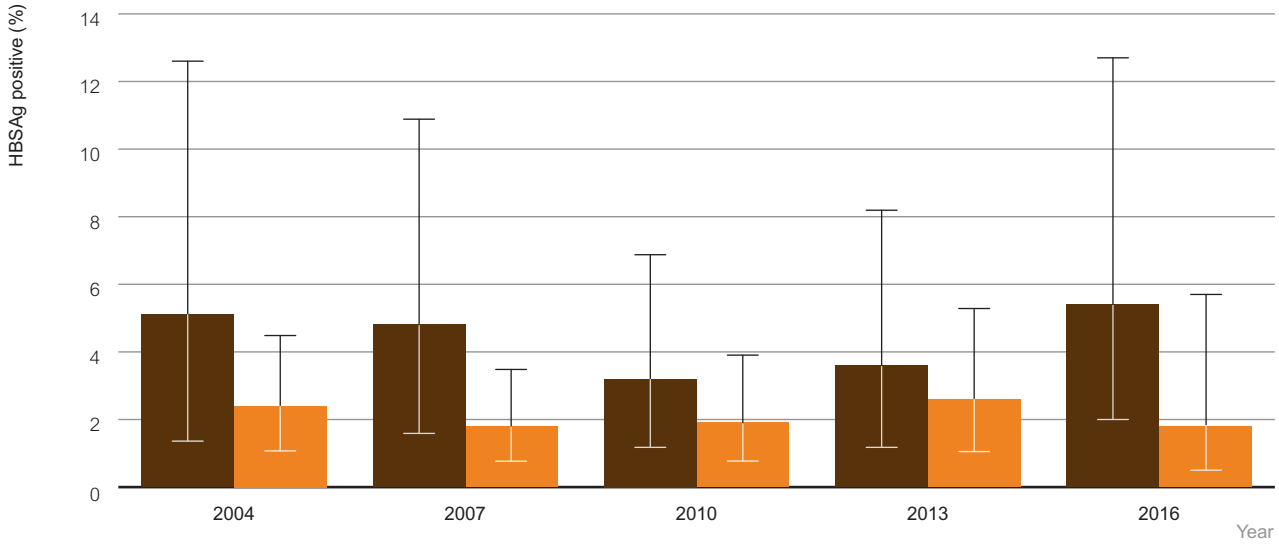
Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (New South Wales, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2012–2016.

Hepatitis B prevalence

Australia has a concentrated hepatitis B epidemic among two key populations: migrants from high-prevalence countries (particularly in Asia and the Pacific) and Aboriginal and Torres Strait Islander people. At the end of 2016, there were an estimated 24 287 Aboriginal and Torres Strait Islander people living with chronic hepatitis B infection, 11% of the total estimated number of people living with chronic hepatitis B (230 034). Hepatitis B prevalence in the Aboriginal and Torres Strait Islander population was estimated to be 3.7% in 2016.[17]

In a survey conducted every three years in a sample of incoming prisoners, hepatitis B prevalence was higher in Aboriginal and Torres Strait Islander people than in non-Indigenous people in each round of the survey between 2004 and 2016 (Figure 2.2.14). In 2016 (the most recent year of the survey), the prevalence of hepatitis B was 5.4% in Aboriginal and Torres Strait Islander people and 1.8% in non-Indigenous people.

Figure 2.2.14 Hepatitis B surface antigen (HBsAg) prevalence among a sample of incoming Australian prisoners, by year of survey, and Aboriginal and Torres Strait Islander status



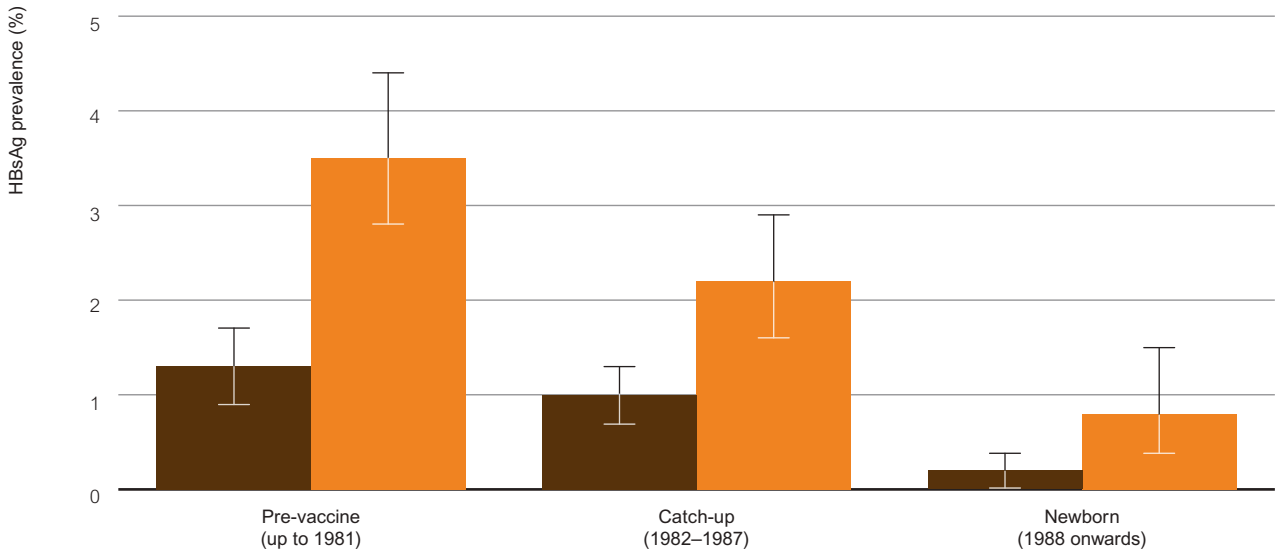
	2004	2007	2010	2013	2016
Aboriginal and Torres Strait Islander (%)	5.1	4.8	3.2	3.6	5.4
Non-Indigenous (%)	2.4	1.8	1.9	2.6	1.8

Source: National Prison Entrants' Bloodborne Virus Survey, 2004, 2007, 2010, 2013 and 2016.

HBV

Data from published studies (see Methodology for further detail) linking hepatitis B notifications to perinatal data collections suggest that among Aboriginal women giving birth in the Northern Territory[18] and New South Wales,[19] hepatitis B prevalence rates are around 80% lower in women born after childhood hepatitis B vaccination was introduced in 1988 than in those born in the pre-vaccine period (Figure 2.2.15).

Figure 2.2.15 Prevalence of chronic hepatitis B infection among Aboriginal women giving birth in New South Wales (2000–2012) and the Northern Territory (2005–2010) by vaccine policy in maternal year of birth



	Pre-vaccine (up to 1981)	Catch-up (1982–1987)	Newborn (1988 onwards)
NSW (%)	1.3	1.0	0.2
NT (%)	3.5	2.2	0.8

Note: The pre-vaccine stage includes women born in or before 1981 (New South Wales) or in or before 1982 (Northern Territory). The catch-up stage includes women born between 1982 and 1987 (New South Wales) or between 1982 and 1988 (Northern Territory). The newborn stage includes women born between 1988 and 1999 (New South Wales) or in 1989 and later (Northern Territory).

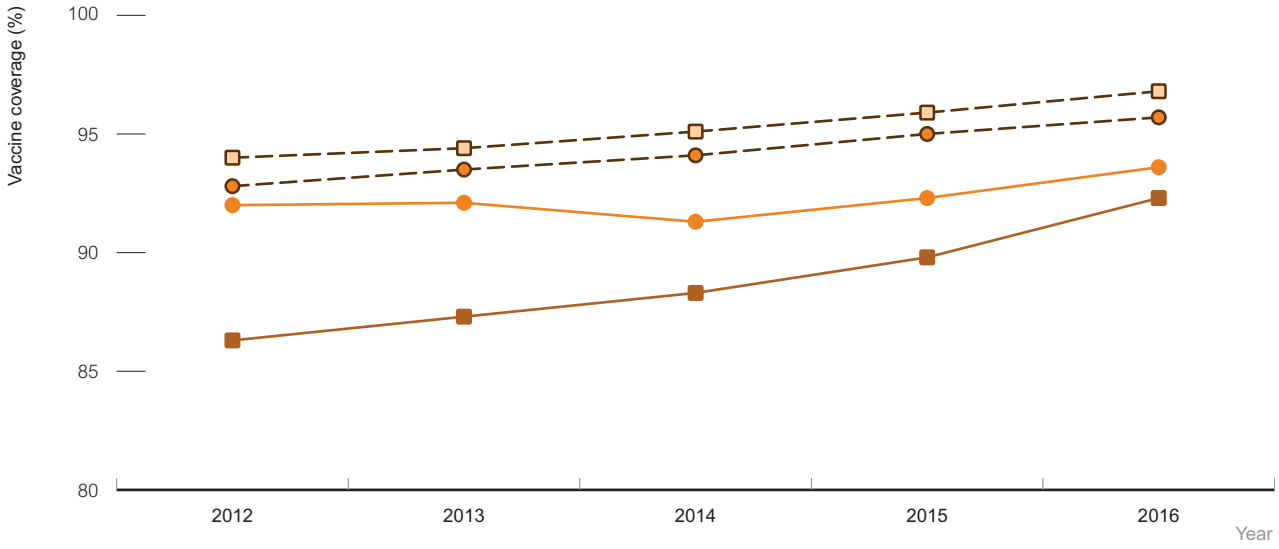
Source: Deng et al.[19] and Liu et al.[18]

Vaccination

In the Northern Territory in 1985, hepatitis B screening was introduced for all pregnant women and vaccination for infants born to mothers living with chronic hepatitis B infection. In 1990, universal infant vaccination was implemented, and in 1998 a catch-up program targeting children aged 6–16 years was introduced. In other states and territories of Australia, hepatitis B vaccination of all infants commenced in 2000 and a universal school-based hepatitis B vaccination catch-up program for adolescents aged 12–15 years commenced in 1998.

Over the period 2012–2016, hepatitis B vaccination coverage rates for children were high overall in 2016, for Aboriginal and Torres Strait Islander children coverage was lower than for non-Indigenous children for the 12 months age group (at 92% to 94%), but there was no difference at 24 months of age, with vaccination coverage of 97% in Aboriginal and Torres Strait Islander children and 96% in non-Indigenous children (Figure 2.2.16). The lower rates at 12 months suggest issues around timeliness of completion of the vaccination course in Aboriginal and Torres Strait Islander children, which may lead to higher risk of disease acquisition.

Figure 2.2.16 Hepatitis B vaccination coverage estimates at 12 and 24 months, 2012–2016, by Aboriginal and Torres Strait Islander status



	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander 12 months (%)	86.3	87.3	88.3	89.8	92.3
Aboriginal and Torres Strait Islander 24 months (%)	94.0	94.4	95.1	95.9	96.8
Non-Indigenous 12 months (%)	91.2	91.5	92.5	93.6	94.4
Non-Indigenous 24 months (%)	92.8	93.5	94.1	95.0	95.7

Source: National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases.

HBV

3 Sexually transmissible infections

This chapter gives details of STI notifications. Please see pp. 7–9 for summary data.

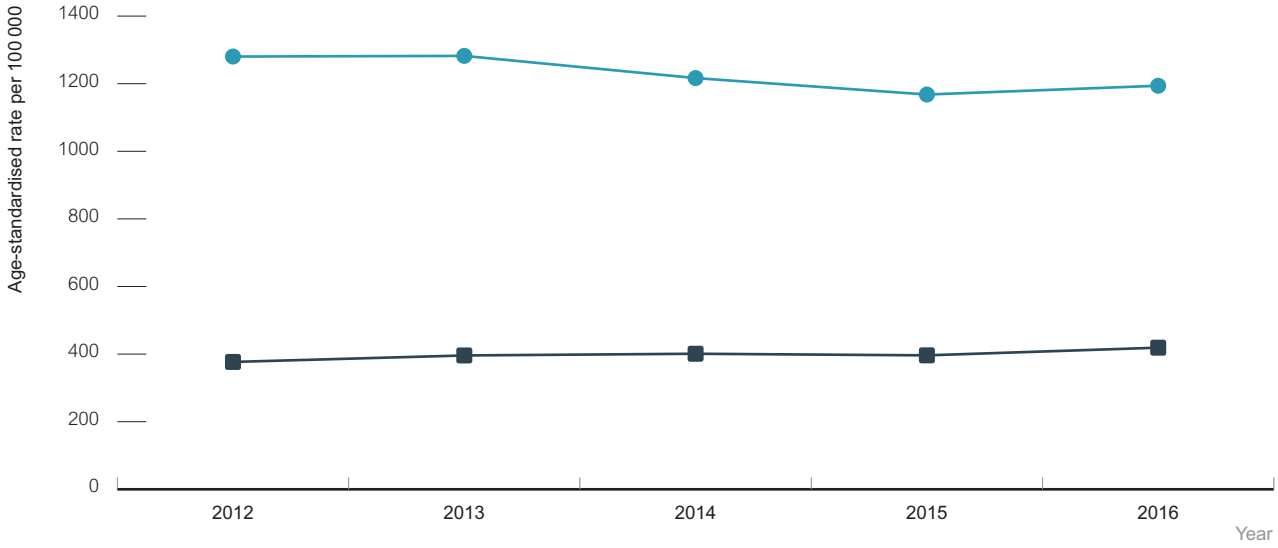
3.1 Chlamydia

Chlamydia was the most frequently diagnosed sexually transmissible infection in Australia in 2016, with a total of 71 751 notifications, of which 6925 (10%) were among the Aboriginal and Torres Strait Islander population, 29 094 (41%) were among the non-Indigenous population, and 35 732 (50%) were for people whose Indigenous status was not reported. Data for 2015 and 2016 for Victoria were unavailable at the time of reporting, but will be available in the future.

In the period 2012–2016, Aboriginal and Torres Strait Islander status was reported for at least 50% of notifications each year in the Northern Territory, Queensland, South Australia and Western Australia.

The chlamydia notification rate for the Aboriginal and Torres Strait Islander population in 2016 of 1193.9 per 100 000 population was nearly three times that of the non-Indigenous population at 419.0 per 100 000 population. Since 2012, the notification rate of chlamydia in the Aboriginal and Torres Strait Islander population and non-Indigenous population has remained stable (Figure 3.1.1).

Figure 3.1.1 Chlamydia notification rate per 100 00 population, 2012–2016, by Aboriginal and Torres Strait Islander status

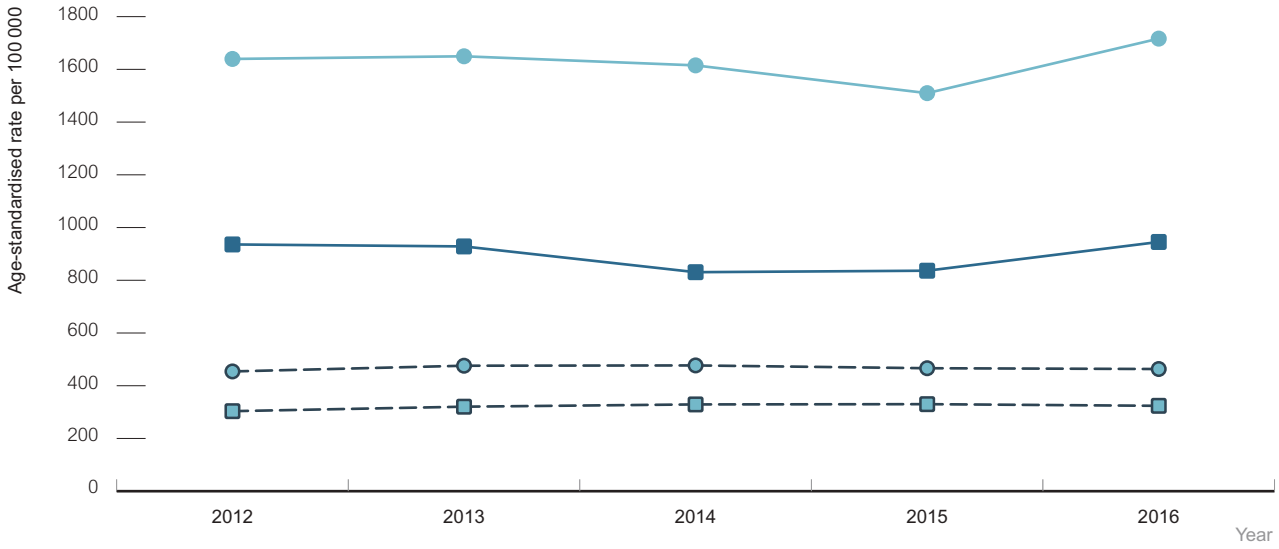


	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander	1280.3	1282.2	1216.6	1167.9	1193.9
Non-Indigenous	376.8	396.0	401.0	396.3	419.0

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, Queensland, South Australia and Western Australia) for each of the five years 2012–2016.

Between 2012 and 2016 the chlamydia notification rate for the Aboriginal and Torres Strait Islander population was highest among Aboriginal and Torres Strait Islander females, at 1639.5 per 100 000 in 2012 and 1535.9 per 100 000 in 2016. In 2016, the rate was three times as high in Aboriginal and Torres Strait Islander females as in non-Indigenous females (1535.9 vs 482.7 per 100 000) and twice as high in Aboriginal and Torres Strait Islander males as in non-Indigenous males (862.9 vs 359.1 per 100 000) (Figure 3.1.2).

Figure 3.1.2 Chlamydia notification rates per 100 000 population, 2012–2016, by Aboriginal and Torres Strait Islander status and sex



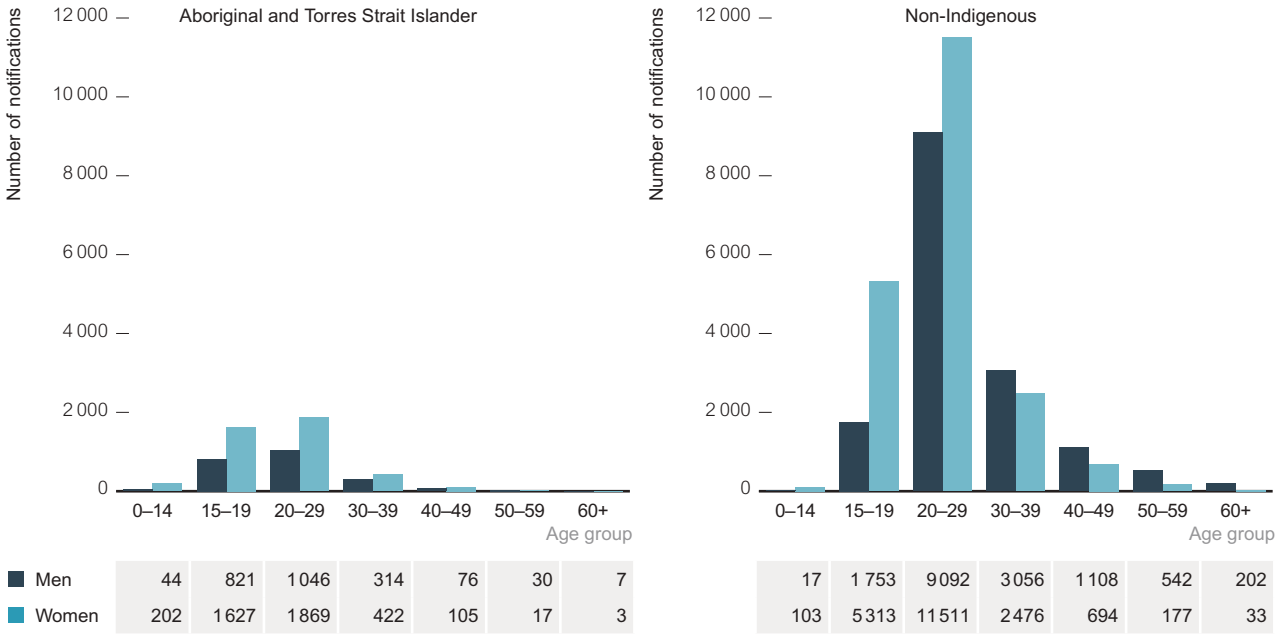
	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander men	935.9	928.4	830.7	836.3	862.9
Non-Indigenous men	303.5	320.5	329.1	330.1	359.1
Aboriginal and Torres Strait Islander women	1639.5	1649.6	1615.1	1509.8	1535.9
Non-Indigenous women	454.2	475.9	477.0	466.4	482.7

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, Queensland, South Australia and Western Australia) for each of the five years 2012–2016.

STIs

Chlamydia diagnoses are notified predominantly among young people. In 2016, 81% of chlamydia notifications were in the 15–29 age group in the Aboriginal and Torres Strait Islander population, as were 77% of notifications in the non-Indigenous population. In 2016, of the chlamydia notifications in the Aboriginal and Torres Strait Islander population, 2338 were among males and 4245 among females, providing a male-to-female ratio of 0.6:1 compared to 0.8:1 in the non-Indigenous population (Figure 3.1.3).

Figure 3.1.3 Number of notifications of chlamydia in 2016, by Aboriginal and Torres Strait Islander status, sex and age group

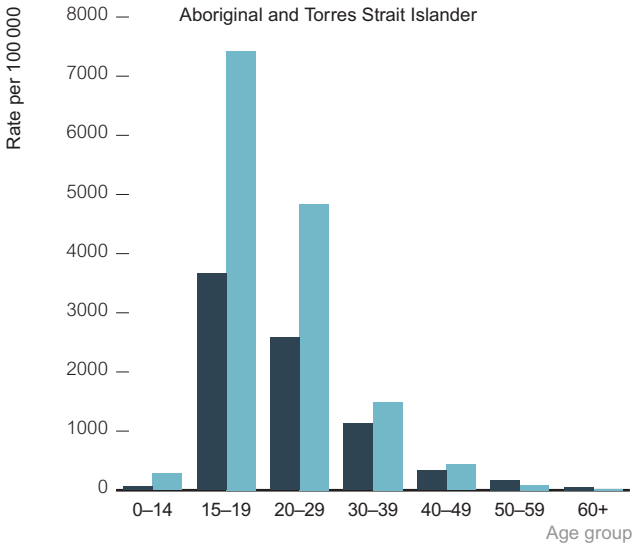


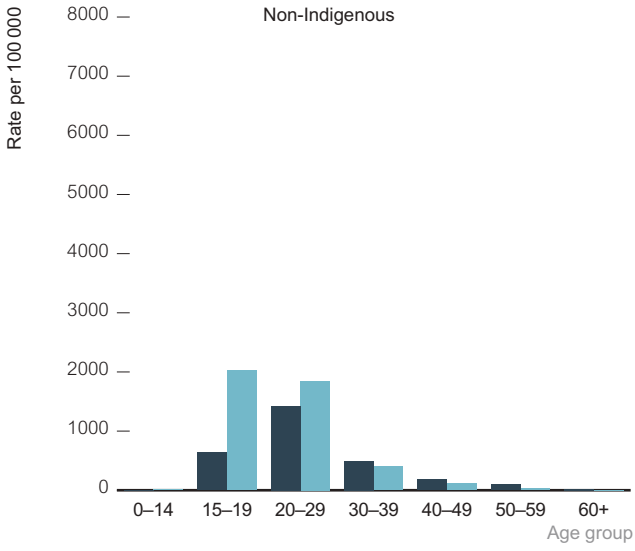
	Aboriginal and Torres Strait Islander							Non-Indigenous						
	0–14	15–19	20–29	30–39	40–49	50–59	60+	0–14	15–19	20–29	30–39	40–49	50–59	60+
Men	44	821	1046	314	76	30	7	17	1 753	9092	3056	1108	542	202
Women	202	1627	1869	422	105	17	3	103	5313	11511	2476	694	177	33

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, Queensland, South Australia and Western Australia).

The chlamydia notification rate in Aboriginal and Torres Strait Islander men in 2016 was six times as high as in the non-Indigenous population in the 15–19 age group, and twice as high in the 20–29 age group (Figure 3.1.4). The chlamydia notification rate in Aboriginal and Torres Strait Islander women aged 15–19 and 20–29 in 2016 was four times and three times as high, respectively, as in the non-Indigenous population (Figure 3.1.4). Notification rates were highest in Aboriginal and Torres Strait Islander females, particularly in the 15–19 age group (7427.2 per 100 000 population in 2016), which may reflect greater healthcare attendance and testing.

Figure 3.1.4 Chlamydia notification rate per 100 000 population, 2016, by Aboriginal and Torres Strait Islander status, sex and age group





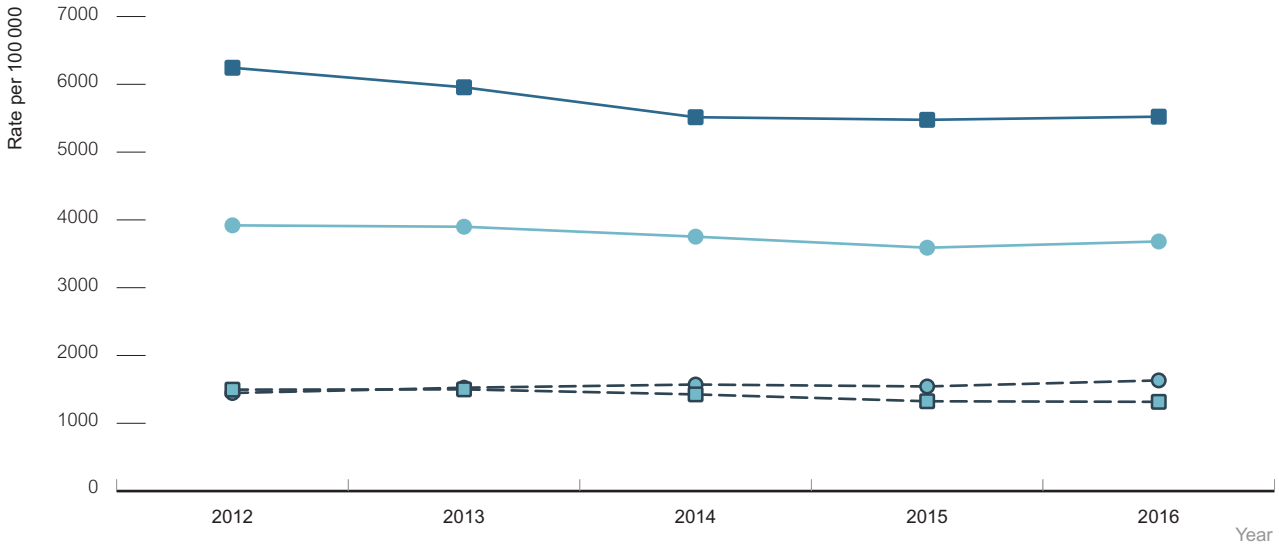
	Aboriginal and Torres Strait Islander							Non-Indigenous						
	0–14	15–19	20–29	30–39	40–49	50–59	60+	0–14	15–19	20–29	30–39	40–49	50–59	60+
Men	59.6	3661.8	2578.9	1127.0	332.5	176.9	51.9	2.0	638.0	1424.6	492.9	182.9	95.7	22.8
Women	284.8	7427.2	4840.3	1488.1	431.6	93.0	18.9	12.7	2027.5	1844.5	397.8	112.9	30.5	3.4

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, Queensland, South Australia and Western Australia) for each of the five years 2012–2016.

STIs

The chlamydia notification rate in the Aboriginal and Torres Strait Islander population in the age groups 15–19 and 20–29 years declined between 2012 and 2014, then remained stable (Figure 3.1.5). This decline may reflect a decrease in testing or a decrease in transmission.

Figure 3.1.5 Chlamydia notification rate per 100 000 population in Aboriginal and Torres Strait Islander people, 2012–2016, by selected age groups and sex

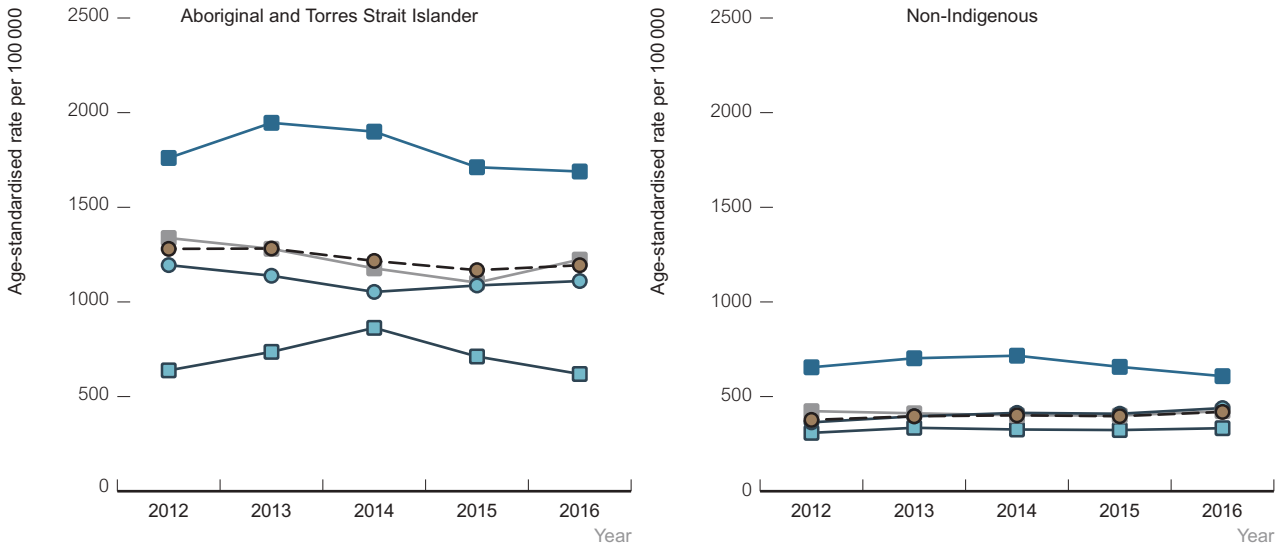


	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander people aged 15–19	6244.3	5956.2	5514.9	5476.2	5522.7
Aboriginal and Torres Strait Islander people aged 20–29	3919.5	3899.3	3752.8	3589.8	3681.8
Non-Indigenous people aged 15–19	1496.4	1500.2	1426.0	1324.8	1316.3
Non-Indigenous people aged 20–29	1446.7	1524.8	1571.6	1543.3	1632.3

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, Queensland, South Australia, and Western Australia) for each of the five years 2012–2016.

The chlamydia notification rate for 2012–2016 in the Aboriginal and Torres Strait Islander population was highest in the Northern Territory (Figure 3.1.6). In South Australia and the Northern Territory, the chlamydia notification rate increased between 2012 and 2014, then declined between 2014 and 2016 by 40% (to 619.3 per 100 000) in South Australia and by 12% in the Northern Territory (to 1689.1 per 100 000). In Queensland and Western Australia rates have been stable.

Figure 3.1.6 Chlamydia notification rate per 100 000 population, 2012–2016, by Aboriginal and Torres Strait Islander status, state/territory and year

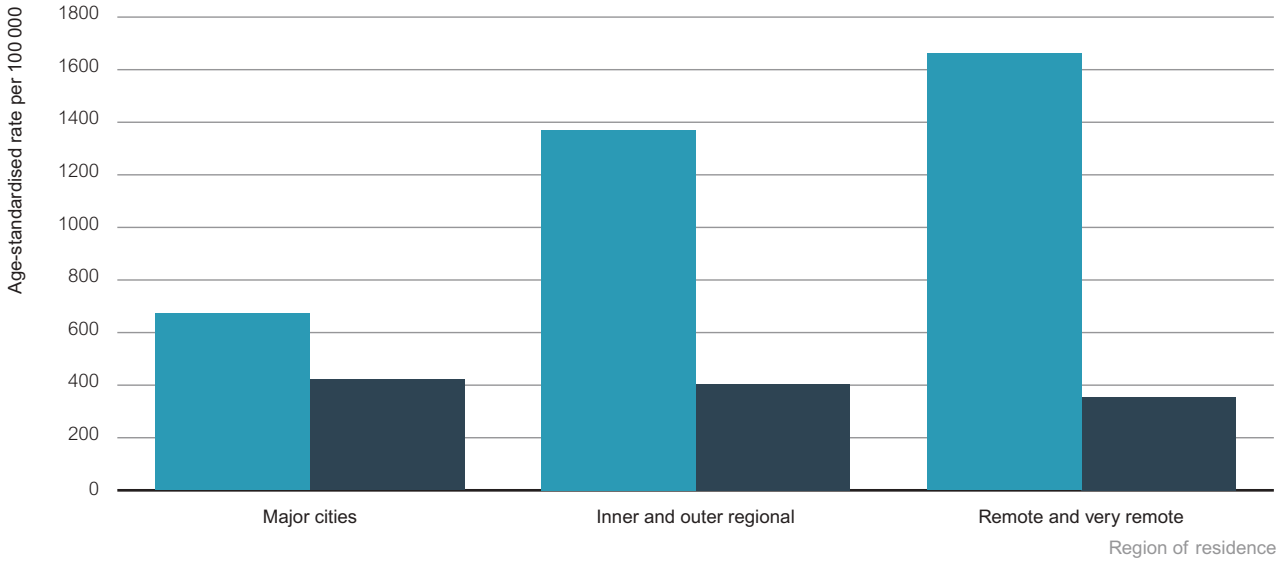


	Aboriginal and Torres Strait Islander					Non-Indigenous				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
Australia	1280.3	1282.2	1216.6	1167.9	1193.9	376.8	396.0	401.0	396.3	419.0
WA	1337.8	1280.5	1177.4	1102.0	1223.6	423.0	411.7	401.2	399.6	422.9
NT	1760.6	1946.2	1899.6	1711.6	1689.1	654.7	702.5	716.0	657.0	607.9
QLD	1194.6	1138.3	1052.9	1087.0	1110.4	363.9	395.6	413.9	409.4	439.3
SA	638.4	736.2	863.1	711.7	619.3	308.4	335.1	326.1	323.2	332.9

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, Queensland, South Australia and Western Australia) for each of the five years 2012–2016.

In 2016, the chlamydia notification rate in the Aboriginal and Torres Strait Islander population resident in major cities was twice as high as the rate in the non-Indigenous population, three times as high in inner/outer regional centres, and five times as high in remote/very remote areas (Figure 3.1.7).

Figure 3.1.7 Chlamydia notification rate per 100 000 population, 2016, by Aboriginal and Torres Strait Islander status and area of residence

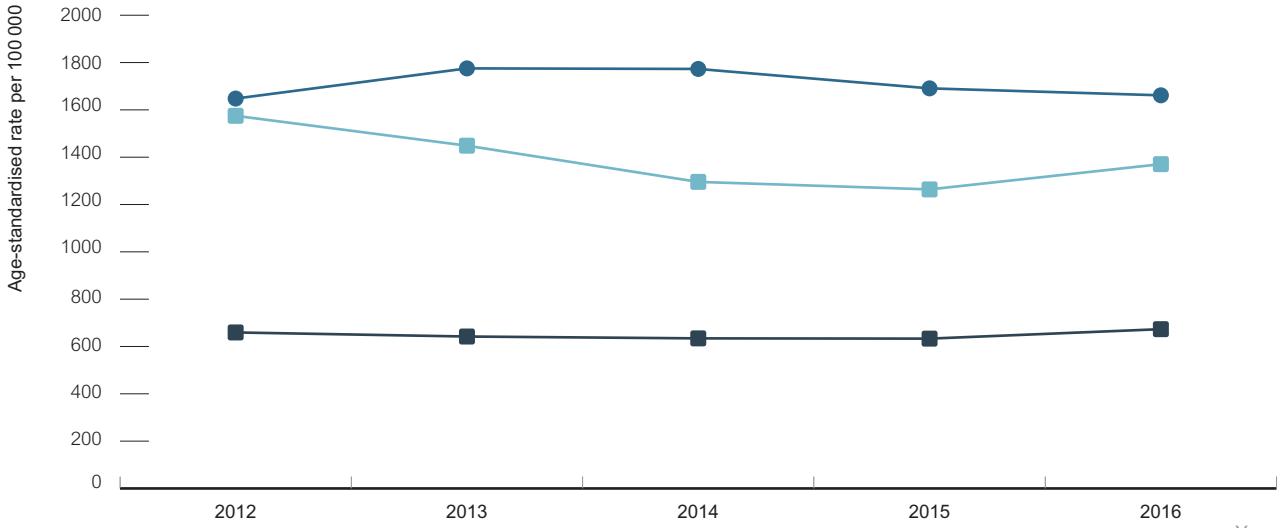


	Major cities	Inner and outer regional	Remote and very remote
Aboriginal and Torres Strait Islander	673.2	1370.6	1661.5
Non-Indigenous	421.2	404.7	354.4

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% in 2016 (Northern Territory, Queensland, South Australia and Western Australia).

Between 2012 and 2016, chlamydia notification rates in Aboriginal and Torres Strait Islander people living in inner/outer regional areas decreased by 13% from 1574.9 to 1370.6 per 100 000 people. Rates in major cities and remote/very remote areas remained stable (Figure 3.1.8).

Figure 3.1.8 Chlamydia notification rate in the Aboriginal and Torres Strait Islander population per 100 000 population, 2012–2016, by area of residence



	2012	2013	2014	2015	2016
Major cities	659.3	642.1	634.3	633.2	673.2
Inner and outer regional	1574.9	1448.7	1295.6	1263.9	1370.6
Remote and very remote areas	1647.8	1775.3	1773.0	1690.9	1661.5

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Northern Territory, Queensland, South Australia and Western Australia) for each of the five years 2012–2016.

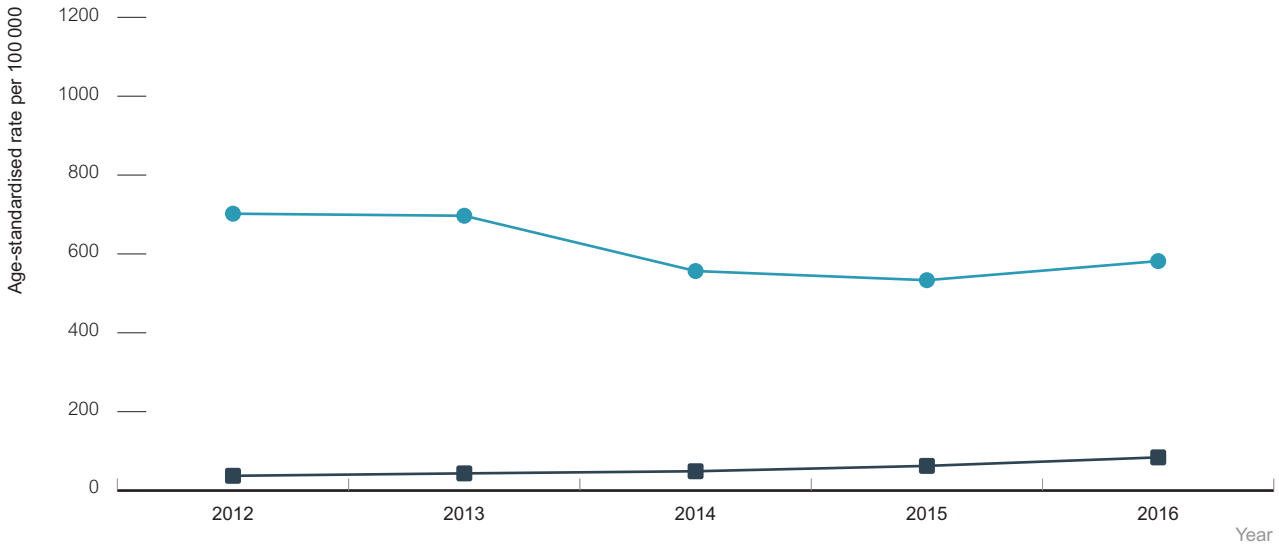
3.2 Gonorrhoea

There were 23 887 gonorrhoea notifications in Australia in 2016, an increase of 29% from 18 511 notification in 2015. Of these, 3779 (16%) were among Aboriginal and Torres Strait Islander people, 11 658 (49%) were in the non-Indigenous population, and 8450 (35%) were in people whose Aboriginal and Torres Strait Islander status was not reported.

In the period 2012–2016, Aboriginal and Torres Strait Islander status was at least 50% complete each year in the Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia, and therefore notification data presented below include these jurisdictions.

The gonorrhoea notification rate for the Aboriginal and Torres Strait Islander population in 2016 of 581.8 per 100 000 population was seven times that of the non-Indigenous population at 84.1 per 100 000 population. Since 2012, the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population has declined by 17% compared to an increase of 125% in the non-Indigenous population (Figure 3.2.1).

Figure 3.2.1 Gonorrhoea notification rate per 100 000 population, 2012–2016, by Aboriginal and Torres Strait Islander status

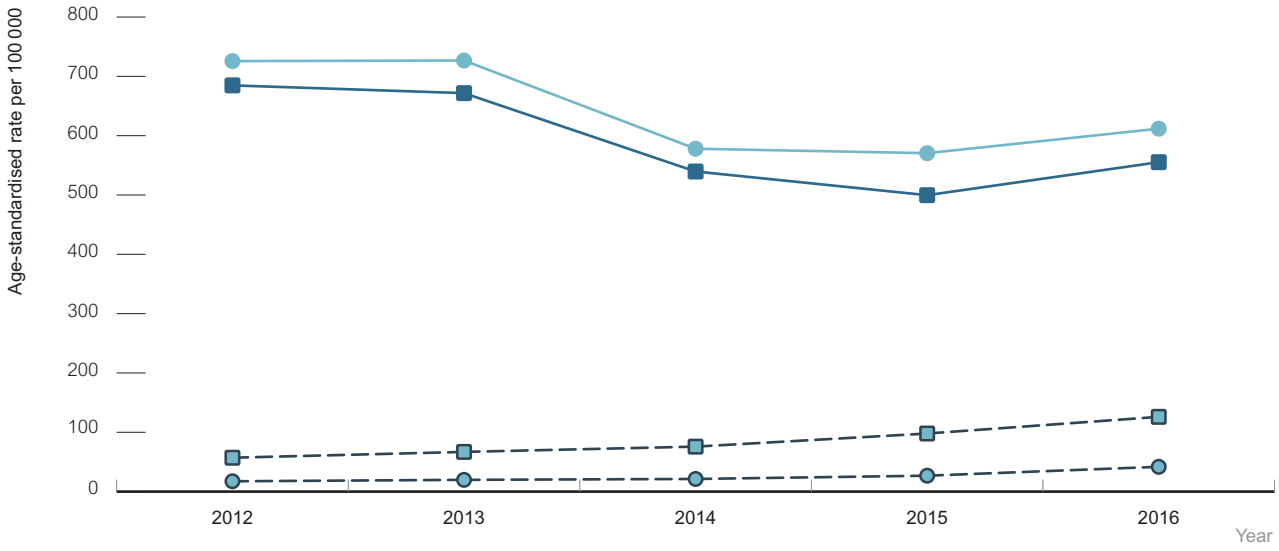


	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander	702.0	696.8	556.6	533.4	581.8
Non-Indigenous	37.4	43.5	48.9	62.5	84.1

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2012–2016.

The gonorrhoea notification rate for Aboriginal and Torres Strait Islander females in 2016 was 15 times that of non-Indigenous females (611.8 vs 41.8 per 100 000) (Figure 3.2.2). The gonorrhoea notification rate for Aboriginal and Torres Strait Islander males in 2016 was four times that of non-Indigenous males (555.3 vs 126.0 per 100 000).

Figure 3.2.2 Gonorrhoea notification rate per 100 000 population, 2012–2016, by Aboriginal and Torres Strait Islander status and sex



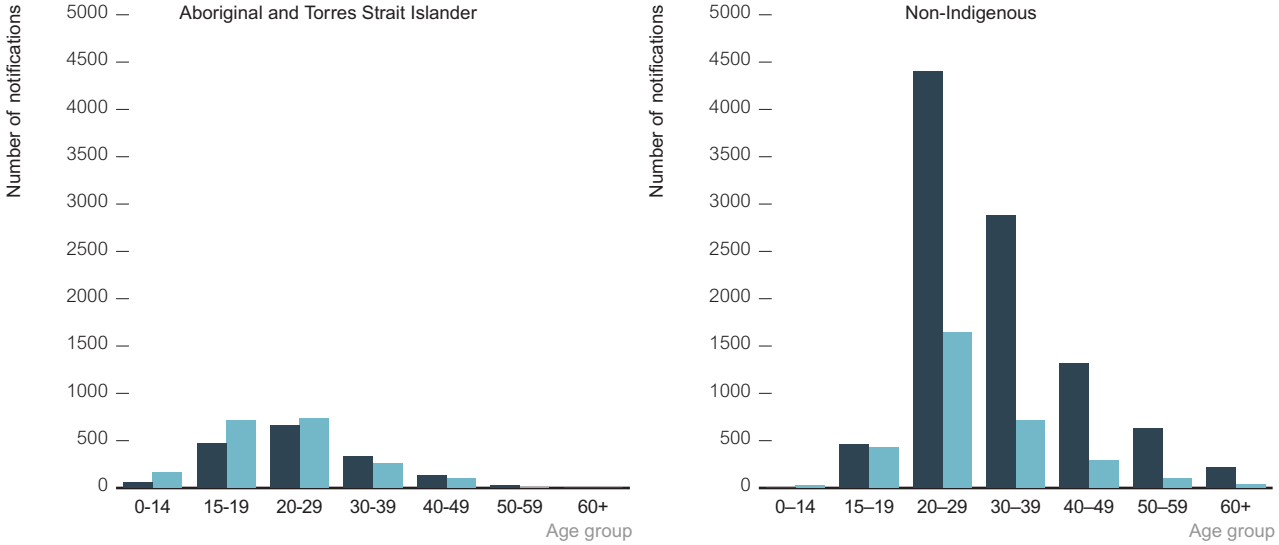
	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander men	684.8	671.7	539.6	499.7	555.3
Non-Indigenous men	57.1	66.9	75.8	97.9	126.0
Aboriginal and Torres Strait Islander women	725.7	726.7	578.0	570.5	611.8
Non-Indigenous women	17.4	19.8	21.3	26.8	41.8

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2012–2016.

Differences in age at notification exist between the Aboriginal and Torres Strait Islander population and the non-Indigenous population. In 2016, 32% of gonorrhoea notifications among Aboriginal and Torres Strait Islander people were in people aged 15–19, compared with 7% in the non-Indigenous population (Figure 3.2.3).

In 2016, among Aboriginal and Torres Strait Islander people, there were 1672 notifications of gonorrhoea in males and 1969 among females, giving a male-to-female ratio of 0.9:1. This suggests that transmission is predominantly through heterosexual contact (Figure 3.2.3). In comparison, in the non-Indigenous population there were 9914 notifications of gonorrhoea in males and 3235 in females. This male-to-female ratio of 3:1 suggests that transmission occurs predominantly through sex between men (Figure 3.2.3). Notification rates in the Aboriginal and Torres Strait Islander population were significantly higher than in the non-Indigenous population across all age groups for both males and females (Figure 3.2.4).

Figure 3.2.3 Number of gonorrhoea notifications, 2016, by Aboriginal and Torres Strait Islander status, sex and age group

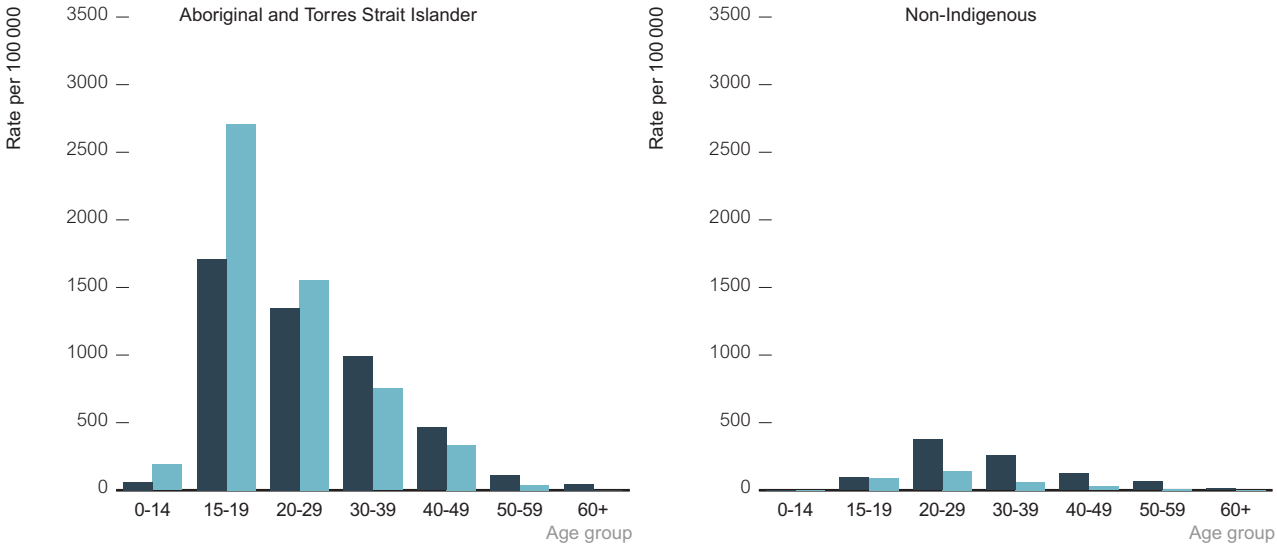


	0-14	15-19	20-29	30-39	40-49	50-59	60+
Men	53	466	665	330	127	23	8
Women	163	714	731	255	97	9	0

	0–14	15–19	20–29	30–39	40–49	50–59	60+
Men	7	457	4403	2877	1318	632	220
Women	25	429	1646	712	288	100	35

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2012–2016.

Figure 3.2.4 Gonorrhoea notification rate per 100 000 population, 2016, by Aboriginal and Torres Strait Islander status, sex and age group



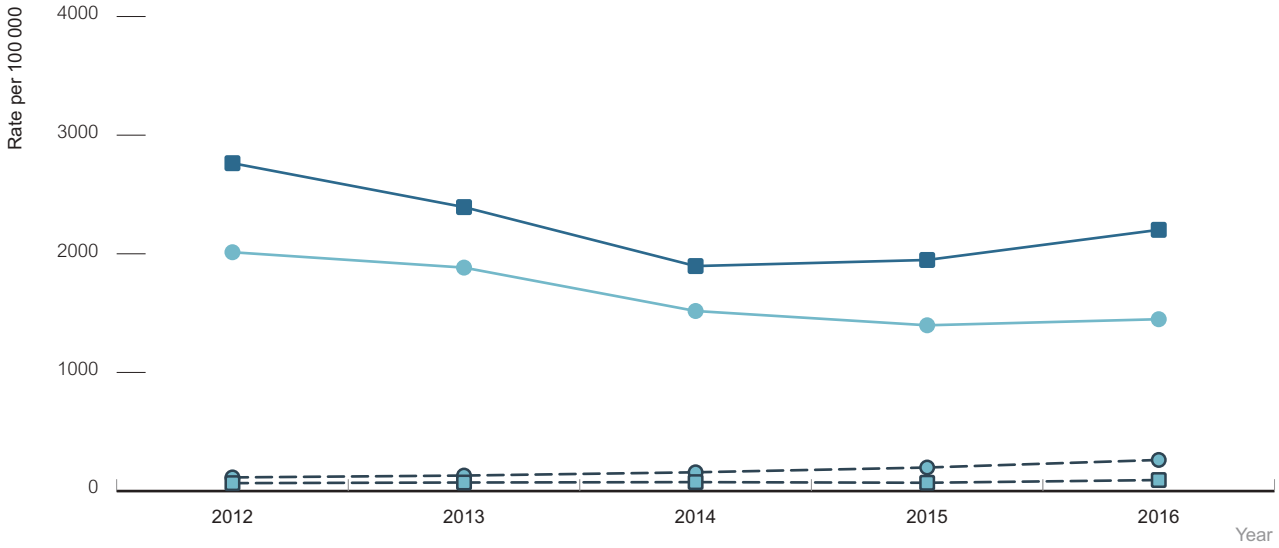
	Aboriginal and Torres Strait Islander							Non-Indigenous						
	0-14	15-19	20-29	30-39	40-49	50-59	60+	0-14	15-19	20-29	30-39	40-49	50-59	60+
Men	59.4	1710.6	1346.4	994.8	465.7	111.7	48.0	0.5	93.4	377.0	256.6	123.6	63.8	14.1
Women	190.7	2710.0	1553.8	752.3	335.4	41.0	0.0	1.7	91.8	143.9	63.0	26.3	9.8	2.0

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2012–2016.

STIs

Since 2012, the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population has declined by 20% in the 15–19 age group, and by 28% in the 20–29 age group (Figure 3.2.5). This compares to increases of 39% and 128% respectively in the same age groups in the non-Indigenous population.

Figure 3.2.5 Gonorrhoea notification rate per 100 000 population, 2012–2016, by Aboriginal and Torres Strait Islander status and selected age group

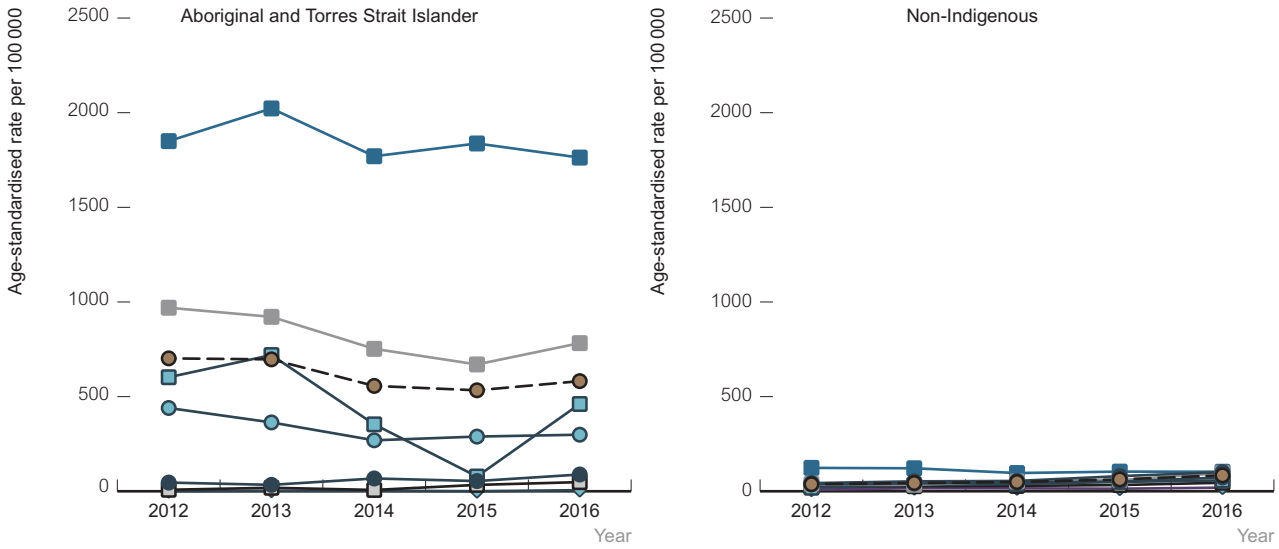


	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander people aged 15–19	2763.8	2393.7	1896.6	1948.0	2202.0
Aboriginal and Torres Strait Islander people aged 20–29	2013.2	1883.6	1517.9	1397.4	1448.6
Non-Indigenous people aged 15–19	66.9	72.2	75.5	70.1	93.0
Non-Indigenous people aged 20–29	115.2	130.8	158.3	198.5	262.4

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2012–2016.

From 2012 to 2016, the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population was highest in the Northern Territory, followed by Western Australia and South Australia (Figure 3.2.6). Notification rates were higher in the Aboriginal and Torres Strait Islander population than the non-Indigenous population in 2016 in all jurisdictions except for Tasmania (Figure 3.2.6). Rates of gonorrhoea notification in the Aboriginal and Torres Strait Islander population declined between 2012 and 2016 by 32% in Queensland (from 440.0 to 298.8 per 100 000), 23% in South Australia (from 602.4 to 461.0 per 100 000) and 19% in Western Australia (from 969.6 to 782.6 per 100 000). Rates increased by 93% in Victoria over the same period, from 45.9 per 100 000 in 2012 to 88.5 per 100 000 in 2016.

Figure 3.2.6 Gonorrhoea notification rate per 100 000 population, 2012–2016, by Aboriginal and Torres Strait Islander status and state/territory

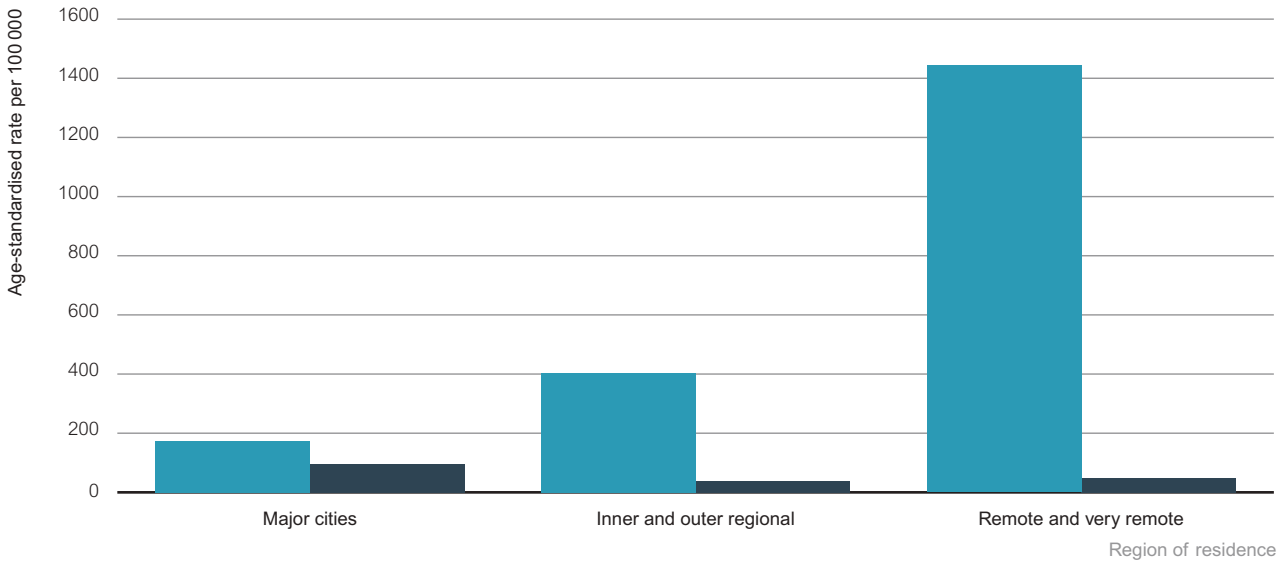


	Aboriginal and Torres Strait Islander					Non-Indigenous				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
Australia	702.0	696.8	556.6	533.4	581.8	37.4	43.5	48.9	62.5	84.1
ACT	7.9	18.4	7.0	33.6	48.3	22.2	26.6	28.4	32.9	45.0
NT	1849.8	2022.4	1769.9	1837.4	1762.8	123.5	121.5	96.3	103.8	103.2
QLD	440.0	363.7	269.2	288.9	298.8	36.5	41.6	46.5	51.0	72.9
SA	602.4	719.6	353.5	78.0	461.0	18.7	33.2	38.1	49.5	57.2
TAS	0.0	2.4	2.7	0.0	5.8	8.0	16.0	15.4	13.5	19.1
VIC	45.9	33.9	67.6	53.9	88.5	43.0	52.4	54.5	79.9	101.0
WA	969.6	921.4	752.4	670.1	782.6	39.4	34.7	51.9	59.8	95.8

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2012–2016.

In 2016, in the Aboriginal and Torres Strait Islander population resident in major cities, the notification rate of gonorrhoea was nearly twice that in the non-Indigenous population, 10 times as high in inner/outer regional areas and 30 times as high in remote/very remote areas (Figure 3.2.7). In the five-year period 2012–2016 there were declines in the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population in major cities and inner/outer regional areas, with rates in remote/very remote areas fluctuating (Figure 3.2.8).

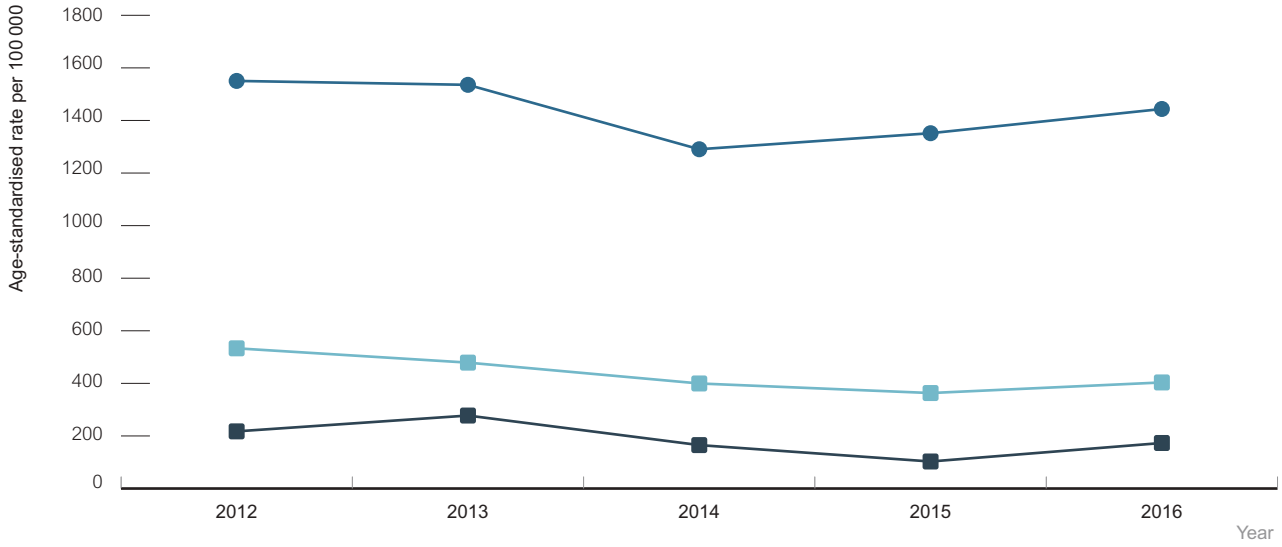
Figure 3.2.7 Gonorrhoea notification rate per 100 000 population, 2016, by Aboriginal and Torres Strait Islander status and area of residence



	Major cities	Inner and outer regional	Remote and very remote
Aboriginal and Torres Strait Islander	173.2	403.5	1443.7
Non-Indigenous	94.7	39.2	48.6

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% in 2016 (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia).

Figure 3.2.8 Gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population per 100 000 population, 2012–2016, by area of residence



	2012	2013	2014	2015	2016
Major cities	217.4	277.6	165.2	102.8	173.2
Inner and outer regional	533.3	478.9	399.6	363.2	403.5
Remote and very remote	1550.4	1535.5	1290.5	1351.5	1443.7

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2012–2016.

STIs

3.3 Syphilis

Infectious syphilis

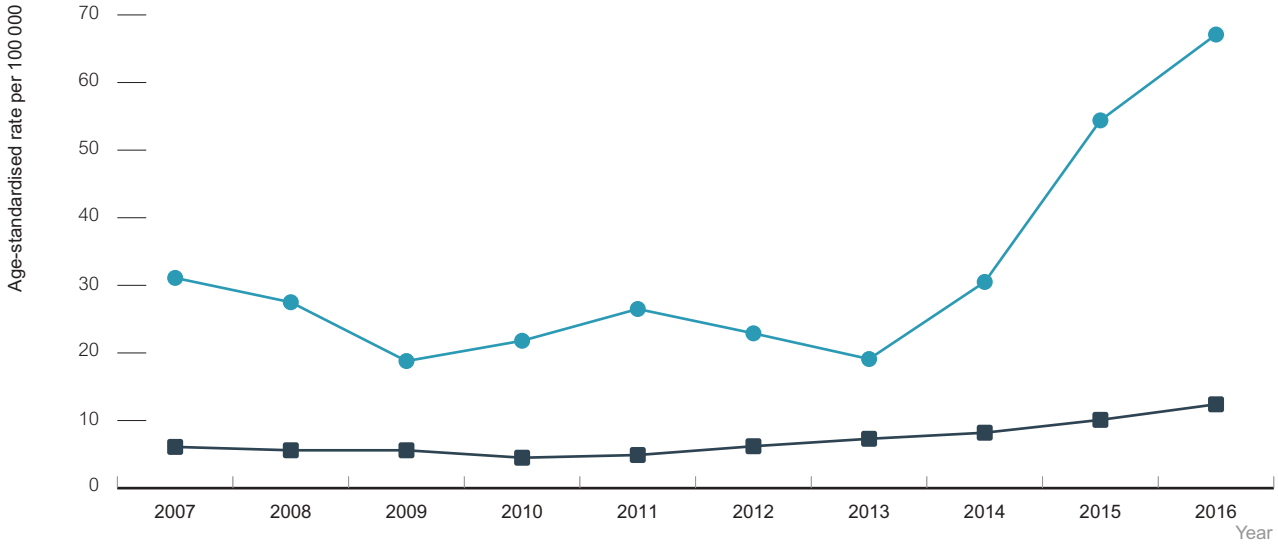
An expanded infectious syphilis national case definition was implemented in July 2015 in all jurisdictions except for New South Wales, where it was implemented in July 2016.[20] The new case definition includes a new subcategory of 'probable' infectious syphilis to capture infectious syphilis cases in people without a prior testing history, particularly young people aged 15–19 years. The probable infectious syphilis cases are included in the number of infectious syphilis notifications in 2015 and 2016.

Accurate and complete systems for the notification of infectious syphilis exist nationally, enabling at least 50% of all infectious syphilis notifications in all jurisdictions to be notified by Aboriginal and Torres Strait Islander status in every year of the last 10 years (completeness 80% and above in all jurisdictions except ACT in 2007, where it was 56%). For this reason, infectious syphilis data are presented for 10 years.

There were 3367 infectious syphilis notifications nationally in 2016, an increase of 23% from 2739 notifications in 2015. In 2016, 530 (16%) notifications were among the Aboriginal and Torres Strait Islander population, 2502 (74%) were among the non-Indigenous population and 335 (10%) were among people whose Indigenous status was not reported.

In 2016, the age-standardised infectious syphilis notification rate in the Aboriginal and Torres Strait Islander population was five times that of the non-Indigenous population (67.1 vs 12.4 per 100 000 population) (Figure 3.3.1).

Figure 3.3.1 Infectious syphilis notification rate per 100 000 population, 2007–2016, by Aboriginal and Torres Strait Islander status

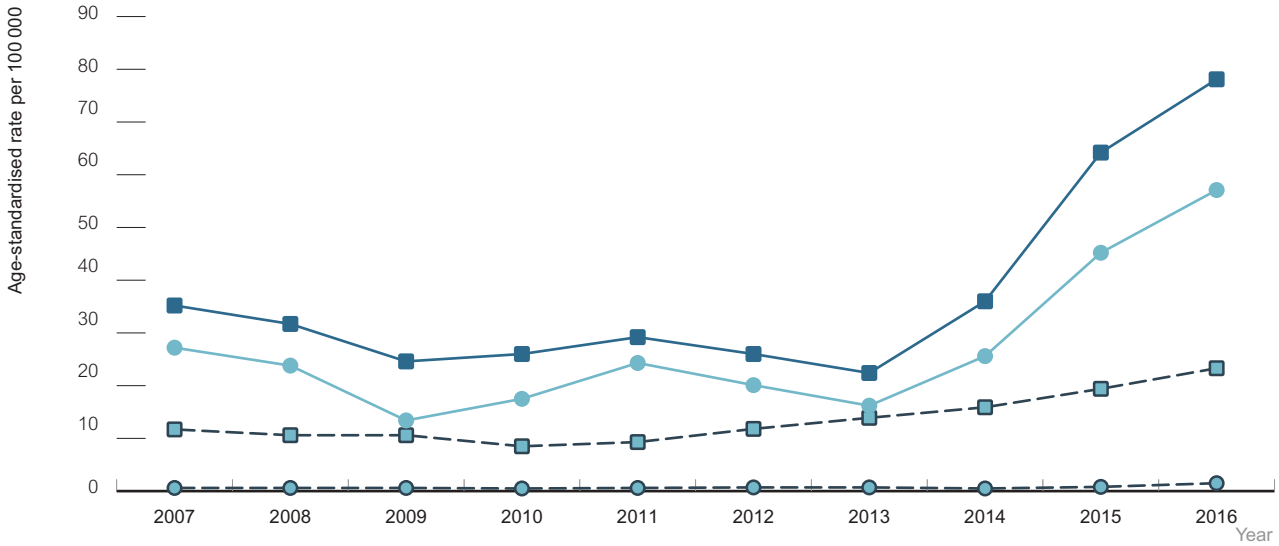


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander	31.1	27.5	18.8	21.8	26.5	22.9	19.1	30.5	54.4	67.1
Non-Indigenous	6.1	5.6	5.6	4.5	4.9	6.2	7.3	8.2	10.1	12.4

Source: Australian National Notifiable Disease Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was ≥50% in each of the 10 years presented.

The infectious syphilis rate in 2016 was three times as high in Aboriginal and Torres Strait Islander males (78.1 vs 23.3 per 100 000) and 39 times as high in Aboriginal and Torres Strait Islander females (57.1 vs 1.5 per 100 000) as in their non-Indigenous counterparts (Figure 3.3.2).

Figure 3.3.2 Infectious syphilis notification rate per 100 000 population, 2007–2016, by Aboriginal and Torres Strait Islander status and sex



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander men	35.2	31.7	24.6	26.0	29.2	26.0	22.4	36.0	64.2	78.1
Non-Indigenous men	11.7	10.6	10.6	8.5	9.3	11.8	13.9	15.9	19.4	23.3
Aboriginal and Torres Strait Islander women	27.2	23.8	13.4	17.5	24.3	20.1	16.2	25.6	45.2	57.1
Non-Indigenous women	0.6	0.6	0.6	0.5	0.6	0.7	0.7	0.5	0.8	1.5

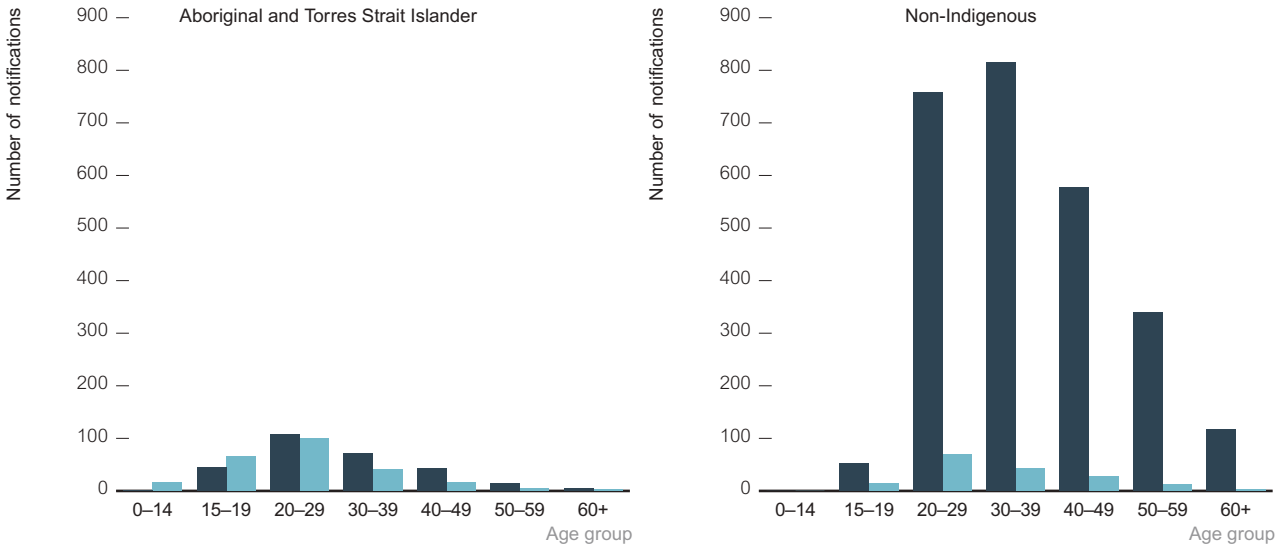
Source: Australian National Notifiable Disease Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was ≥50% in each of the 10 years presented.

STIs

In 2016, 54% of notifications of infectious syphilis in the Aboriginal and Torres Strait Islander population were among males, compared with 94% in the non-Indigenous population (Figure 3.3.3). The male-to-female ratios indicate transmission of infectious syphilis among the Aboriginal and Torres Strait Islander population predominantly through heterosexual contact and through sex between men in the non-Indigenous population.

In 2016, 21% of infectious syphilis notifications among the Aboriginal and Torres Strait Islander population were in people aged 15–19, compared with 2% in the non-Indigenous population (Figure 3.3.3).

Figure 3.3.3 Number of infectious syphilis notifications, 2016, by Aboriginal and Torres Strait Islander status, sex and age group

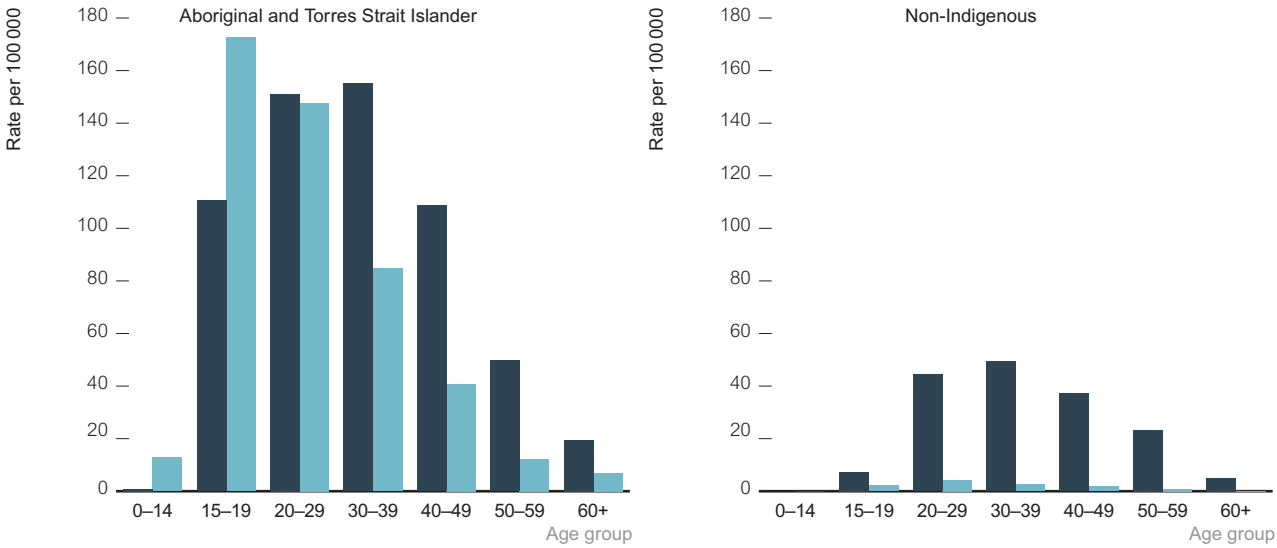


	Aboriginal and Torres Strait Islander							Non-Indigenous						
	0–14	15–19	20–29	30–39	40–49	50–59	60+	0–14	15–19	20–29	30–39	40–49	50–59	60+
Men	1	44	107	72	42	15	5	0	53	757	815	577	340	117
Women	16	66	99	40	17	4	2	0	14	70	42	27	12	3

Source: Australian National Notifiable Disease Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was ≥50% in 2016.

In 2016, the infectious syphilis notification rate was highest in the 30–39 age group for both Aboriginal and Torres Strait Islander and non-Indigenous men (155.1 and 49.4 per 100 000 respectively). For Aboriginal and Torres Strait Islander females, the infectious syphilis notification rate was highest in the 15–19 age group (172.6 per 100 000); among non-Indigenous females the rate was highest in the 20–29 age group (4.2 per 100 000) (Figure 3.3.4).

Figure 3.3.4 Infectious syphilis notification rate per 100 000 population, 2016, by Aboriginal and Torres Strait Islander status and age group



	Aboriginal and Torres Strait Islander						
	0–14	15–19	20–29	30–39	40–49	50–59	60+
Men	0.8	110.5	151.1	155.1	108.7	49.8	19.4
Women	12.9	172.6	147.7	84.7	40.8	12.3	7.0

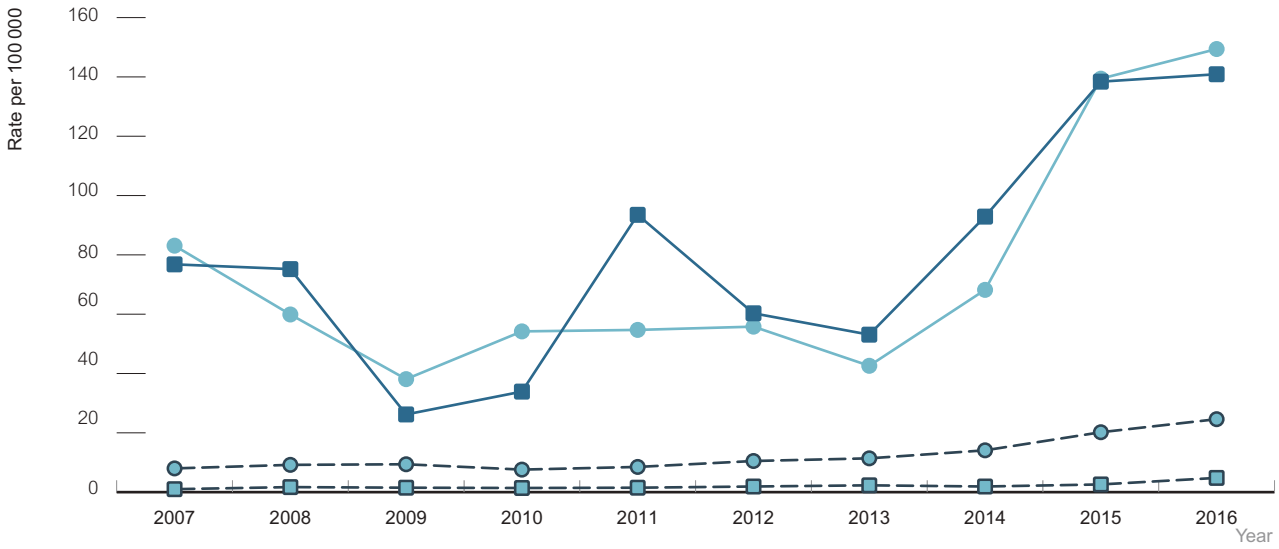
	Non-Indigenous						
	0–14	15–19	20–29	30–39	40–49	50–59	60+
Men	0.0	7.4	44.4	49.4	37.1	23.3	5.0
Women	0.0	2.1	4.2	2.5	1.7	0.8	0.1

Source: Australian National Notifiable Disease Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was ≥50% in 2016.

STIs

Between 2007 and 2013, notification rates of infectious syphilis declined in Aboriginal and Torres Strait Islander people aged 15–19 and 20–29, but increased sharply from 2013 to 2016, by 166% and 250% respectively (Figure 3.3.5). Amongst non-Indigenous people aged 20–29, increases have also been observed between from 2014 to 2016, but are less marked than in the Aboriginal and Torres Strait Islander population. Infectious syphilis notification rates were relatively stable in the non-Indigenous population aged 15–19 between 2007 and 2015 and almost doubled from 2.6 to 4.8 per 100 000 between 2015 and 2016. In all years, the notification rate was higher among both age groups in the Aboriginal and Torres Strait Islander population than in the non-Indigenous.

Figure 3.3.5 Infectious syphilis notification rate per 100 000 population in Aboriginal and Torres Strait Islander people, 2007–2016, by select age group



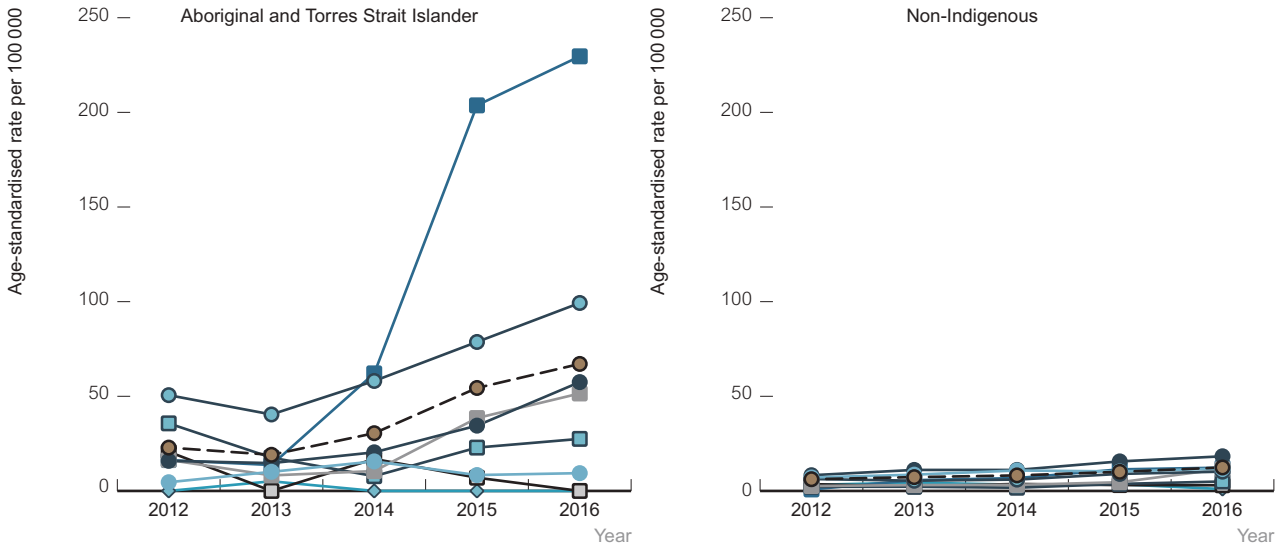
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander aged 15–19	76.8	75.2	26.2	33.9	93.5	60.3	53.1	92.9	138.4	140.9
Aboriginal and Torres Strait Islander aged 20–29	83.1	59.9	38.1	54.2	54.7	55.8	42.6	68.2	139.4	149.4
Non-Indigenous aged 15–19	1.0	1.7	1.5	1.4	1.5	1.9	2.3	1.9	2.6	4.8
Non-Indigenous aged 20–29	8.0	9.2	9.4	7.6	8.5	10.5	11.4	14.1	20.2	24.6

Source: Australian National Notifiable Disease Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was ≥50% in each year of the 10 years presented.

In 2016, the majority of the 530 infectious syphilis notifications in the Aboriginal and Torres Strait Islander population occurred in Queensland (41%), the Northern Territory (39%) and Western Australia (10%). In contrast the majority of the 2837 infectious syphilis notifications in the non-Indigenous population occurred in Victoria (39%) New South Wales (30%), and Queensland (16%).

Between 2012 and 2016, infectious syphilis notification rates in the Aboriginal and Torres Strait Islander population increased in the Northern Territory, Victoria, Western Australia, New South Wales and Queensland by 1308%, 261%, 214%, 104% and 97% respectively (Figure 3.3.6).

Figure 3.3.6 Infectious syphilis notification rate per 100 000 population, 2012–2016, by Aboriginal and Torres Strait Islander status and state/territory

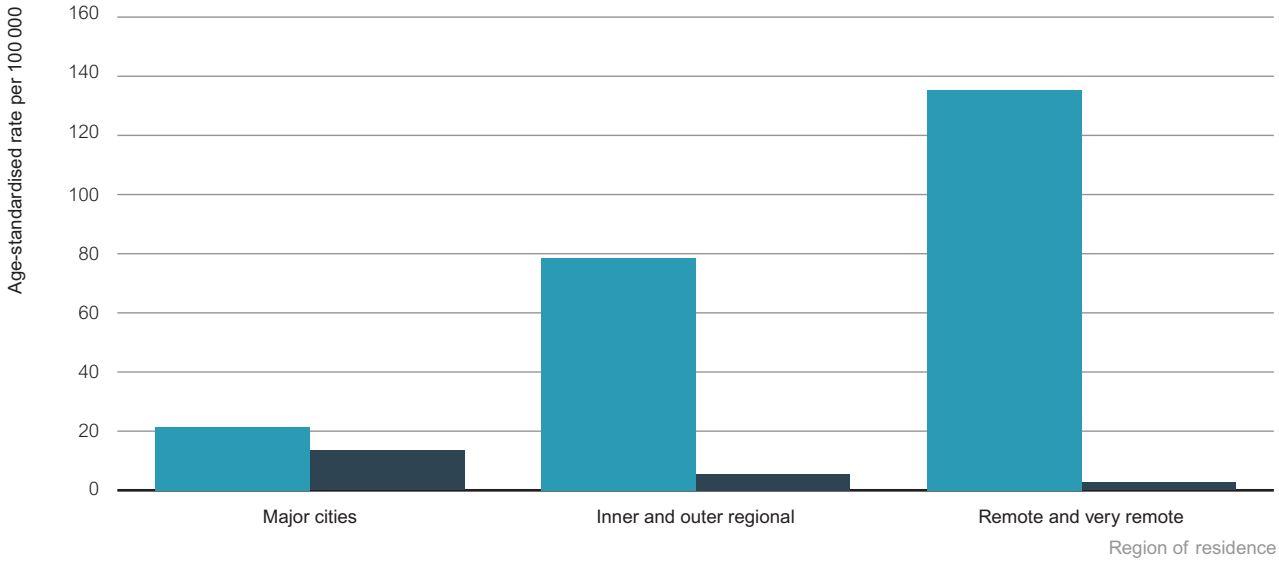


	Aboriginal and Torres Strait Islander					Non-Indigenous				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
Australia	22.9	19.1	30.5	54.4	67.1	6.2	7.3	8.2	10.1	12.4
ACT	20.7	0.0	16.9	7.0	0.0	3.6	2.4	3.7	3.1	3.0
NSW	4.6	10.1	15.6	8.4	9.4	7.1	8.6	10.8	10.3	11.8
NT	16.3	13.7	62.1	203.7	229.6	0.8	5.7	6.8	11.4	12.3
QLD	50.6	40.4	58.1	78.7	99.3	6.3	5.4	6.0	9.0	10.2
SA	35.7	17.6	7.8	22.9	27.5	2.2	2.2	1.7	3.7	5.0
TAS	0.0	5.1	0.0	0.0	0.0	3.2	4.4	3.3	3.5	1.0
VIC	15.9	14.7	20.4	34.5	57.5	8.3	11.1	11.1	15.6	18.3
WA	16.4	8.2	10.5	38.5	51.5	2.6	3.1	3.2	4.6	11.6

Source: Australian National Notifiable Disease Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was ≥50% in each of the five years presented.

In 2016, the infectious syphilis notification rate in the Aboriginal and Torres Strait Islander population in major cities was twice as high as in the non-Indigenous population, increasing to 14 times in inner/outer regional areas, and 51 times in remote/very remote areas (Figure 3.3.7).

Figure 3.3.7 Infectious syphilis notification rate per 100 000 population, 2016, by Aboriginal and Torres Strait Islander status and area of residence

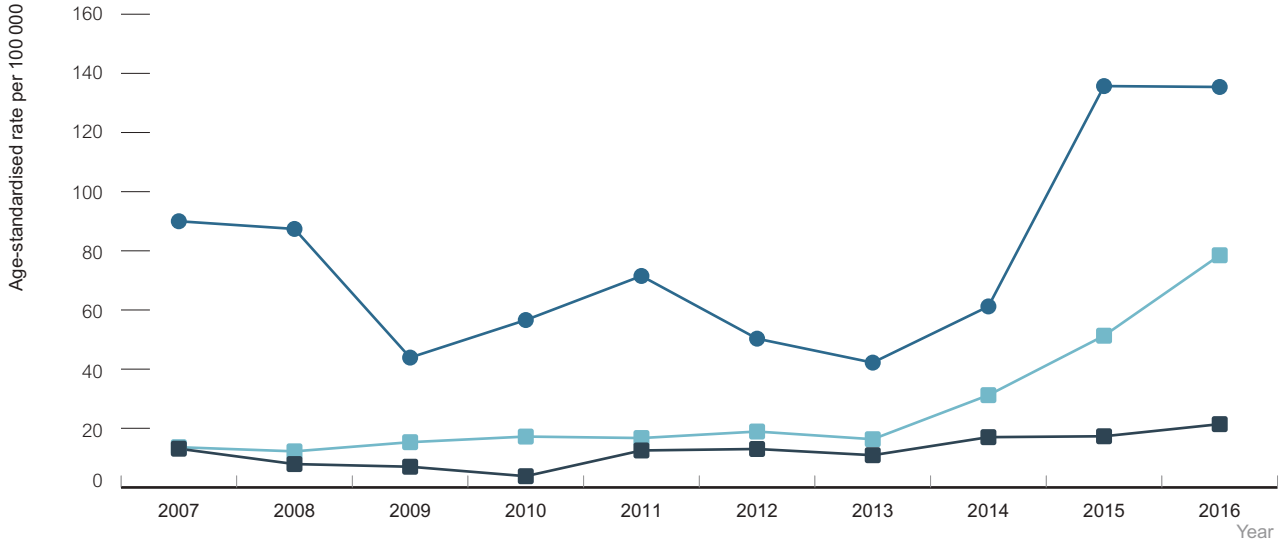


	Major cities	Inner and outer regional	Remote and very remote
Aboriginal and Torres Strait Islander	21.4	78.5	135.4
Non-Indigenous	13.5	5.6	2.7

Source: Australian National Notifiable Disease Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was ≥50% in 2016.

Infectious syphilis notification rates in Aboriginal and Torres Strait Islander people in all areas of residence were stable between 2007 and 2012 (Figure 3.3.8). Between 2013 and 2016, rates increased by 96% in major cities, 385% in inner/outer regional areas, and 221% in remote/very remote areas.

Figure 3.3.8 Infectious syphilis notification rate per 100 000 population, 2007–2016, by area of residence



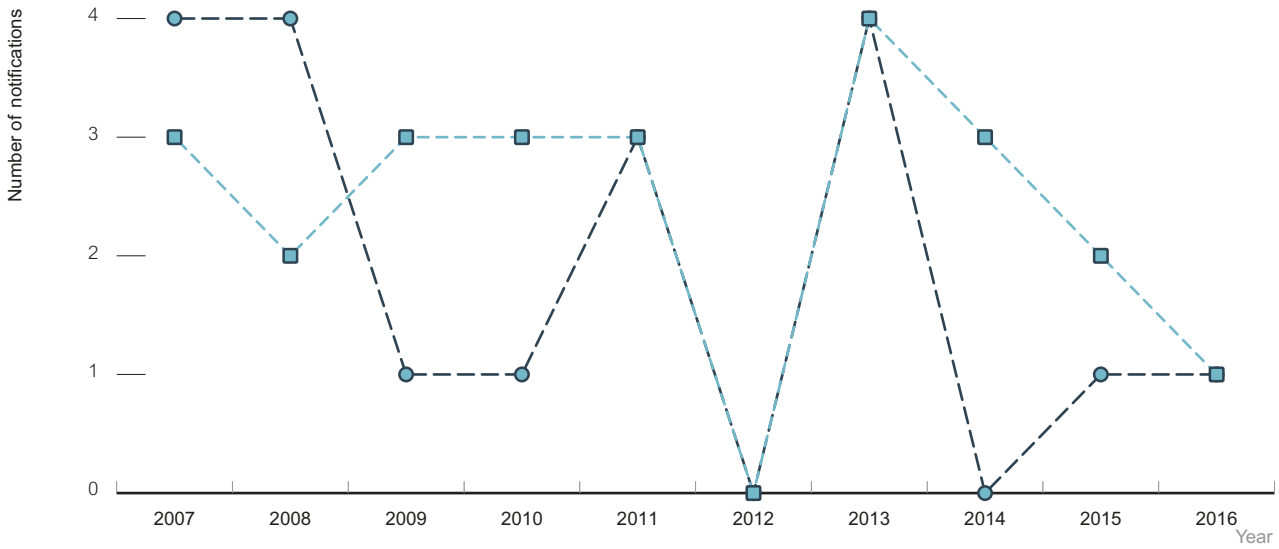
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Major cities	13.1	7.9	7.0	3.8	12.5	13.0	10.9	17.0	17.3	21.4
Inner and outer regional	13.6	12.2	15.3	17.2	16.7	18.9	16.3	31.2	51.3	78.5
Remote and very remote	90.0	87.4	43.9	56.6	71.5	50.3	42.2	61.2	135.7	135.4

Source: Australian National Notifiable Disease Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was ≥50% in each of the 10 years presented.

Congenital syphilis

Syphilis is caused by the bacterium *Treponema pallidum*, which causes congenital syphilis when passed from mother to child during fetal development or at birth. Over the last 10 years, more than half (55%, 24) of the 43 congenital syphilis notifications were in Aboriginal and Torres Strait Islander people (Figure 3.3.9). The notification rate of congenital syphilis in the Aboriginal and Torres Strait Islander population was 5.4 per 100 000 live births in 2016, which is 15 times the rate of 0.3 per 100 000 in the non-Indigenous population, but declined by 75% from its peak in 2013 (Figure 3.3.10). Note that caution should be taken in interpretation of these rates due to small numbers.

Figure 3.3.9 Number of congenital syphilis cases, 2007–2016, by Aboriginal and Torres Strait Islander status



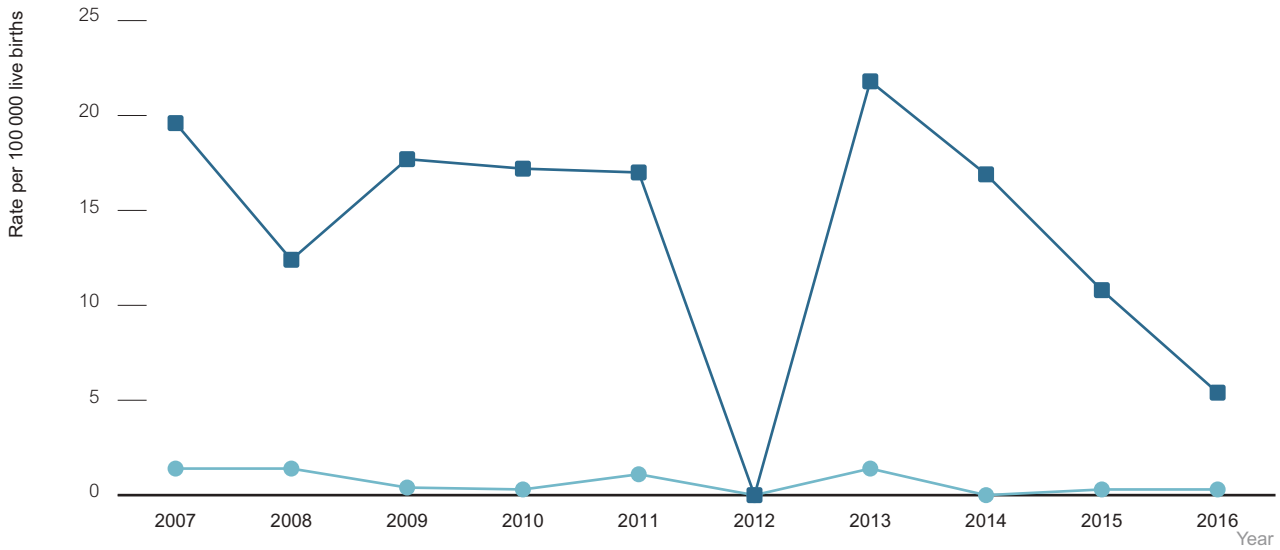
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of Aboriginal and Torres Strait Islander notifications	3	2	3	3	3	0	4	3	2	1
Number of non-Indigenous notifications[a]	4	4	1	1	3	0	4	0	1	1

a Includes notifications where Indigenous status was not reported.

Note: As 2016 births data were not available at the time of reporting, 2015 data were used in the calculation of 2016 rates.

Source: Australian National Notifiable Disease Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was ≥50% in each of the 10 years presented.

Figure 3.3.10 Congenital syphilis rate per 100 000 live births, 2007–2016, by Aboriginal and Torres Strait Islander status



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Rate per 100 000 Aboriginal and Torres Strait Islander births	19.6	12.4	17.7	17.2	17	0	21.8	16.9	10.8	5.4
Rate per 100 000 non-Indigenous births[a]	1.4	1.4	0.4	0.3	1.1	0	1.4	0	0.3	0.3

a Includes notifications where Indigenous status was not reported.

Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was ≥50% in each year of the ten years presented

STIs

3.4 Bacterial STIs in people under 16 years

The occurrence of STIs among young Aboriginal and Torres Strait Islander people is a sensitive issue. The occurrence of chlamydia, gonorrhoea and infectious syphilis among people aged 16 years or younger is described on the basis of cases notified to the National Notifiable Diseases Surveillance System and is summarised only for those jurisdictions in which Aboriginal and Torres Strait Islander status was reported for at least 50% of notifications in each year over the past five years.

From 2012 to 2016, a total of 3051 cases of chlamydia, 1972 cases of gonorrhoea and 122 cases of infectious syphilis were reported among Aboriginal and Torres Strait Islander people aged under 16 years. In the same period 2800 cases of chlamydia, 319 cases of gonorrhoea and 5 cases of infectious syphilis were reported in non-Indigenous people aged under 16 years. Within the Aboriginal and Torres Strait Island population, the majority of these notifications (95% for chlamydia, 93% for gonorrhoea and 92% for infectious syphilis) were among people aged 13 to 15 years. A similar pattern of diagnosis occurred among the non-Indigenous young population, where 99% of chlamydia, 88% of gonorrhoea and 100% of infectious syphilis notifications among the under-16s were in people aged 13 to 15 years. The majority of diagnoses of STIs in the young Aboriginal and Torres Strait Islander population occurred in areas with a known high prevalence of STIs, and where screening for STIs is routinely carried out. Caution should be taken in interpreting these data as related to child sexual assault, as it is likely that a significant proportion of these notifications are the result of earlier sexual debut and/or sex with same-aged peers.

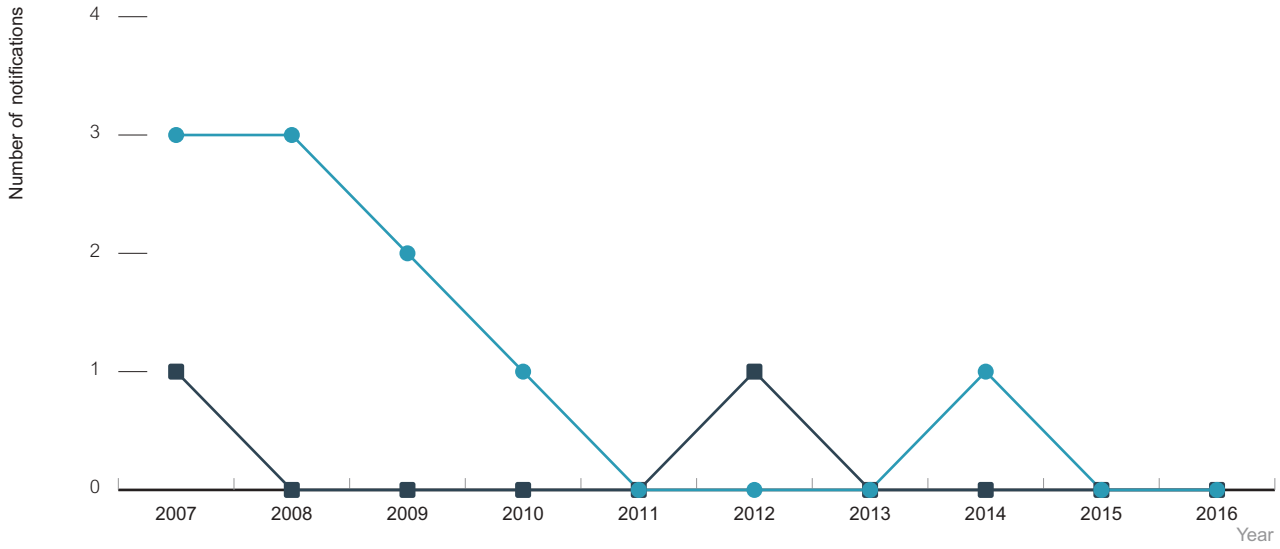
3.5 Donovanosis

The National Donovanosis Eradication (Elimination) Project was implemented in 2001–2004, following the introduction of improved methods of diagnosis and treatment of donovanosis. The project employed strategies such as targeted surveillance, high-quality education and support of primary healthcare workers in their management of genital ulcerative disease, intermittent or short-course oral medication and new laboratory techniques.

Between 2010 and 2016 there have been only three notifications of donovanosis nationally, one in 2010, one in 2012 and one in 2014; two of these diagnoses were in Aboriginal and Torres Strait Islander people.

The decline in the annual number of notifications of donovanosis from four in 2007 to none in 2016 may be attributed to improved case ascertainment and treatment (Figure 3.5.1). There were no notifications of donovanosis in New South Wales, South Australia, Tasmania, Queensland, Victoria or the Northern Territory in the past five years. In Western Australia there were two notifications in this period, one in 2012 and one in 2014 (data not shown).

Figure 3.5.1 Number of notifications of newly diagnosed donovanosis infections, 2007–2016, by Aboriginal and Torres Strait Islander status



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Aboriginal and Torres Strait Islander	3	3	2	1	0	0	0	1	0	0
Non-Indigenous[a]	1	0	0	0	0	1	0	0	0	0

[a] Includes people whose Indigenous status was not reported.

Source: Australian National Notifiable Disease Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was ≥50% in each of the 10 years presented.

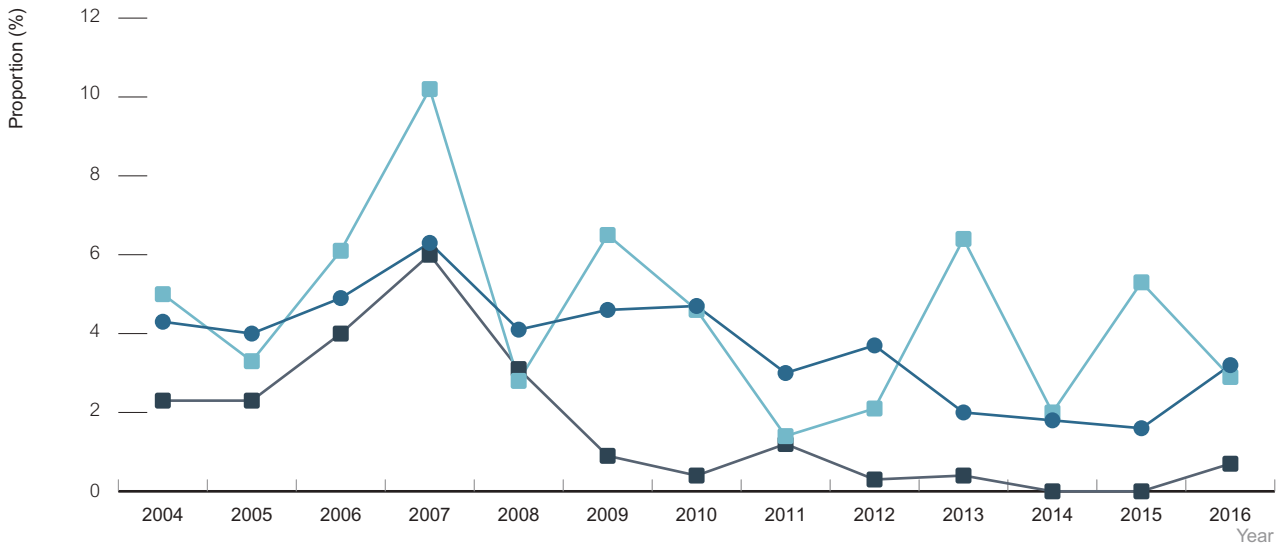
STIs

3.6 Human papillomavirus

Human papillomavirus (HPV) types 16 and 18 cause 70% to 80% of cervical cancer and about half of high-grade cervical intraepithelial neoplasia (CIN grade 2 or 3) lesions, and genotypes 6 and 11 cause most cases of genital warts. In Australia, the quadrivalent HPV vaccine (types 16, 18, 6 and 11) is provided free in schools to all students aged 12–13 years under the National HPV Vaccination Program. The program began in 2007 for girls, and was extended to include boys in 2013. Catch-up programs through schools, general practices and community immunisation services were run from 2007 to 2009 for females aged 14–26 years, and from 2013 to 2015 for males aged 14–15 years.[21,22] Data on HPV vaccination coverage is not available by Aboriginal and Torres Strait Islander status, but will be available in the future.

Following the introduction of vaccination against HPV in 2007, a decline has been seen in the diagnosis of genital warts at first visit at sexual health clinics (see the *HIV, viral hepatitis and sexually transmissible infections in Australia: annual surveillance report 2017*[1] for further detail). Information available from 43 sexual health clinics included in the Genital Warts Surveillance Network indicates a reduction since 2007 of 88% in genital wart diagnosis among Aboriginal and Torres Strait Islander men and 100% in women in 2016 (Figures 3.6.1 and 3.6.2). In people aged 21–29 years, reductions were greater in women than men, reflecting the catch-up campaign in 2007–2009 for women aged up to 26 years.

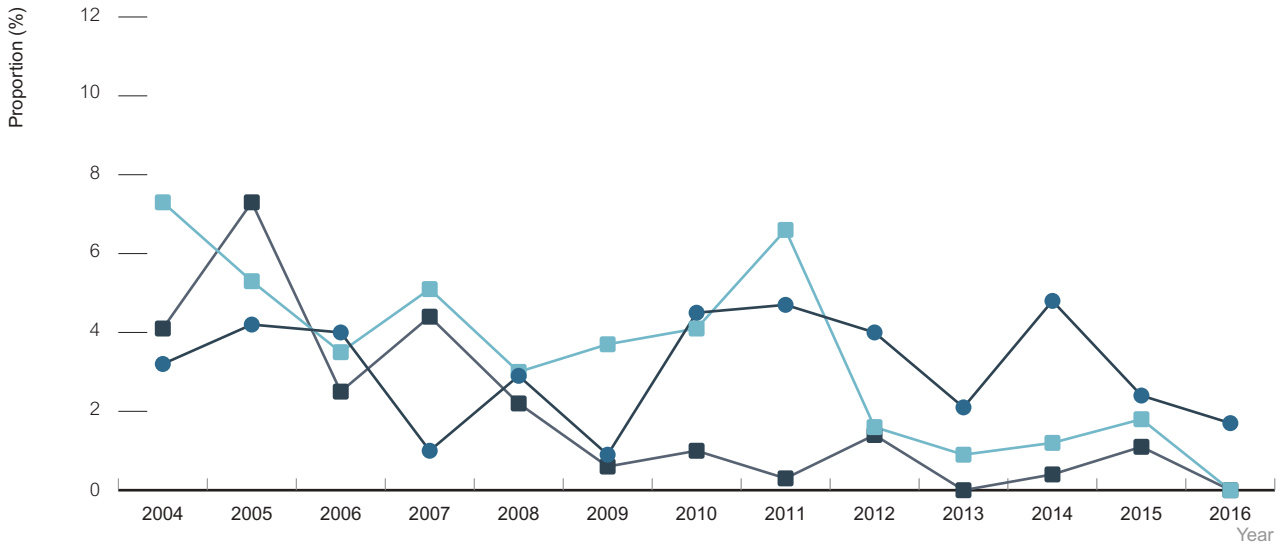
Figure 3.6.1 Proportion of Aboriginal and Torres Strait Islander males diagnosed with genital warts at first visit at sexual health clinics, 2004–2016, by age group



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<21 years (%)	2.3	2.3	4.0	6.0	3.1	0.9	0.4	1.2	0.3	0.4	0.0	0.0	0.7
21–29 years (%)	5.0	3.3	6.1	10.2	2.8	6.5	4.6	1.4	2.1	6.4	2.0	5.3	2.9
≥30 years (%)	4.3	4.0	4.9	6.3	4.1	4.6	4.7	3.0	3.7	2.0	1.8	1.6	3.2

Source: ACCESS (Australian Collaboration for Coordinated Enhanced Sentinel Surveillance); Genital Wart Surveillance Network.

Figure 3.6.2 Proportion of Aboriginal and Torres Strait Islander females diagnosed with genital warts at first visit at sexual health clinics, 2004–2016, by age group



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<21 years (%)	4.1	7.3	2.5	4.4	2.2	0.6	1.0	0.3	1.4	0.0	0.4	1.1	0.0
21-29 years (%)	7.3	5.3	3.5	5.1	3.0	3.7	4.1	6.6	1.6	0.9	1.2	1.8	0.0
≥30 years (%)	3.2	4.2	4.0	1.0	2.9	0.9	4.5	4.7	4.0	2.1	4.8	2.4	1.7

Source: ACCESS (Australian Collaboration for Coordinated Enhanced Sentinel Surveillance); Genital Wart Surveillance Network.

STIs

Methodology

This section explains how the data for this report were collected and calculated. (See the *HIV, viral hepatitis and sexually transmissible infections in Australia: annual surveillance report 2017* for further details.[1])

1 HIV infection

National surveillance for newly diagnosed HIV

HIV infection is a notifiable disease in each state or territory health jurisdiction in Australia. All new HIV diagnoses are reported by doctors and laboratories to state/territory health authorities. Information sought on the notification form includes: name code (based on the first two letters of the family name and the first two letters of the given name), sex, date of birth, postcode, country of birth, Aboriginal and/or Torres Strait Islander status, date of HIV diagnosis, CD4+ cell count at diagnosis, likely place of HIV acquisition, source of exposure to HIV and evidence of newly acquired HIV (see below). If the person was born overseas, language spoken at home and date of arrival in Australia are also recorded. These data are then forwarded to the Kirby Institute for collation and analysis. The database where HIV diagnoses are stored is referred to as the National HIV Registry.

Information on country of birth has been reported by all jurisdictions since 2002 and language spoken at home has been reported by New South Wales, Victoria and Queensland since 2004 and by all jurisdictions since 2008. Information on date of arrival in Australia and likely place of acquisition has been reported by all jurisdictions since 2014.

In New South Wales, information on cases of newly diagnosed HIV was sought only from the diagnosing doctor prior to 2008. From 2008, information was also sought from the doctors to whom the person with HIV was referred, and follow-up was carried out for cases where the information sought at HIV notification was incomplete. These new procedures resulted in more complete information on new HIV diagnoses and in reassignment of cases found to have been newly diagnosed in earlier years.

The procedures used for national HIV surveillance of newly diagnosed HIV are available at **kirby.unsw.edu.au**.

Newly acquired HIV

Newly acquired HIV is defined as newly diagnosed HIV with evidence of a negative or indeterminate HIV antibody test or a diagnosis of primary HIV infection (seroconversion illness) within the previous 12 months. Information on the date of the last negative or indeterminate test or date of onset of primary HIV infection has been routinely sought from each state/territory health jurisdiction since 1991.

Late and advanced HIV diagnosis

Advanced HIV diagnosis was defined as newly diagnosed HIV with a CD4+ cell count of less than 200 cells/μL, and late HIV diagnosis was defined as newly diagnosed HIV with a CD4+ cell count of less than 350 cells/μL. New HIV diagnoses classified as newly acquired HIV were not categorised as late or advanced diagnoses, irrespective of CD4+ cell count.

Rates of HIV diagnosis

Notification rates were calculated using population denominators obtained from the Australian Bureau of Statistics (ABS) by state, year, sex and age (ABS series 3101051–3101058) and were standardised using ABS Standard Population Catalogue 3100DO003_201212.[26] Population denominators by country or region of birth were based on the standard Australian Classification of Countries (ABS series 1269.0),[27] with proportion of population by region of birth and year ascertained from ABS SuperTable data. Population denominators by year, sex, age and state for Aboriginal and Torres Strait Islander people were obtained from ABS catalogue 3238.0, estimated and projected population.[28] ABS regional population denominators by age, sex, Indigenous status and state were obtained from ABS catalogue 32380do009_2011.xls and from 2011 Census-based Aboriginal and Torres Strait Islander population projections by age, sex and remoteness

area (2011–2026).[29] Remoteness area categories for these data were 'metropolitan', 'inner and outer regional', and 'remote and very remote'. State-based proportions were assigned based on proportions by age, sex and state for each remoteness region in 2011 estimates.

Rates of HIV in Aboriginal and Torres Strait Islander populations were compared to Australian-born non-Indigenous populations unless otherwise stated. This was done to exclude imported HIV cases, where trends can fluctuate in response to immigration patterns, and to focus on HIV infection endemic to Australia.

Estimating HIV prevalence and level of diagnosed infection

For full details of methods used to calculate HIV prevalence and level of diagnosed infection, including by subpopulation, please refer to the *HIV, viral hepatitis and sexually transmissible infections in Australia: annual surveillance report 2017*.[1]

Estimated HIV prevalence among people seen at needle and syringe programs was obtained from the Australian Needle and Syringe Program Survey.[30] The methodology of this study has been described in detail elsewhere.[31] Briefly, the survey is conducted annually over two weeks in October at more than 50 needle and syringe programs to provide serial point-prevalence estimates of HIV and hepatitis C and to monitor injecting behaviour among people who inject drugs.

2 Viral hepatitis

New diagnoses of hepatitis B, newly acquired hepatitis B, hepatitis C infection and newly acquired hepatitis C were notifiable conditions in all state/territory health jurisdictions in Australia. Cases were notified by the diagnosing laboratory, medical practitioner, hospital or a combination of these sources, through state/territory health authorities, to the National Notifiable Diseases Surveillance System. Population rates of diagnosis of viral hepatitis were calculated for each state/territory using yearly population estimates provided by the ABS.

2.1 Hepatitis C infection

New hepatitis C diagnoses

Notification procedures for new diagnoses of hepatitis C have been described above. Rates of notification for newly acquired hepatitis C and all new notifications were calculated using analogous procedures to those described above for HIV notifications (see 'New diagnoses' under HIV above).

New acquired hepatitis C infection

Hepatitis C infection was classified as newly acquired if evidence was available of acquisition in the 24 months prior to diagnosis.[32] Diagnoses of newly acquired hepatitis C infection were recorded in all health jurisdictions other than Queensland.

Hepatitis C prevalence

Hepatitis C prevalence among prison entrants was estimated using the National Prison Entrants' Bloodborne Virus Survey. The methodology of this study has been described in detail elsewhere.[33] Briefly, the study is a consecutive cross-sectional sample of prison entrants over a two-week period. Estimated hepatitis C prevalence among people seen at needle and syringe programs was obtained from the Australian Needle and Syringe Program Survey as described above.[30]

2.2 Hepatitis B infection

Hepatitis B new diagnoses

Notification procedures for new diagnoses of hepatitis B have been described above. Rates of notification for newly acquired hepatitis B and all new hepatitis B notifications were calculated using analogous procedures to those described above for HIV notifications (see 'National surveillance for newly diagnosed HIV' above under HIV infection).

Newly acquired hepatitis B infection

Hepatitis B infection was classified as newly acquired if evidence was available of acquisition in the 24 months prior to diagnosis.[32] Diagnoses of newly acquired hepatitis B infection were notifiable in all health jurisdictions.

Hepatitis B prevalence

Hepatitis B prevalence among prison entrants was estimated using the National Prison Entrants' Bloodborne Virus Survey described above.

Prevalence estimates for Aboriginal women giving birth are from two published studies. The New South Wales study[19] linked data from two statutory registers, the NSW Perinatal Data Collection (which records all births in NSW of babies at least 400 grams birthweight or 20 weeks gestation) and the NSW Notifiable Conditions Information System (which records all notifications of conditions notifiable under the NSW Public Health Acts 1991 and 2010). The study was limited to women resident in New South Wales (reported age 10–55 years at time of giving birth) who gave birth to their first child between January 2000 (when routine antenatal screening began) and December 2012.

The Northern Territory study[18] linked data from the Northern Territory Perinatal Register (which records all births in the Northern Territory of babies at least 400 grams birthweight or 20 weeks gestation) and the Northern Territory Notifiable Diseases System (which contains a record of every diagnosis of hepatitis B in the Northern Territory). The study was limited to all women giving birth as public patients in the Northern Territory between September 2005 and 31 December 2010. Women born overseas or not usually resident in the Northern Territory were excluded.

Hepatitis B immunisation

Hepatitis B vaccine coverage was estimated using data from the National Centre for Immunisation Research of Vaccine Preventable Diseases surveillance of immunisation coverage and the Australian Childhood Immunisation Register.

3 Sexually transmissible infections other than HIV

Diagnoses of specific sexually transmissible infections were notified by state/territory health authorities to the National Notifiable Disease Surveillance System, maintained by the Australian Government Department of Health. Chlamydia was notifiable in all health jurisdictions except New South Wales prior to 1998; chlamydia was made notifiable in New South Wales in 1998. Gonorrhoea was a notifiable condition in all health jurisdictions and infectious syphilis became notifiable in all jurisdictions in 2004. In most health jurisdictions, diagnoses of sexually transmissible infections were notified by the diagnosing laboratory, the medical practitioner, hospital or a combination of these sources (see Table 3 below).

Table 3 Source of notification of specific sexually transmissible infections to the National Notifiable Diseases Surveillance System, by state/territory

Diagnosis	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Gonorrhoea	Doctor Laboratory Hospital	Laboratory	Doctor Laboratory	Doctor Laboratory Hospital	Doctor Laboratory	Doctor Laboratory Hospital	Doctor Laboratory	Doctor Laboratory
Infectious Syphilis	Doctor Laboratory Hospital	Doctor Laboratory Hospital	Doctor Laboratory	Doctor Laboratory Hospital	Doctor Laboratory	Doctor Laboratory Hospital	Doctor Laboratory	Doctor Laboratory
Chlamydia	Doctor Laboratory Hospital	Laboratory	Doctor Laboratory	Doctor Laboratory Hospital	Doctor Laboratory	Laboratory	Doctor Laboratory	Doctor Laboratory
Donovanosis	Not notifiable	Laboratory	Doctor Laboratory	Doctor Laboratory Hospital	Doctor Laboratory	Laboratory	Doctor Laboratory	Doctor Laboratory

New STI diagnoses

Notification procedures for new diagnoses of STIs other than HIV have been described above. Rates of notification for chlamydia, gonorrhoea and infectious syphilis were calculated using analogous procedures to those described above for HIV notifications (see HIV new diagnoses methodology).

The number of notifications of donovanosis was obtained from the National Notifiable Disease Surveillance System (described above).

An expanded national infectious syphilis case definition was implemented in July 2015.[20] It includes a new subcategory of 'probable' infectious syphilis. The 'probable' category was developed to capture infectious syphilis cases in people without a prior testing history. An increase in notifications due to the expanded case definition needs to be taken into consideration when interpreting changes in the number and rate of notifications between 2014 and 2015.

STI prevention and risk behaviours

Proportions of people reporting inconsistent condom use, recent injecting drug use, receptive needle sharing for drug injection, recent HIV antibody testing, recent hepatitis C antibody testing, and use of hepatitis C antiviral therapy were estimated from the Australian Needle and Syringe Program Survey. The Survey is conducted annually at more than 50 needle and syringe program services over two weeks in October each year. The project is conducted in all states and territories and recruits between 2000 and 2500 program attendees each year. Participants complete a brief self-administered questionnaire and provide a capillary blood sample which is subsequently tested for HIV and hepatitis C antibodies.

The proportion of people aged 16–29 years reporting condom use was estimated using data from the Goanna survey.[34] The survey involved collection of data in four areas: (1) demographics; (2) questions assessing knowledge of STIs and bloodborne viruses; (3) questions relating to risk behaviours; The proportion of diagnoses of genital warts at first visit to sexual health clinics was obtained from the ACCESS (Australian Collaboration for Coordinated Sentinel Surveillance) network. Briefly, ACCESS is a national sexual health surveillance network using routinely collected deidentified demographic, testing, diagnosis and treatment data from health services and laboratories across Australia to monitor the sexual health of high-risk population groups including gay and bisexual men, injecting drug users, Aboriginal and Torres Strait Islander people, sex workers and young people. Refer to the main report[1] for further details. and (4) questions related to use of and access to health services. Just under 3000 Aboriginal and Torres Strait Islander people aged 16–29 were surveyed in every Australian jurisdiction. The project was initiated in 2010, and data collection occurred during 2011–2013. The survey was funded by an Australian Research Council Linkage Grant with contributions from state and territory health departments and coordinated by peak Aboriginal health organisations in each jurisdiction.

Acknowledgments

Groups and committees involved in the development of the Surveillance Report, as well as the individuals and organisations that provided data for inclusion in this report, are listed below. The Aboriginal and Torres Strait Islander report was initially developed by Associate Professor James Ward.

The National Bloodborne Virus and Sexually Transmissible Infections (NBBVSTI) Surveillance Subcommittee 2017

- Dr Christine Selvey (Chair), New South Wales Ministry of Health, Sydney, NSW
- Ms Amy Bright, Office of Health Protection, Australian Government Department of Health, Canberra, ACT
- Mr Aaron Cogle, National Association of People with HIV Australia, Sydney, NSW
- Associate Professor Benjamin Cowie, WHO Regional Reference Laboratory for Hepatitis B, Victorian Infectious Diseases Reference Laboratory, The Doherty Institute, Melbourne, VIC
- Ms Carol El-Hayek, Burnet Institute, Melbourne, VIC
- Ms Caroline Giele, Communicable Disease Control Directorate, Public Health Division, Department of Health Western Australia, Perth, WA
- Professor Margaret Hellard, Burnet Institute, Melbourne, VIC
- Ms Jo Holden, New South Wales Ministry of Health, Sydney, NSW
- Ms Nasra Higgins, Department of Health and Human Services Victoria, State Government of Victoria, Melbourne, VIC
- Ms Rebecca Hundy, Australian Capital Territory Health, Canberra, ACT
- Professor Monica Lahra, Division of Microbiology and WHO Collaborating Centre for STD, The Prince of Wales Hospital, Sydney, NSW
- Dr Carolyn Lang, Communicable Diseases Branch, Queensland Department of Health, Brisbane, QLD
- Ms Kerryn Lodo, Department of Health and Human Services, Tasmanian Government, Hobart, TAS
- Dr Limin Mao, Centre for Social Research in Health, UNSW Sydney, Sydney, NSW
- Mr Matthew O'Dwyer, Centre for Disease Control, Northern Territory Department of Health, Darwin, NT
- Dr Russell Waddell, Australasian Chapter of Sexual Health Medicine, Sydney, NSW; SA Health, Adelaide, SA
- Associate Professor Rebecca Guy, Dr Muhammad Shahid Jamil, Professor John Kaldor, Dr Skye McGregor, Ms Jane Costello, Ms Morgan Stewart, The Kirby Institute, UNSW Sydney, Sydney, NSW

Annual Surveillance Report 2017 Advisory Committee

- Ms Amy Bright, Office of Health Protection, Australian Government Department of Health, Canberra, ACT
- Mr Aaron Cogle, National Association of People with HIV Australia, Sydney, NSW
- Ms Jules Kim, Scarlet Alliance, Sydney, NSW
- Mr Scott McGill, Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine, Sydney, NSW
- Ms Jennifer MacLachlan, WHO Regional Reference Laboratory for Hepatitis B, Victorian Infectious Diseases Reference Laboratory, The Doherty Institute, Melbourne, VIC
- Dr Limin Mao, Centre for Social Research in Health, UNSW Sydney, Sydney, NSW
- Mr Heath Paynter, Australian Federation of AIDS Organisations, Sydney, NSW
- Ms Helen Tyrrell, Hepatitis Australia, Canberra, ACT
- Dr Russell Waddell, Australasian Chapter of Sexual Health Medicine, Sydney, NSW; SA Health, Adelaide, SA
- Ms Melanie Walker, Australian Injecting & Illicit Drug Users League, Canberra, ACT
- Associate Professor Rebecca Guy (Chair), Professor Basil Donovan, Professor Lisa Maher, Professor John Kaldor, Dr Marlene Kong, Dr Jennifer Iversen, Dr Benjamin Bavinton, Dr Skye McGregor, Dr Hamish McManus, Dr Muhammad Jamil, Dr Praveena Gunaratnam, Ms Jane Costello, The Kirby Institute, UNSW Australia, Sydney, NSW

Collaboration of Australian Needle and Syringe Programs

- Directions ACT, Canberra; ACT
- ACON Hunter; First Step Program Port Kembla; Hunter Harm Reduction Services, Newcastle; Kirketon Road Centre and Clinic 180, Kings Cross; Mid North Coast Harm Reduction, Coffs Harbour; NSW Users and AIDS Association, Surry Hills; Northern NSW Harm Reduction, Ballina, Byron Bay, Lismore, Nimbin, and Tweed Heads; Sydney Harm Minimisation, Redfern, Canterbury and Royal Prince Alfred Hospital; South Court Primary Care NSP, Nepean; Western Sydney HIV/Hepatitis C Prevention Service, Blacktown, Mount Druitt and Parramatta; NSW
- Northern Territory AIDS and Hepatitis C Council, Alice Springs, Darwin and Palmerston; NT
- Biala Community Alcohol and Drug Services, Brisbane; Cairns ATODS NSP, Cairns; Queensland Injectors Health Network, Brisbane, Gold Coast and Sunshine Coast; Kobi House, Toowoomba; West Moreton Sexual Health Service, Ipswich; Townsville ATODS NSP; QLD
- Drug and Alcohol Services South Australia, Adelaide; Anglicare Salisbury, Salisbury; Drug Arm, Warradale; Hindmarsh Centre, Hindmarsh; Noarlunga Community Health Service, Noarlunga; Nunkuwarrin Yunti Community Health Centre, Adelaide; Port Adelaide Community Health Centre, Port Adelaide; Street Link Youth Health Service, Adelaide; SA
- Anglicare NSP Service, Hobart and Glenorchy; Clarence Community Health Centre, Clarence; Burnie NSP Service, Burnie; TAS
- Barwon Health Drug and Alcohol Services, Geelong; Health Information Exchange, St Kilda; Health Works, Footscray; Inner Space, Collingwood; North Richmond NSP, North Richmond; Southern Hepatitis/HIV/AIDS Resource and Prevention Service, Melbourne; VIC.
- Hepatitis WA, Perth; WA AIDS Council Mobile Exchange, Perth; Western Australia Substance Users Association, Perth and South Coast; WA.
- St Vincent's Centre for Applied Medical Research and NSW State Reference Laboratory for HIV at St Vincent's Hospital, Sydney, NSW

Collaboration of National Prison Entrants, Bloodborne Virus Survey State and Territory Sites

- ACT Corrections Health; Alexander Maconochie Centre, ACT
- NT Department of Correctional Services; Prison Health Top End Health Services; Prison and Watch House Health Service Central Australia; Darwin Correctional Centre; Alice Springs Correctional Centre, NT
- QLD Corrective Services; QLD Department of Health; Prison Health Services, West Moreton Hospital and Health Service; Cairns & Hinterland Hospital and Health Service; Arthur Gorrie Correctional Centre, Wacol; Brisbane Correctional Centre; Brisbane Women's Correctional Centre; Lotus Glenn Correctional Centre, Mareeba, QLD
- SA Department of Correctional Services; SA Prison Health Services; Adelaide Remand Centre; Adelaide Women's Prison; City Watch House, Adelaide; Yatala Labour Prison; Port Augusta Prison, SA
- TAS Correctional Health Services; Hobart Reception Prison; Launceston Reception Prison; Risdon Prison Complex, Mary Hutchinson Women's Prison, TAS
- Corrections Victoria; Justice Health Victoria; Dame Phyllis Frost Centre, Ravenhall; Melbourne Assessment Prison; Melbourne Reception Prison, VIC
- Justice Health and Forensic Mental Health Network; Cessnock Correctional Centre; Metropolitan Remand and Reception Centre, Silverwater; Parklea Correctional Centre; Silverwater Women's Correctional Centre; South Coast Correctional Centre, Nowra; Tamworth Correctional Centre, NSW
- WA Corrective Services; Bandyup Women's Prison, Middle Swan; Hakea Prison, Canning Vale; Greenough Regional Prison, Narngulu, WA

Genital Warts Surveillance Network

- Canberra Sexual Health Centre, Canberra; ACT
- Liverpool Sexual Health Clinic, Liverpool; Coffs Harbour Sexual Health Clinic, Coffs Harbour; Grafton Sexual Health Clinic, Grafton; Albury Sexual Health Clinic, Albury; Goulburn Sexual Health Clinic, Goulburn; Griffith Sexual Health Clinic, Griffith; Narooma Sexual Health Clinic, Narooma; Queanbeyan Sexual Health Clinic, Queanbeyan; Wagga Sexual Health Clinic, Wagga Wagga; Holden Street Clinic, Gosford; Newcastle Sexual Health Clinic, Newcastle; Forster Sexual Health Clinic, Forster; Bligh Street Clinic, Tamworth; Taree Manning Clinic, Taree; Illawarra Sexual Health Clinic, Warrawong; Nowra Sexual Health Clinic, Nowra; Kirketon Road Centre, Darlinghurst; Clinic 180, Potts Point; Lismore Sexual Health Service, Lismore; Tweed Heads Sexual Health Service, Tweed Heads; Clinic 16, North Shore Sexual Health Service, Sydney; Manly Sexual Health Clinic, Sydney; RPA Sexual Health Clinic, Sydney; Short Street Centre Sexual Health Clinic, Kogarah; Western Sydney Sexual Health Centre, Parramatta; Mount Druitt Sexual Health Clinic (formerly Luxford Road Sexual Health Clinic), Mount Druitt; Blue Mountains Sexual Health Clinic, Katoomba; Nepean Sexual Health Clinic, Penrith; Sydney Sexual Health Centre, Sydney; WAYS Youth Health Clinic, Bondi Junction; Lightning Ridge Sexual Health Service, Lightning Ridge; Bourke Sexual Health Service, Bourke; Dubbo Sexual Health, Dubbo; Orange Sexual Health Clinic, Kite Street Community Health Centre, Orange; Broken Hill Sexual Health, Broken Hill; a[TEST], Darlinghurst; a[TEST], Newtown; NSW
- Alice Springs Clinic 34, Alice Springs; Darwin Clinic 34, Darwin; NT
- Cairns Sexual Health Clinic, Cairns; Gold Coast Sexual Health Service, Miami; Princess Alexandra Sexual Health, Woolloongabba; Townsville Sexual Health Service, Townsville; Mackay Sexual Health Clinic, Mackay; Mount Isa Sexual Health Clinic, Mt Isa; Palm Island Sexual Health Clinic, Palm Island; QLD
- Clinic 275 Sexual Health, Adelaide; SA
- Hobart Sexual Health Service, Hobart; Launceston Sexual Health Service, Launceston; Devonport Sexual Health Service, Devonport; TAS
- Melbourne Sexual Health Centre, Melbourne; Barwon Reproductive and Sexual Health Clinic, Geelong; VIC
- Fremantle Hospital Sexual Health Clinic, Fremantle; WA

National Organisations

- Australasian Sexual Health Alliance, Sydney, NSW
- Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine, Sydney, NSW
- Australasian Society for Infectious Diseases, Melbourne, VIC
- Australian Federation of AIDS Organisations, Sydney, NSW
- Australian Government Department of Health, Canberra, ACT
- Australian Injecting and Illicit Drug Users League, Canberra, ACT
- Australian Institute of Health and Welfare, Canberra, ACT
- Australian Paediatric Surveillance Unit, Westmead, NSW
- Australian Red Cross Blood Service, Melbourne, VIC
- Centre for Social Research in Health, UNSW Sydney, Sydney, NSW
- Communicable Diseases Network Australia, Canberra, ACT
- Hepatitis Australia, Canberra, ACT
- Macfarlane Burnet Institute for Medical Research and Public Health, Prahran, VIC
- National Aboriginal Community Controlled Health Organisation, Canberra, ACT
- National Association of People with HIV Australia, Sydney, NSW
- National Serology Reference Laboratory, Australia, Fitzroy, VIC
- Scarlet Alliance, Australian Sex Workers Association, Sydney, NSW;
- WHO Regional Reference Laboratory for Hepatitis B, Victorian Infectious Diseases Reference Laboratory, The Doherty Institute, Melbourne, VIC

State/Territory Health Departments

- Communicable Disease Control Section, Health Protection Service, ACT Government, Canberra, ACT
- Communicable Diseases Branch, Health Protection NSW, NSW Health, NSW Government, North Sydney, NSW
- Sexual Health and Blood Borne Virus Unit, Centre for Disease Control, Northern Territory Department of Health, Northern Territory Government, Darwin, NT
- Communicable Diseases Unit, Queensland Department of Health, Queensland Government, Brisbane, QLD
- Communicable Disease Control Branch, SA Health, Government of South Australia, Adelaide, SA
- Department of Health and Human Services, Tasmanian Government, Hobart, TAS
- Communicable Disease Epidemiology and Surveillance, Health Protection Branch, Department of Health and Human Services Victoria, State Government of Victoria, Melbourne, VIC
- Communicable Disease Control Directorate, WA Department of Health, Government of Western Australia, Perth, WA

References

1. Kirby Institute. HIV, viral hepatitis and sexually transmissible infections in Australia: annual surveillance report 2017. Sydney: Kirby Institute, UNSW Sydney; 2017.
2. Australasian Sexual Health Alliance. Australian STI management guidelines for use in primary care. Sydney: ASHA; 2016. Available from: www.sti.guidelines.org.au
3. Australian Government Department of Health. Introduction to the National Notifiable Diseases Surveillance System. Canberra: DH; 2015. Available from: www.health.gov.au/internet/main/publishing.nsf/content/cda-surveil-nndss-nndssintro.htm
4. Lea T, Costello M, Mao L, Prestage G, Zablotska I, Ward J, et al. Elevated reporting of unprotected anal intercourse and injecting drug use but no difference in HIV prevalence among Indigenous Australian men who have sex with men compared with their Anglo-Australian peers. *Sexual Health*. 2013;10(2):146–55.
5. Australian Government Department of Health. Seventh national HIV strategy 2014–2017. Canberra: Department of Health; 2014. Available from: www.health.gov.au/internet/main/publishing.nsf/Content/ohp-bbvs-hiv
6. Australian Government Department of Health. Second national hepatitis B strategy 2014–2017. Canberra: Department of Health; 2014. Available from: www.health.gov.au/internet/main/publishing.nsf/Content/ohp-bbvs-hepb
7. Australian Government Department of Health. Fourth national hepatitis C strategy 2014–2017. Canberra: Department of Health; 2014. Available from: http://www.health.gov.au/internet/main/publishing.nsf/content/ohp-bbvs-hepc
8. Australian Government Department of Health. Third national sexually transmissible infections strategy 2014–2017. Canberra: Department of Health; 2014. www.health.gov.au/internet/main/publishing.nsf/Content/ohp-bbvs-sti
9. Australian Government Department of Health. Fourth national Aboriginal and Torres Strait Islander blood-borne viruses and sexually transmissible infections strategy 2014–2017. Canberra: Department of Health; 2014. Available from: www.health.gov.au/internet/main/publishing.nsf/content/ohp-bbvs-atsi
10. MacPhail C, McKay K. Social determinants in the sexual health of adolescent Aboriginal Australians: a systematic review. *Health & Social Care in the Community.* 2016;1–16. doi:10.1111/hsc.12355
11. Maartens G, Celum C, Lewin SR. HIV infection: epidemiology, pathogenesis, treatment, and prevention. *Lancet*. 2014;384(9939):258–71.
12. Butler T, Callender D, Simpson M. prison entrants' bloodborne virus survey: 2004, 2007, 2010, and 2013. Sydney: Kirby Institute, UNSW Australia; 2015. Available from: https://kirby.unsw.edu.au/sites/default/files/kirby/report/JHP_National-Prison-Entrants-Report-2004-2007-2010-2013.pdf
13. World Health Organization. *Report on global sexually transmitted infection surveillance 2015*. Geneva: WHO; 2016. Available from: http://www.who.int/reproductivehealth/publications/rtis/stis-surveillance-2015/en/
14. Iversen J, Maher L. Australian NSP survey: prevalence of HIV, HCV and injecting and sexual behaviour among needle and syringe program attendees. 20 year national data report 1995–2014. Sydney: Kirby Institute, University of New South Wales; 2015. Available from https://kirby.unsw.edu.au/sites/default/files/kirby/report/ANSPS_1995-2014-Data-Report.pdf
15. Australian Bureau of Statistics. Prisoners in Australia, cat. no. 4517.0. Canberra: ABS; 2015. Available from: http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4517.0main+features12015
16. NT notifications of diseases by onset of date and districts: 1 April – 30 June 2013 and 2012. *Northern Territory Disease Control Bulletin*. 2013;20(3):37–9.
17. Kirby Institute. Hepatitis B and C in Australia: annual surveillance report supplement 2016. Sydney: Kirby Institute, UNSW Australia; 2016.
18. Liu B, Guthridge S, Li SQ, Markey P, Krause V, McIntyre P, et al. The end of the Australia antigen? An ecological study of the impact of universal newborn hepatitis B vaccination two decades on. *Vaccine*. 2012;30(50):7309–14.
19. Deng L, Reekie J, Ward JS, Hayen A, Kaldor JM, Kong M, et al. Trends in the prevalence of hepatitis B infection among women giving birth in New South Wales. *Medical Journal of Australia*. 2017;206(7):301–5.
20. Australian Government Department of Health. Syphilis—infectious (primary, secondary and early latent), less than 2 years duration case definition. Canberra: Australian Government Department of Health; 2015 Available from: http://www.health.gov.au/internet/main/publishing.nsf/content/cda-surveil-nndss-casedefs-cd_syphl2.htm

21. Brotherton J, Murray S, Hall M, Andrewartha LK, Banks CA, Meijer D, et al. Human papillomavirus vaccine coverage among female Australian adolescents: success of the school-based approach. *Medical Journal of Australia*. 2013;199(9):614–7.
22. Garland SM, Skinner SR, Brotherton JM. Adolescent and young adult HPV vaccination in Australia: achievements and challenges. *Preventive Medicine*. 2011;53:S29–S35.
23. Guy RJ, McDonald AM, Bartlett MJ, Murray JC, Giele CM, Davey TM, et al. HIV diagnoses in Australia: diverging epidemics within a low-prevalence country. *Medical Journal of Australia*. 2007;187(8):437–40.
24. McDonald AM, Gertig DM, Crofts N, Kaldor JM. A national surveillance system for newly acquired HIV infection in Australia. National HIV Surveillance Committee. *American Journal of Public Health*. 1994;84(12):1923–8.
25. Dax EM, Vandenbelt TA. HIV antibody testing in Australia. *Journal of Acquired Immune Deficiency Syndromes*. 1993;6 Suppl 1:S24–8.26.
26. Australian Bureau of Statistics. Australian demographic statistics, Mar 2017, cat. no. 3101.0. Available from: www.abs.gov.au/Ausstats/abs@.nsf/mf/3101.0
27. Australian Bureau of Statistics. Standard Australian classification of countries (SACC), 2016, cat. no. 1269.0. Canberra: ABS; 2016. Available from: www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue/5D2485E6F15281E6CA2570B5007ACA80?OpenDocument
28. Australian Bureau of Statistics. Estimates and projections, Aboriginal and Torres Strait Islander Australians, 2001 to 2026, cat. no. 3238.0. Canberra: ABS; 2014. Available from: www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue/4EF9B192CB67360CCA256F1B0082C453?OpenDocument
29. Estimates of Aboriginal and Torres Strait Islander Australians, June 2011, cat. no. 3238.0.55.001. Canberra: ABS; 2013. Available from: http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3238.0.55.001June%202011?OpenDocument
30. Iversen J, Chow S, Maher L. Australian NSP survey: prevalence of HIV, HCV and injecting and sexual behaviour among NSP attendees. National data report 2009–2013. Sydney: Kirby Institute, UNSW Australia; 2014. Available from: https://kirby.unsw.edu.au/sites/default/files/kirby/report/ANSPS_2009-2013-Data-Report.pdf
31. MacDonald M, Wodak AD, Ali R, Crofts N, Cunningham PH, Dolan KA, et al.; Collaboration of Australian Needle Exchanges. HIV prevalence and risk behaviour in needle exchange attenders: a national study. *Medical Journal of Australia*. 1997;166(5):237–40.
32. Australian Government Department of Health. Australian national notifiable diseases and case definitions. Canberra: Department of Health; 2017. Available from: http://www.health.gov.au/casedefinitions#e
33. Butler T, Callander D, Simpson M. National prison entrants' bloodborne virus and risk behaviour survey 2004, 2007, 2010 and 2013. Sydney: Kirby Institute, UNSW Australia; 2015.
34. Ward J, Bryant J, Wand H, Pitts M, Smith A, Delaney-Thiele D, Worth H, Kaldor J. The Goanna survey: results of the first Australian study of knowledge, risk practices and health service access for sexually transmissible infections (STIs) and blood borne viruses (BBVs) among young Aboriginal and Torres Strait Islander people. Alice Springs, NT: Baker IDI Heart & Diabetes Institute; 2014. Available from https://www.baker.edu.au/Assets/Files/Final Goanna Report July 2014.pdf