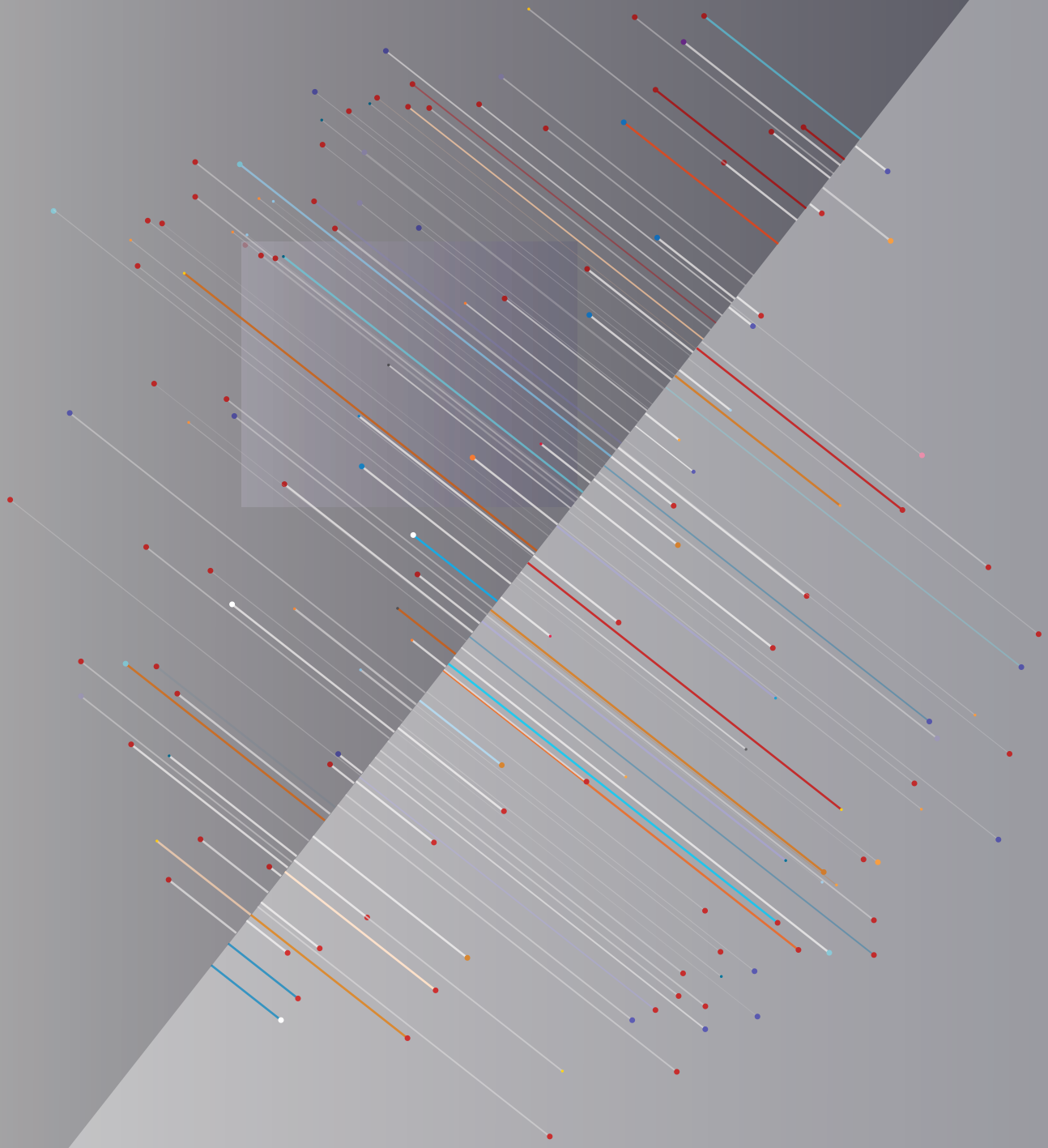
# Bloodborne viral and sexually transmissible infections in Aboriginal and Torres Strait Islander people

## Annual surveillance report 2018



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**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 2018


The Kirby Institute

**Prepared by:**

Ela Naruka
Jonathan King
Skye McGregor
Hamish McManus
Rebecca Guy

**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, Melanie Simpson, The Kirby Institute, UNSW Sydney
- James Ward, South Australian Health and Medical Research Institute, Flinders University Adelaide

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



The Kirby Institute is funded by the Australian Government Department of Health and is affiliated with the Faculty of Medicine, UNSW Sydney. The Surveillance, Evaluation and Research Program at the Kirby Institute is responsible for the public health monitoring and evaluation of patterns of transmission of bloodborne viral and sexually transmissible infections.

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# 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 2017, as reported by 31 March 2018. 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.

***We acknowledge the late Scientia Professor David Cooper (AC), Director of the Kirby Institute at UNSW Sydney who passed away in March 2018. David was a global pioneer in the response to HIV. His life was dedicated to understanding HIV and the development of effective treatment for the virus. He understood and acknowledged the critical role surveillance plays in the response to infectious disease epidemics. We thank him for his endless support, encouragement and expertise.***

# Abbreviations

| | |
|---|---|
| **ABS** | Australian Bureau of Statistics |
| **ACCESS** | Australian Collaboration for Coordinated Enhanced Sentinel Surveillance |
| **ANSPS** | Australian Needle and Syringe Program Survey |
| **BBV** | bloodborne virus |
| **HBsAg** | hepatitis B surface antigen |
| **HBV** | hepatitis B virus |
| **HCV** | hepatitis C virus |
| **HIV** | human immunodeficiency virus |
| **HPV** | human papillomavirus |
| **PrEP** | pre-exposure prophylaxis |
| **STI** | sexually transmissible infection |
| **UNAIDS** | Joint United Nations Programme on HIV/AIDS |

# Summary

## HIV

- In 2017, there were 31 HIV notifications in Aboriginal and Torres Strait Islander people in Australia, accounting for 3% of all HIV notifications (963) and increasing from 26 notifications in 2013.
- In each year of the ten-year period 2008–2017, Indigenous status was >90% complete for HIV notifications in all jurisdictions, and therefore data from all state and territories are included.
- Since 2013 there has been a widening of the gap in the age standardised HIV notification rate between the Aboriginal and Torres Strait Islander population and the Australian-born non-Indigenous population.
- The HIV notification rate has been higher in the Aboriginal and Torres Strait Islander population than in the Australian-born non-Indigenous population since 2009 and in 2017 was 1.6 times as high (4.6 per 100 000 vs. 2.8 per 100 000).
- Between 2013 and 2017, of the HIV notifications in the Aboriginal and Torres Strait Islander population, 146 were among males and 26 among females, providing a male-to-female ratio of 6:1 compared to 15:1 in the non-Indigenous population.
- In 2017, the HIV notification rate in the Aboriginal and Torres Strait Islander population was 5.4 per 100 000 in people aged 35 years and above, and 3.4 per 100 000 in those aged under 35 years. In those aged 35 years and above the rate was almost twice the rate among Australian-born non-Indigenous people (3.0 per 100 000).
- In the five year period 2013–2017, a higher proportion of HIV notifications among the Aboriginal and Torres Strait Islander population were attributed to heterosexual sex (21%) and injecting drug use (18%) than in the Australian-born non-Indigenous population (18% and 3%, respectively).
- Based on mathematical modelling, there were an estimated 582 Aboriginal and Torres Strait Islander people living with HIV in Australia in 2017.
- Based on the test for immune function (CD4+ cell count), a quarter (26%) of the new HIV notifications among Aboriginal and Torres Strait Islander people in 2017 were classified as late diagnoses (CD4+ cell count of less than 350 cells/μL). These notifications are likely to have been in people who had acquired HIV at least four years prior to diagnosis without being tested.
- In the five year period 2013–2017 there has been a 260% increase in the notification rate of HIV for the Aboriginal and Torres Strait Islander population residing in remote areas (1.5 per 100 000 to 5.4 per 100 000). It is important to note this represents a small number of cases, and caution should be taken in interpretation.
- Prevalence of HIV among Aboriginal and Torres Strait Islander males participating in the Australian Needle and Syringe Program Survey (ANSPS) has increased almost five times between 2010–2011 and 2016–2017 from 0.9% to 4.2%.
- For detailed findings see pp. 18-27

# Hepatitis C

- There were 10 537 hepatitis C notifications in Australia in 2017, of which 1201 (11%) were among the Aboriginal and Torres Strait Islander population, 4145 (39%) among the non-Indigenous population, and a further 5182 (49%) 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 Indigenous status was at least 50% complete for hepatitis C notifications for each of the past five years (2013–2017). Approximately two-thirds (61%) of the Aboriginal and Torres Strait Islander population reside in these jurisdictions so caution should be applied when interpreting these notification rates as nationally representative.

- In 2017 the hepatitis C notification rate in the Aboriginal and Torres Strait Islander population was 4.4 times as high as in the non-Indigenous population (168.1 per 100 000 vs 38.4 per 100 000 respectively).

- In the past five years (2013–2017), there was a 15% increase in the notification rate of hepatitis C in the Aboriginal and Torres Strait Islander population (from 146.4 per 100 000 in 2013 to 168.1 per 100 000 in 2017), whereas the rate in the non-Indigenous population decreased by 12% (43.6 per 100 000 in 2013 and 38.4 per 100 000 in 2017).

- 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 2017 was 13.7 times that of the non-Indigenous population (24.6 vs 1.8 per 100 000, respectively).

- In 2017, 26% of Aboriginal and Torres Strait Islander respondents to the Australian Needle and Syringe Program Survey reported receptive syringe sharing, a key risk factor for hepatitis C transmission, a slight increase on 23% in 2008. The 2017 proportion was higher than for non-Indigenous survey respondents (15%).

- Among Aboriginal and Torres Strait Islander respondents to the Australian Needle and Syringe Program Survey in 2017, around a third (37%) of those who self-reported living with chronic hepatitis C had received treatment in their lifetime, a proportion that has almost doubled since 2013 when it was 13%. By comparison the proportion of those that reported any hepatitis C treatment in their lifetime among non-Indigenous respondents for 2017 was 27% higher than Aboriginal and Torres Strait Islander respondents (47%).

- For detailed findings see pp. 28-48

# Hepatitis B

- There were 6102 notifications of hepatitis B infection in Australia in 2017, of which 151 (2%) were among Aboriginal and Torres Strait Islander people and 2810 (46%) were among non-Indigenous people. For 3141 notifications (51%), 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 Indigenous status was at least 50% complete for hepatitis B notifications for each the past five years (2013–2017). One-third (33%) of the Aboriginal and Torres Strait Islander population reside in these jurisdictions so caution should be applied when interpreting these notification rates as nationally representative.

- In the past five years (2013–2017), the notification rate of hepatitis B infection in the Aboriginal and Torres Strait Islander population decreased by 37% from 71.6 per 100 000 in 2013 to 45.1 per 100 000 in 2017, with declines in all age groups but the greatest decline in people under 40 years of age.

- In 2017, the notification rate of hepatitis B infection for the Aboriginal and Torres Strait Islander population was 2.3 times greater than the non-Indigenous population (45.1 per 100 000 vs 19.2 per 100 000, respectively).

- For detailed findings see pp. 50-62

# Sexually transmissible infections

• For detailed findings see pp. 64-96

## Chlamydia

- Chlamydia is the most frequently diagnosed sexually transmissible infection in Australia. In 2017, there were a total of 100 775 chlamydia notifications in Australia, of which 7015 (7%) were among the Aboriginal and Torres Strait Islander population, 31 502 (31%) were among the non-Indigenous population, and Indigenous status was not reported for 62 258 (62%) notifications.

- Notification rates are based on data from four jurisdictions (the Northern Territory, Queensland, South Australia and Western Australia), where Indigenous status was at least 50% complete for chlamydia notifications for each of the past five years (2013–2017). Just over one-half (57%) of the Aboriginal and Torres Strait Islander population reside in these jurisdictions so caution should be applied when interpreting these notification rates as nationally representative.

- In 2017, 82% of chlamydia notifications among the Aboriginal and Torres Strait Islander population were in people aged 15–29 years compared with 75% in the non-Indigenous population.

- Between 2013 and 2017, the chlamydia notification rate in Australia in both the Aboriginal and Torres Strait Islander population and the non-Indigenous population has remained relatively stable, with variation by jurisdiction.

- The chlamydia notification rate for the Aboriginal and Torres Strait Islander population of 1194 per 100 000 people in 2017 was 2.8 times that of the non-Indigenous notification rate (427 per 100 000), increasing to five times higher in remote/very remote areas.

## Gonorrhoea

- There was a total of 28 364 gonorrhoea notifications in Australia in 2017, of which 4119 (15%) were in the Aboriginal and Torres Strait Islander population, 15 284 (54%) were in the non-Indigenous population, and 8961 (32%) were in people whose Indigenous 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 Indigenous status was at least 50% complete for gonorrhoea notifications for each of the past five years (2013–2017). Approximately two-thirds (69%) of the Aboriginal and Torres Strait Islander population reside in these jurisdictions so caution should be applied when interpreting these notification rates as nationally representative.

- In Aboriginal and Torres Strait Islander people, the number of gonorrhoea notifications among men and women was nearly equal in 2017. In contrast, notifications in non-Indigenous people are predominantly in men.

- In 2017, nearly three-quarters (73%) of cases of gonorrhoea among the Aboriginal and Torres Strait Islander population were notified among people aged 15–29 years compared with half (52%) in the non-Indigenous population.

- In 2017, the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population was more than six times that of the non-Indigenous population (627 vs 96 per 100 000 population), increasing to nearly 30 times higher in remote and very remote areas.

## Infectious Syphilis

- There was a total of 4398 infectious syphilis notifications in Australia in 2017, of which 779 (18%) notifications were among Aboriginal and Torres Strait Islander people, 3314 (75%) were among the non-Indigenous population, and 305 (7%) for people whose Indigenous status was not reported.

- Infectious syphilis notification rates include all jurisdictions, as Indigenous status was at least 50% complete for all infectious syphilis notifications for each of the 10 years 2008–2017.

- In Aboriginal and Torres Strait Islander people, the number of infectious syphilis notifications among men and women was nearly equal in 2017 (male to female ratio: 1:1). In contrast, notifications in non-Indigenous people are predominantly in men (male to female ratio: 13:1).

- In 2017, the infectious syphilis notification rate in the Aboriginal and Torres Strait Islander population was more than six times that of the non-Indigenous population (102.5 vs 15.5 per 100 000 population), increasing to 50 times as high in remote and very remote areas.

- In 2017, 54% of infectious syphilis notifications among the Aboriginal and Torres Strait Islander population were among people aged 15–29 years compared with 33% in the non-Indigenous population.

- Between 2013 and 2017, 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, increasing from 44.1 per 100 000 to 201.6 per 100 000.

- The notification rate of infectious syphilis among the Aboriginal and Torres Strait Islander population declined by 29% between 2008 and 2013, and then increased fivefold between 2013 and 2017 from 19.5 per 100 000 in 2013 to 102.5 per 100 000 in 2017.

- There were 44 cases of congenital syphilis recorded over the five year period 2013–2017, of which 26 (59%) were in the Aboriginal and Torres Strait Islander population.

## Donovanosis

- Donovanosis has been virtually eliminated in the Aboriginal and Torres Strait Islander population with only one notification between 2013 and 2017, in 2014.

## Human papillomavirus

- The national vaccination program for human papillomavirus (HPV) was introduced in 2007. Since then, the Aboriginal and Torres Strait Islander population aged 21 years or younger being diagnosed with genital warts at their first sexual health clinic has shown an 82% reduction in men and 100% reduction in women (between 2007 and 2017).

## Interpretation

The higher and increasing rate of both HIV and hepatitis C notifications in Aboriginal and Torres Strait Islander people in the past five years is in contrast to the 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 slower adoption of biomedical prevention strategies such as treatment as prevention and pre-exposure prophylaxis (PrEP), a higher proportion of undiagnosed cases of HIV in the population, a localised outbreak in a regional area of Australia, higher receptive drug injecting equipment and condomless anal sex among Aboriginal and Torres Strait Islander gay and bisexual men [2], and a difference in the HIV epidemiology, with a higher proportion of HIV notifications among Aboriginal and Torres Strait Islander people attributed to heterosexual sex and injecting drug use.

The higher rates of hepatitis C notifications in Aboriginal and Torres Strait Islander people may reflect differences in injecting practices, absolute increases in injecting drug use in the population, and in particular, higher rates of receptive syringe and other drug equipment sharing. The difference could also be accounted for by disproportionate rates of incarceration in Aboriginal and Torres Strait Islander people combined with higher rates of hepatitis C screening in this setting. Increases in HIV and hepatitis C notification rates demonstrate the need for greater priority in both clinical and policy realms for this population. In addition there is an urgent need for targeted and specific prevention measures, such as early testing and treatment for both hepatitis C and HIV and PrEP for HIV and TaSP, to be scaled up in this priority population, as outlined in the national strategies [3-7].

The decline in hepatitis B notifications in Aboriginal and Torres Strait Islander people aged less than 20 years suggests that immunisation programs for hepatitis B have had a clear benefit and have reduced the gap in hepatitis B notification 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 success in controlling a limited number of sexually transmissible diseases (STIs) in Aboriginal and Torres Strait Islander people. Donovanosis, once an STI diagnosed among remote Aboriginal populations, is now virtually eliminated. Genital warts were previously recorded as the most common STI managed at sexual health clinics among Aboriginal and Torres Strait Islander populations and non-Indigenous populations. Mirroring reductions in the non-Indigenous population, this report highlights significant declines in vaccine eligible Aboriginal and Torres Strait Islander women and men since the introduction of a national vaccination program for HPV in 2007 for women and in 2013 for men.

In contrast, rates of chlamydia, gonorrhoea and infectious syphilis notification were three to seven times as high in Aboriginal and Torres Strait Islander people in 2017 as in the non-Indigenous population. Greater gaps in notification rates occur in regional and remote/very remote areas between the two populations. Since 2011, there has also been a resurgence of infectious syphilis in regional and remote communities of northern and central Australia. This resurgence has also brought cases of congenital syphilis, which in 2017 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 and there is an ongoing need for health promotion and strategies to detect infections early.

Social determinants of health, such as access to health care , education, unemployment, poverty and discrimination, can also influence risk factors for blood borne viruses and sexually transmissible infections[8]. These must be addressed concurrently with the development of culturally appropriate and relevant prevention, testing and treatment strategies.

# Overview

## Aboriginal and Torres Strait Islander completeness

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

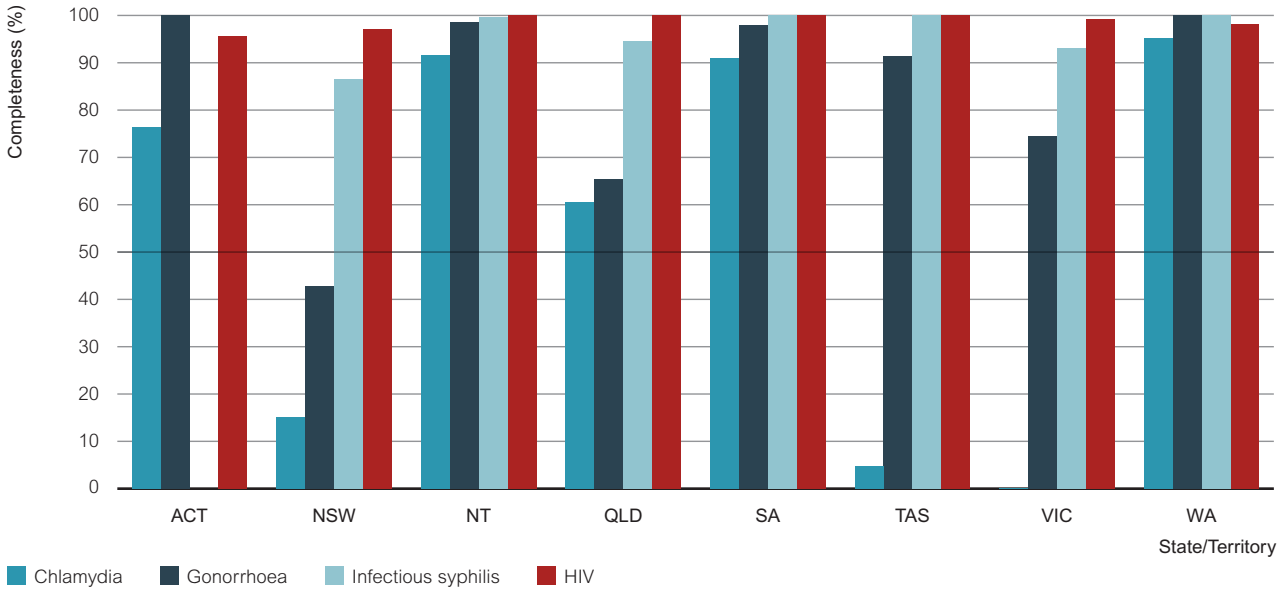
In 2017, all jurisdictions reported the Indigenous status of the patient for at least 50% of notifications of HIV, infectious syphilis and newly acquired hepatitis C (infections acquired within the last two years). However, Indigenous status was reported for less than 50% of diagnoses in the following jurisdictions for the following conditions (Figures 1 and 2):

- **Chlamydia:** Australian Capital Territory, New South Wales, Tasmania and Victoria
- **Hepatitis B:** New South Wales, Victoria and Queensland
- **Hepatitis C:** Australian Capital Territory, New South Wales and Victoria.
- **Gonorrhoea:** New South Wales
- **Newly acquired hepatitis B:** Australian Capital Territory

Time trends in the form of notification rates for specific infections by jurisdiction were included in this report if information on Indigenous status was available for at least 50% of notifications of the infection in every one of the past five years. Jurisdictions which met the 50% threshold in 2017 (Figure 1 and Figure 2) but not in other years were not included in this report.

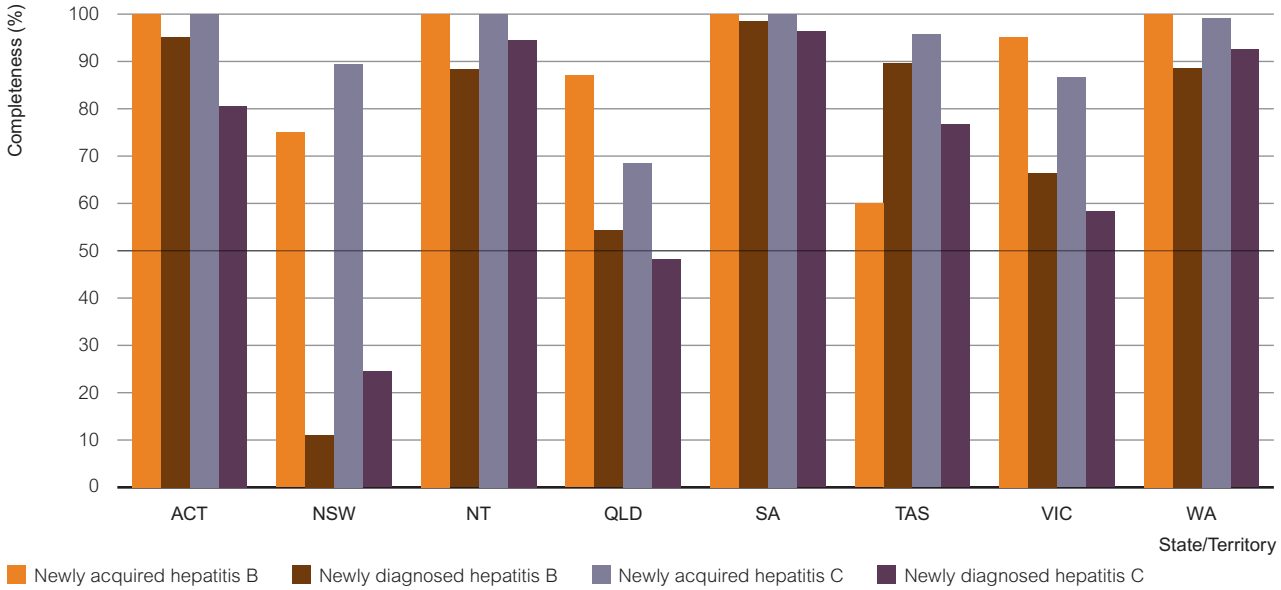
A number of enhanced surveillance and health force education activities are being undertaken at the jurisdictional and national level, in an effort to improve completeness of Indigenous status. Continued focus on this area is essential to improve completion of data relating to Aboriginal and Torres Strait Islander people as stated in national strategies.

Figure 1 Reporting of Indigenous status at notification, for sexually transmissible infections, 2017, by state or territory




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

Figure 2 Reporting of Indigenous status at notification of viral hepatitis, 2017, by state or territory

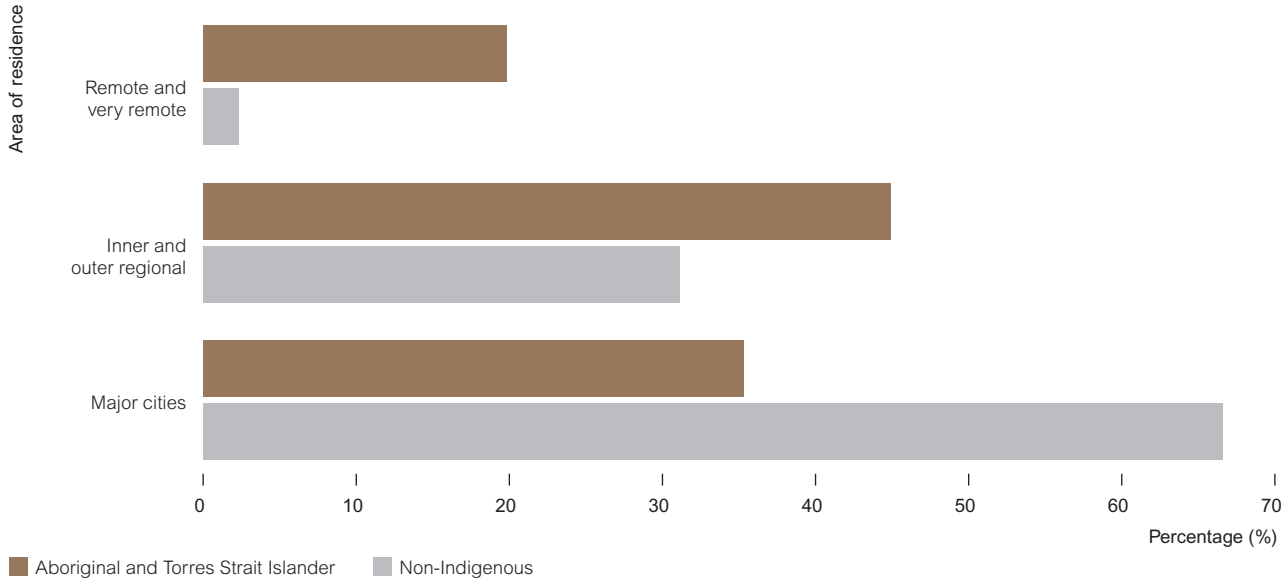



Source: Australian National Notifiable Diseases Surveillance System[9] (see Methodology for details)

## Area of residence

According to the latest census (2017), 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, 2017, by Indigenous status




Source: Australian Bureau of Statistics, 2017

## 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** Proportion of all notifications by Indigenous status, 2017

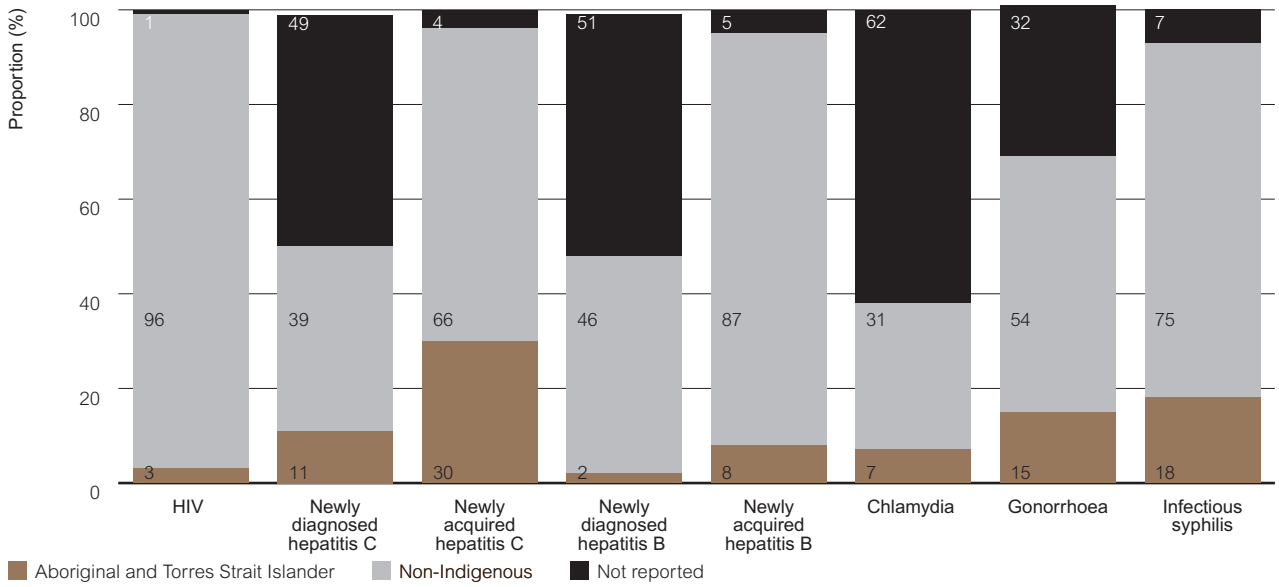
| State/Territory | Estimated resident Aboriginal and Torres Strait Islander population | Proportion of total Australian Aboriginal and Torres Strait Islander population (%) |
|---|---|---|
| Australian Capital Territory | 7338 | 1.0% |
| New South Wales | 235 606 | 30.8% |
| Northern Territory | 75 895 | 9.9% |
| Queensland | 219 263 | 28.7% |
| South Australia | 42 550 | 5.6% |
| Tasmania | 27 775 | 3.6% |
| Victoria | 55 299 | 7.2% |
| Western Australia | 100 030 | 13.1% |
| **Total** | **764 050** | **100%** |

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

## Number of notifications and notification 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 notifications in 2017 (Figure 4). For many infections this proportion may not be truly representative due to the incomplete reporting of Indigenous status (see Figure 1.1.1 and Figure 2 above).

Figure 4 Proportion of all notifications by Indigenous status, 2017




Note: Proportions may not add to 100% due to rounding

Source: Australian National Notifiable Diseases Surveillance System (see Methodology for details)

In 2017, rates of notification of most STIs and bloodborne viruses were between two to seven times as high as in the non-Indigenous population, with the exception of newly acquired hepatitis C, for which the notification rate was close to 13 times as high as the non-Indigenous population (Table 2 and Figure 1.1.5).

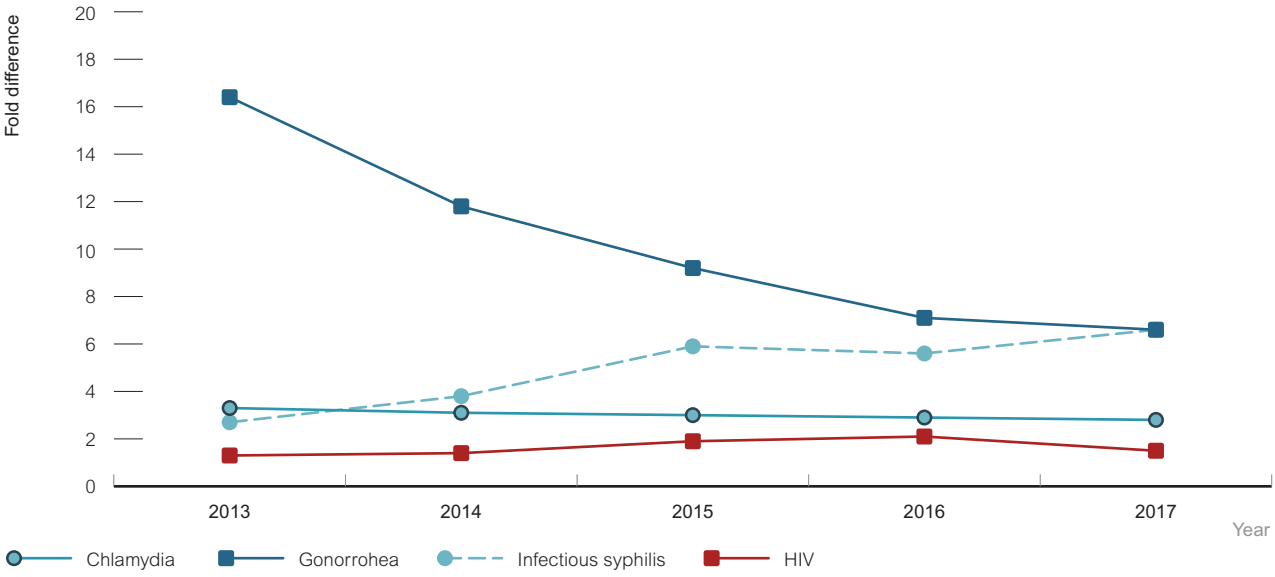
**Table 2** Number and rate[a] of notifications of sexually transmissible infections and bloodborne viruses in Australia,[b] 2017, by Indigenous status

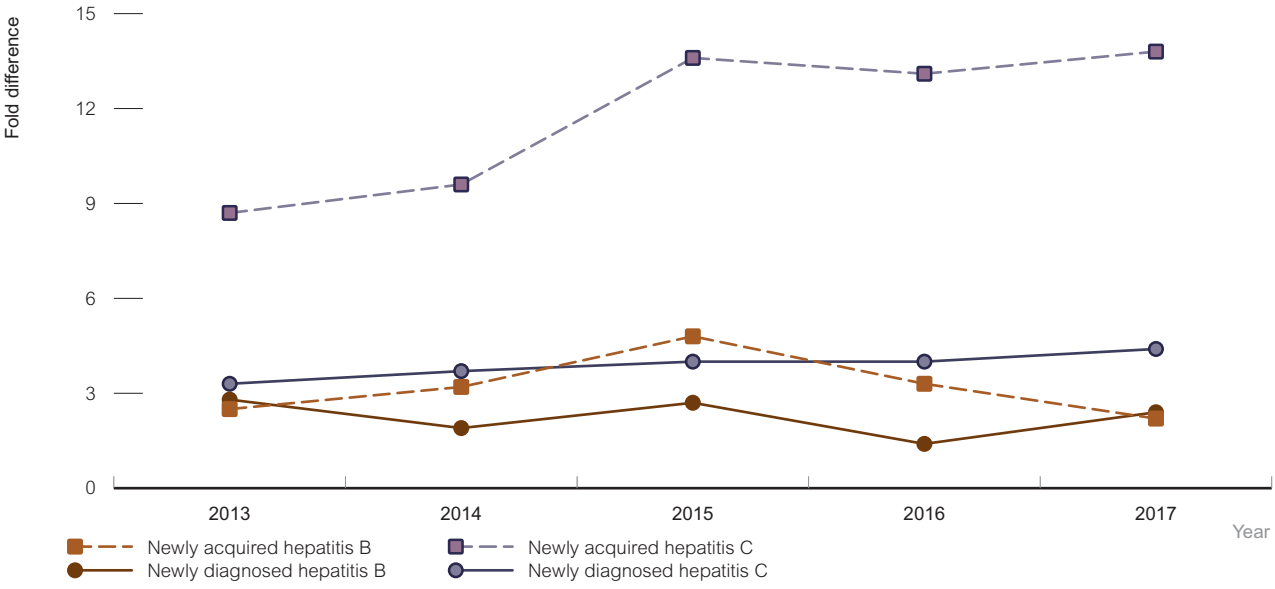
| | Aboriginal and Torres Strait Islander | | Non-Indigenous | | Fold difference | Excluded jurisdictions[c] |
|---|---|---|---|---|---|---|
| Notifications of sexually transmissible infections and viral hepatitis | Number[a] | Rate[b] | Number | Rate[b] | | |
| Chlamydia | 6597 | 1193.9 | 26 323 | 427 | 2.8 | ACT, NSW, TAS, VIC |
| Gonorrhoea | 3396 | 627.5 | 11 521 | 95.6 | 6.6 | NSW |
| Infectious syphilis | 779 | 102.5 | 3314 | 15.5 | 6.6 | None |
| HIV | 31 | 4.6 | 499 | 2.8 | 1.6 | None |
| Newly acquired hepatitis B | 4 | 1.3 | 120 | 0.6 | 2.2 | None |
| Hepatitis B | 73 | 45.1 | 867 | 19.2 | 2.3 | NSW, VIC, QLD |
| Newly acquired hepatitis C | 184 | 24.6 | 300 | 1.8 | 13.7 | None |
| Hepatitis C | 744 | 168.1 | 2406 | 38.4 | 4.5 | ACT, NSW, VIC |

a Jurisdictions in which Indigenous status was reported for ≥50% of notifications in each of the past five years.
b Age–standardised rate per 100 000 population.
c Jurisdictions in which Aboriginal and Torres Strait Islande status was reported for less than 50% of notifications.
Source: Australian National Notifiable Diseases Surveillance System (see Methodology for details)

Between 2013 and 2017 the difference between the age-standardised notification rates between Aboriginal and Torres Strait Islander and non-Indigenous populations, expressed as a ratio, diverged for infectious syphilis, HIV, newly acquired hepatitis C and newly notified hepatitis C. There was a large decrease in this difference between gonorrhoea notification rates between 2013–2017. In 2013 rates were more than 16 times as high among the Aboriginal and Torres Strait Islander population decreasing to close to 7 to times as high in 2017 than rates among the non-Indigenous population. Smaller decreases were observed for newly diagnosed hepatitis B, while the difference in newly acquired hepatitis B remained stable (Figure 5).

Figure 5 The ratio of Aboriginal and Torres Strait Islander to non-Indigenous notification rates, 2013–2017, by condition




Source: Australian National Notifiable Diseases Surveillance System (see Methodology for details)

# 1 HIV

Details of HIV notifications are given in this chapter. Please see p. 3 for summary.

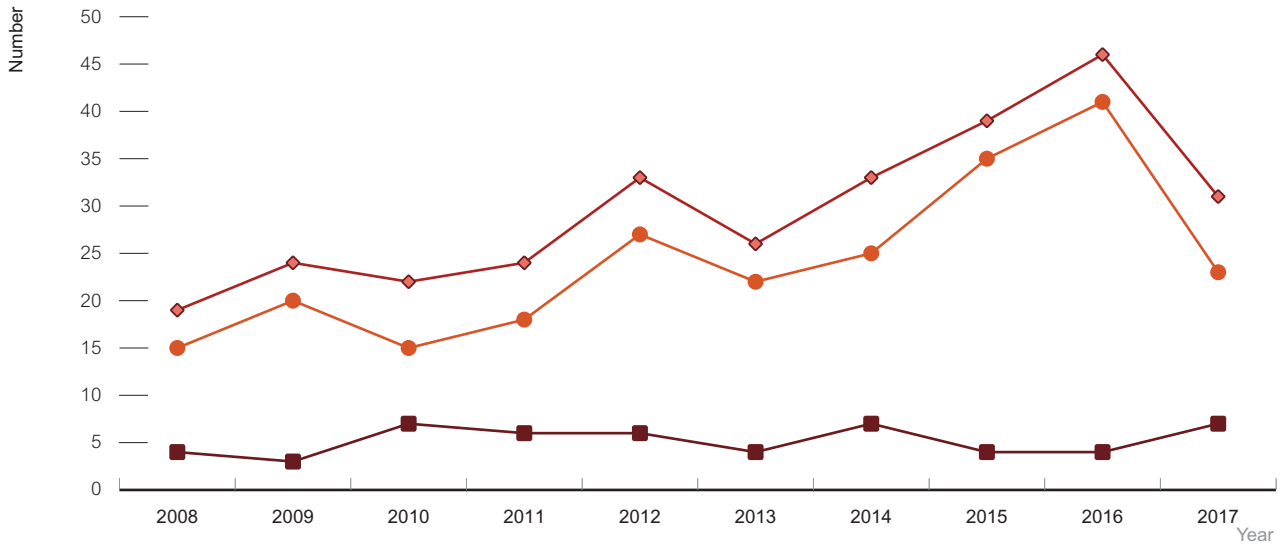
## 1.1 HIV notifications

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

In 2017, of the 963 HIV notifications, 31 (3%) were among the Aboriginal and Torres Strait Islander population, and there were a further 6 (1%) in people whose Indigenous status was not reported.

Between 2008 and 2011, the number of HIV notifications in the Aboriginal and Torres Strait Islander population increased steadily, with some year-to-year fluctuations. (range 19–24) (Figure 1.1.1, Table 1.1.1). The increase is a due to an increase in the number of HIV notifications in Aboriginal and Torres Strait Islander males compared with relatively stable numbers over the same period in females.

Figure 1.1.1 HIV notifications in Aboriginal and Torres Strait Islander people, 2008–2017, by sex




| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Males | 15 | 20 | 15 | 18 | 27 | 22 | 25 | 35 | 41 | 23 |
| Females | 4 | 3 | 7 | 6 | 6 | 4 | 7 | 4 | 4 | 7 |
| Total | 19 | 24 | 22 | 24 | 33 | 26 | 33 | 39 | 46 | 31 |

Note: Total includes transgender persons.

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

Table 1.1.1 Characteristics of HIV notifications in Aboriginal and Torres Strait Islander people, 2008–2017.

| | Year of HIV notification | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2008–2017[a] |
| **Characteristic** | | | | | | | | | | | |
| Total cases[b] | 19 | 24 | 22 | 24 | 33 | 26 | 33 | 39 | 46 | 31 | 297 |
| **Sex** | | | | | | | | | | | |
| Male | 15 | 20 | 15 | 18 | 27 | 22 | 25 | 35 | 41 | 23 | 241 |
| Female | 4 | 3 | 7 | 6 | 6 | 4 | 7 | 4 | 4 | 7 | 52 |
| Median age in years | 36 | 37 | 35 | 33 | 27 | 36 | 34 | 37 | 30 | 34 | 33 |
| Newly acquired HIV[c] | 6 | 7 | 5 | 5 | 10 | 9 | 8 | 12 | 15 | 7 | 84 |
| (% of notifications) | 31.6 | 29.2 | 22.7 | 20.8 | 30.3 | 34.6 | 24.2 | 30.8 | 32.6 | 22.6 | 28.3 |
| **Late and advanced HIV infection status at HIV diagnosis (%)[d]** | | | | | | | | | | | |
| Late HIV diagnosis, % | 33.3 | 40.9 | 25.0 | 34.8 | 37.5 | 40.0 | 30.0 | 29.4 | 26.2 | 30.8 | 32.0 |
| Advanced HIV diagnosis, % | 20.0 | 31.8 | 10.0 | 30.4 | 29.2 | 25.0 | 20.0 | 14.7 | 14.3 | 7.7 | 19.5 |
| **State/Territory** | | | | | | | | | | | |
| Australian Capital Territory | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| New South Wales | 8 | 9 | 7 | 6 | 11 | 8 | 7 | 7 | 10 | 8 | 81 |
| Northern Territory | 1 | 0 | 1 | 2 | 2 | 1 | 1 | 1 | 5 | 1 | 15 |
| Queensland | 2 | 8 | 8 | 8 | 14 | 9 | 14 | 13 | 20 | 11 | 107 |
| South Australia | 4 | 2 | 1 | 1 | 1 | 2 | 0 | 2 | 2 | 5 | 20 |
| Tasmania | 0 | 1 | 0 | 1 | 0 | 2 | 2 | 2 | 0 | 1 | 9 |
| Victoria | 0 | 1 | 3 | 1 | 5 | 4 | 6 | 7 | 5 | 2 | 34 |
| Western Australia | 4 | 3 | 2 | 5 | 0 | 0 | 3 | 7 | 4 | 3 | 31 |
| **HIV exposure category, %** | | | | | | | | | | | |
| Male-to-male sex[e] | 47.4 | 41.7 | 54.6 | 62.5 | 69.7 | 23.1 | 39.4 | 53.9 | 58.7 | 38.7 | 49.8 |
| Male-to-male sex and injecting drug use | 5.3 | 12.5 | 4.6 | 0.0 | 6.1 | 19.2 | 9.1 | 10.3 | 15.2 | 6.5 | 9.4 |
| Injecting drug use | 36.8 | 8.3 | 18.2 | 4.2 | 6.1 | 23.1 | 27.3 | 15.4 | 4.4 | 25.8 | 15.8 |
| Heterosexual sex | 10.5 | 16.7 | 13.6 | 25.0 | 18.2 | 30.8 | 15.2 | 18.0 | 19.6 | 25.8 | 19.5 |
| Mother with/at risk of HIV infection | 0.0 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 |
| Other/undetermined exposure | 0.0 | 20.8 | 9.1 | 4.2 | 0.0 | 3.9 | 9.1 | 2.6 | 2.2 | 3.2 | 5.1 |

a Not adjusted for multiple reporting.

b Includes 'Other/not reported'

c Newly acquired HIV was defined as a new HIV diagnosis with a negative or indeterminate HIV antibody test result or a diagnosis of primary HIV within one year before HIV diagnosis.

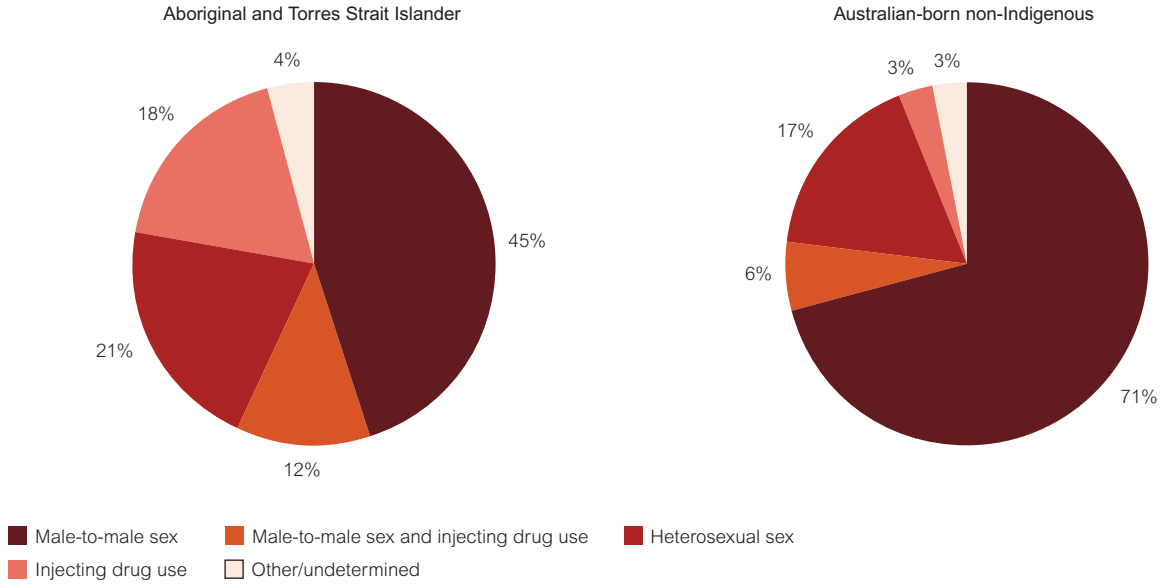
d Late HIV diagnosis was defined as newly notified HIV with a CD4+ cell count of less than 350 cells/μL, and advanced HIV as newly notified infection with a CD4+ cell count of less than 200 cells/μL. Newly acquired HIV was not categorised as a late or advanced diagnosis irrespective of CD4+ cell count.

e Includes men who had sex with both men and women.

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 is done to exclude HIV notifications in overseas-born people, in whom trends can fluctuate in response to immigration patterns, and to focus on HIV infection endemic to Australia. In the five years 2013–2017, a higher proportion of HIV notifications among the Aboriginal and Torres Strait Islander population were attributed to heterosexual sex (21%) or injecting drug use (18%) than in the Australian-born non-Indigenous population (18% and 3%, respectively) (Figure 1.1.2).

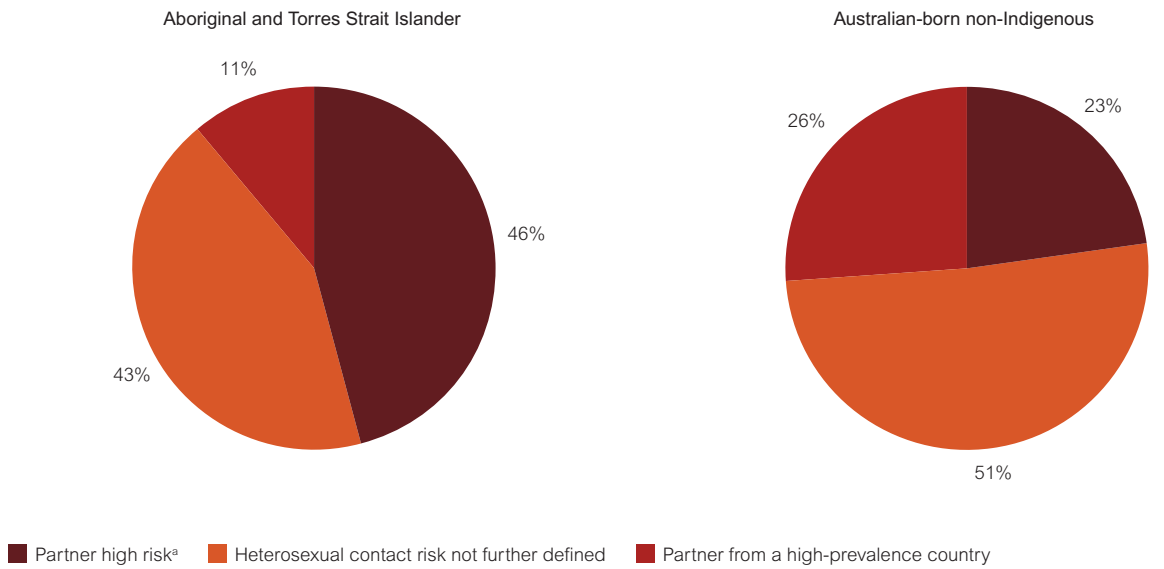
## Figure 1.1.2 HIV notification exposure category, 2013–2017, by Indigenous status




Source: State and territory health authorities; see Methodology for detail.

Of the heterosexually acquired HIV notifications in the five-year period 2013–2017, double the proportion of notifications 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 (46% vs 23%). Conversely, a lower proportion of heterosexual notifications from the Aboriginal and Torres Strait Islander population were attributed to having a partner from a high-HIV-prevalence country (defined as a country with a national prevalence above 1%) than the non-Indigenous population (11% vs 26%) (Figure 1.1.3).

## Figure 1.1.3 Proportion of HIV notifications by heterosexual exposure category, 2013–2017, by Indigenous status

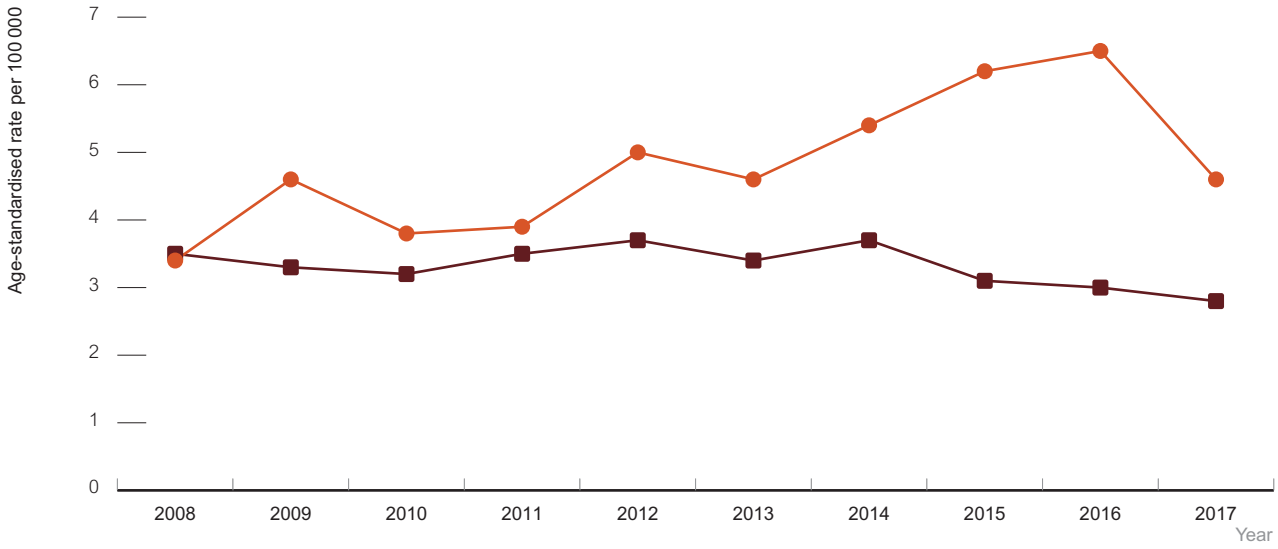



a Includes heterosexual contact with person with HIV infection, heterosexual sex with a person who injects drugs, a bisexual male, someone who received blood/tissue, a person with haemophilia/clotting disorder, or someone with HIV whose exposure could not be determined.

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

To enable more appropriate comparison between the Aboriginal and Torres Strait Islander and non-Indigenous populations, the rate of notifications per 100 000 people was calculated, taking into account the age structures of each population (age-standardised rates). The rates of HIV notification among the Aboriginal and Torres Strait Islander population were similar to the Australian-born non-Indigenous population in 2008, after which they started diverging; in 2017 rates were 1.6 times as high among the Aboriginal and Torres Strait Islander population (4.6 per 100 000 compared to 2.8 per 100 000 in the Australian-born non-Indigenous population) (Figure 1.1.4). Trends in HIV notification rates in the Aboriginal and Torres Strait Islander population are based on small numbers and may reflect localised occurrences rather than national patterns (see Table 1.1.1 for the number of notifications by jurisdiction).

**Figure 1.1.4** HIV notification rate per 100 000 Australian-born population, 2008–2017, by Indigenous status



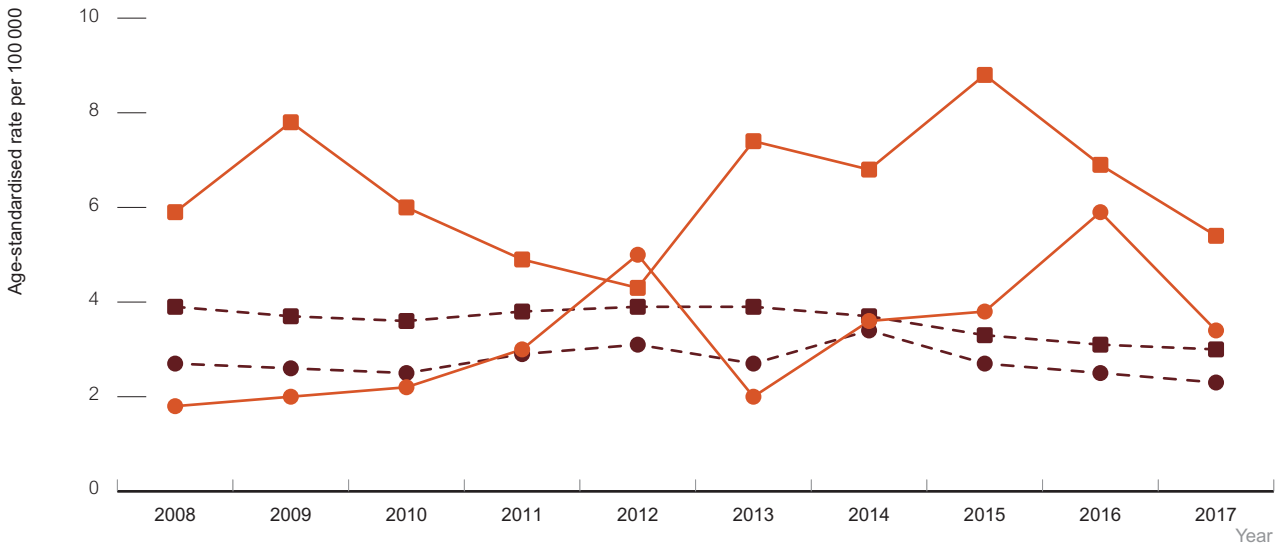

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Australian-born non-Indigenous | 3.5 | 3.3 | 3.2 | 3.5 | 3.7 | 3.4 | 3.7 | 3.1 | 2.9 | 2.8 |
| Aboriginal and Torres Strait Islander | 3.4 | 4.6 | 3.8 | 3.9 | 4.8 | 4.5 | 5.3 | 6.2 | 6.5 | 4.6 |

Source: State and territory health authorities; see Methodology for detail.

HIV

From 2008 to 2017, the Aboriginal and Torres Strait Islander population aged 35 years and over had higher notification rates every year when compared with the Australian-born non-Indigenous population aged both 35 and over and under 35. With the exception of 2012, this same population have demonstrated higher notification rates in the same time period when compared with the Aboriginal and Torres Strait Islander population aged under 35 years. (Figure 1.1.5) Notification rates in in the Aboriginal and Torres Strait Islander population aged under 35 years were higher than in Australian-born non-Indigenous population aged under 35 years for every year between 2011 and 2017, except 2013. (Figure 1.1.5).

Figure 1.1.5 HIV notification rate per 100 000 population, 2008–2017, by Indigenous status and age group



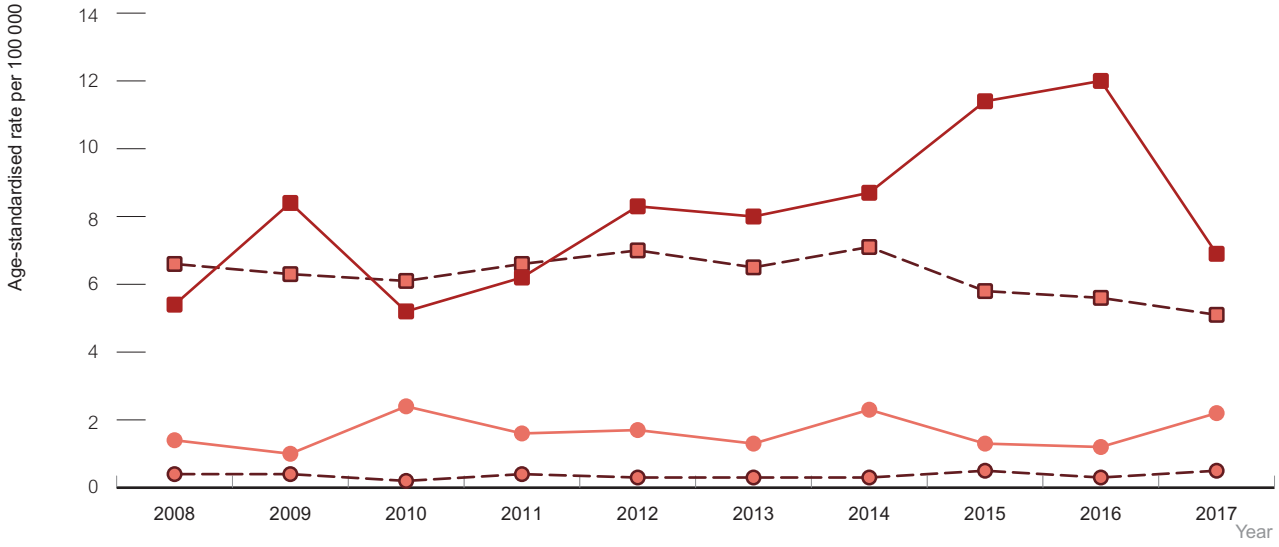

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander <35 years | 1.8 | 2.0 | 2.2 | 3.0 | 5.0 | 2.0 | 3.6 | 3.8 | 5.9 | 3.4 |
| Australian-born non-Indigenous <35 years | 2.7 | 2.6 | 2.5 | 2.9 | 3.1 | 2.7 | 3.4 | 2.7 | 2.5 | 2.3 |
| Aboriginal and Torres Strait Islander ≥35 years | 5.9 | 7.8 | 6.0 | 4.9 | 4.3 | 7.4 | 6.8 | 8.8 | 6.9 | 5.4 |
| Australian-born non-Indigenous ≥35 years | 3.9 | 3.7 | 3.6 | 3.8 | 3.9 | 3.9 | 3.7 | 3.3 | 3.1 | 3.0 |

Source: State and territory health authorities; see Methodology for detail.

HIV notification rates for Aboriginal and Torres Strait Islander males have been higher than the non-Indigenous Australian-born male population since 2012 and have increased steadily until 2017, when there was a decline of 42% (12.0 per 100 000 in 2016 to 6.9 per 100 000 in 2017) (Figure 1.1.6).

Between 2008 and 2017, the notification rates of 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 HIV notification rate per 100 000 Australian-born population, 2008–2017, by Indigenous status and sex



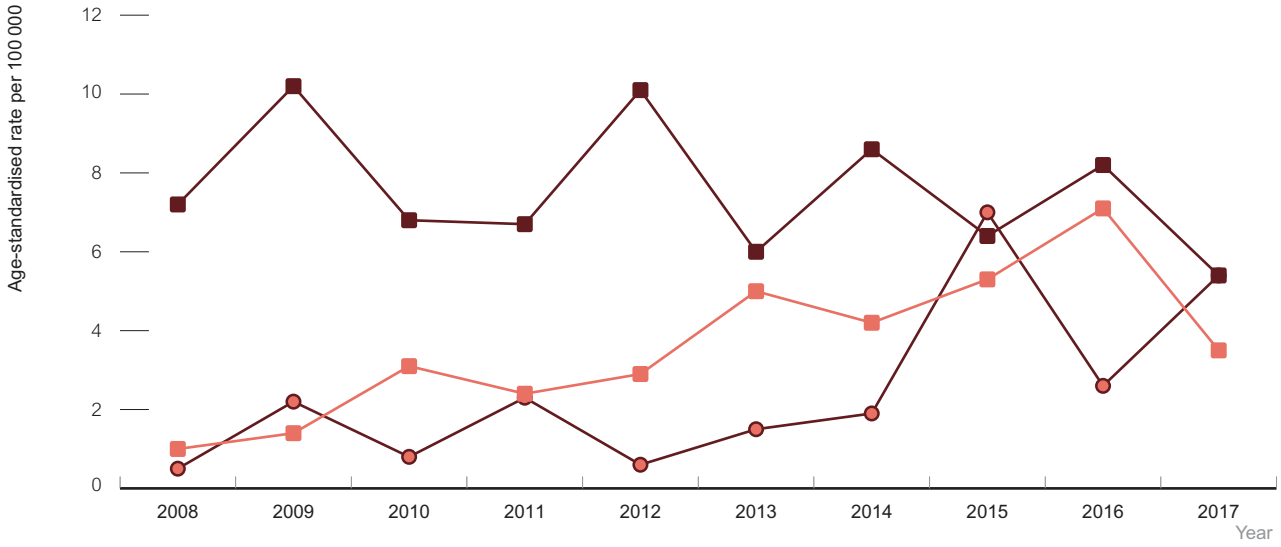

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander males | 5.4 | 8.4 | 5.2 | 6.2 | 8.3 | 8.0 | 8.7 | 11.4 | 12.0 | 6.9 |
| Non-Indigenous males | 6.6 | 6.3 | 6.1 | 6.6 | 7.0 | 6.5 | 7.1 | 5.8 | 5.6 | 5.1 |
| Aboriginal and Torres Strait Islander females | 1.4 | 1.0 | 2.4 | 1.6 | 1.7 | 1.3 | 2.3 | 1.3 | 1.2 | 2.2 |
| Non-Indigenous females | 0.4 | 0.4 | 0.2 | 0.4 | 0.3 | 0.3 | 0.3 | 0.5 | 0.3 | 0.5 |

Source: State and territory health authorities; see Methodology for detail.

HIV

The HIV notification rates in the Aboriginal and Torres Strait Islander population have increased in regional and remote areas in the 10-year period from 2008 to 2017 (Figure 1.1.7). Conversely, notification rates have fluctuated but largely decreased in major cities between 2008 and 2017 (7.2 per 100 000 in 2008 to 5.4 in 2017) ( Figure 1.1.7). Caution should be taken in interpretation of these changes over time, as they represent a small number of notifications.

Figure 1.1.7 HIV notification rate per 100 000 in Aboriginal and Torres Strait Islander people, 2008–2017, by area of residence




| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Urban | 7.2 | 10.2 | 6.8 | 6.7 | 10.1 | 6.0 | 8.6 | 6.4 | 8.2 | 5.4 |
| Regional | 1.0 | 1.4 | 3.1 | 2.4 | 2.9 | 5.0 | 4.2 | 5.3 | 7.1 | 3.5 |
| Remote | 0.5 | 2.2 | 0.8 | 2.3 | 0.6 | 1.5 | 1.9 | 7.0 | 2.6 | 5.4 |

Source: State and territory health authorities; see Methodology for detail

# 1.2 Prevalence

There were an estimated 582 (range 490 to 678) Aboriginal and Torres Strait Islander people living with HIV in Australia in 2017.

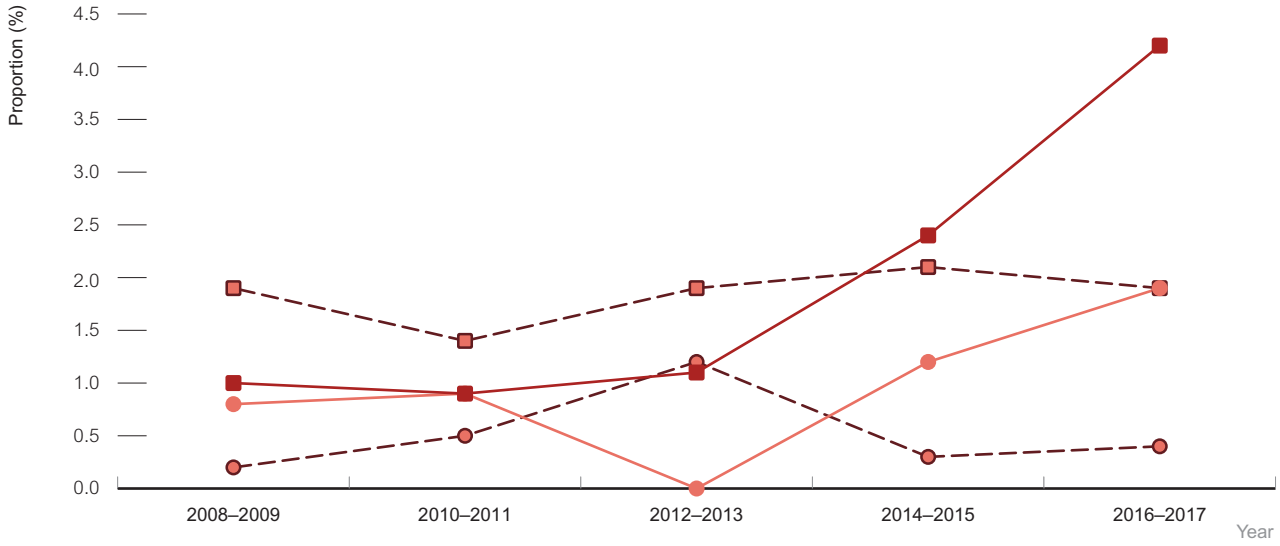
Periodic surveys have also measured HIV prevalence among subpopulations of Aboriginal and Torres Strait Islander people.

The National Prison Entrants' Bloodborne Virus Survey is a triennial survey of prison entrants conducted over a two-week period [10]. The most recent survey found no cases of HIV among Aboriginal and Torres Strait Islander participants.

Data routinely collected from the Australian Needle and Syringe Program Survey (ANSPS) provide insight into the demographics, risk behaviour and bloodborne virus prevalence among people who inject drugs who attend needle and syringe programs. In the periods from 2008–2009 to 2016–2017, the proportion of participants in the ANSPS identifying as Aboriginal and Torres Strait Islander increased from 12% to 18%.

The overall HIV prevalence was 3% or lower overall (data not shown) in the Aboriginal and Torres Strait Islander respondents, but generally higher in men than women (Figure 1.2.1). Between 2008–2009 and 2016–2017, the HIV prevalence among Aboriginal and Torres Strait Islander male and female respondents increased from 1.0% to 4.2% and from 0.8% to 1.9% respectively. This compares to no change in non-Indigenous male respondents and a slight change in their female counterparts (0.2% to 0.4%).

Figure 1.2.1 HIV prevalence in needle and syringe program participants, 2008–2017, by Indigenous status and sex




| | 2008–2009 | 2010–2011 | 2012–2013 | 2014–2015 | 2016–2017 |
|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander men (%) | 1.0 | 0.9 | 1.1 | 2.4 | 4.2 |
| Non-Indigenous men (%) | 1.9 | 1.4 | 1.9 | 2.1 | 1.9 |
| Aboriginal and Torres Strait Islander women (%) | 0.8 | 0.9 | 0.0 | 1.2 | 1.9 |
| Non-Indigenous women (%) | 0.2 | 0.5 | 1.2 | 0.3 | 0.4 |

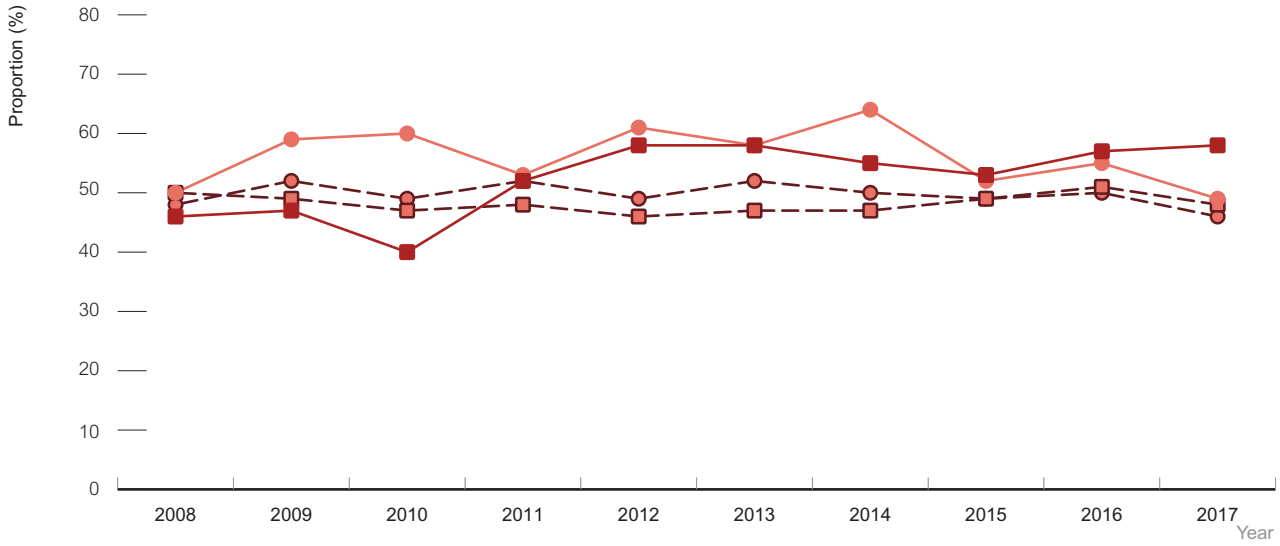
Note: Data presented in two-year groupings due to small numbers
Source: Australian Needle and Syringe Program Survey

# 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.[23] The *Fourth national Aboriginal and Torres Strait Islander blood-borne viruses and sexually transmissible infections strategy 2014–2017* [7] 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 (49% vs 46% in 2017) 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 (58% vs 48% in 2017) (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, 2008–2017, by Indigenous status and sex




| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander men (%) | 46 | 47 | 40 | 52 | 58 | 58 | 55 | 53 | 57 | 58 |
| Non-Indigenous men (%) | 50 | 49 | 47 | 48 | 46 | 47 | 47 | 49 | 51 | 48 |
| Aboriginal and Torres Strait Islander women (%) | 50 | 59 | 60 | 53 | 61 | 58 | 64 | 52 | 55 | 49 |
| Non-Indigenous women (%) | 48 | 52 | 49 | 52 | 49 | 52 | 50 | 49 | 50 | 46 |

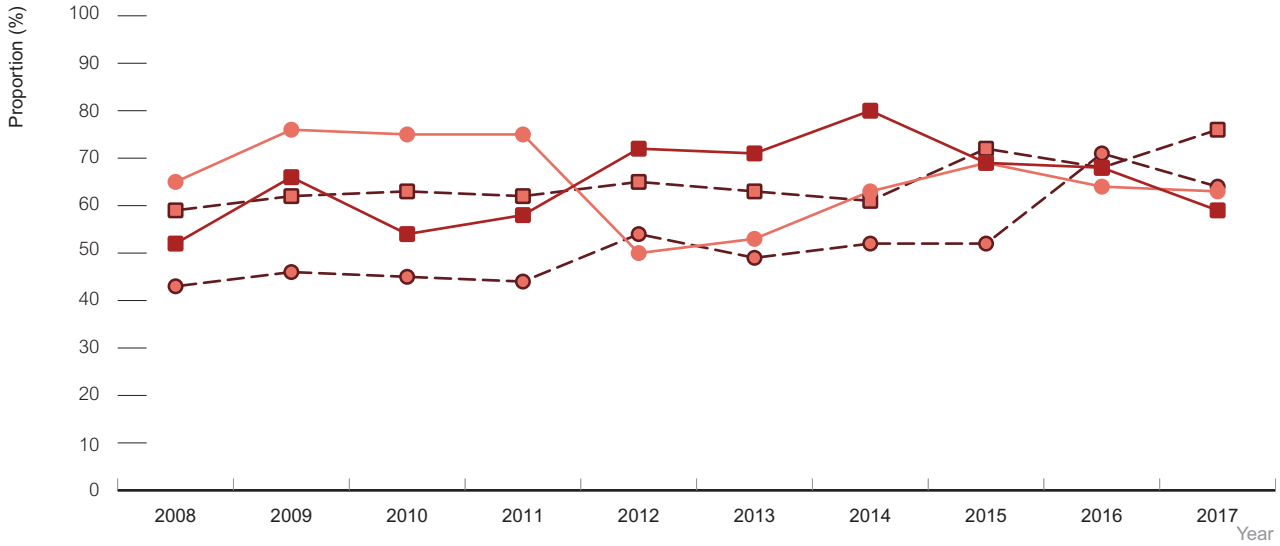
Source: Australian Needle and Syringe Program Survey

# 1.4 Condom use

According to the Australian Needle and Syringe Program Survey, in all years between 2008 and 2017 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 (43% to 71%) (Figure 1.4.1).

Over the last 10 years, there was a fluctuation of the difference in proportions of inconsistent condom use with casual partners between Aboriginal and Torres Strait Islander male participants and non-Indigenous male participants. (Figure 1.4.1). As above, this data may not be representative of Aboriginal and Torres Strait Islander people 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, 2008–2017, by Indigenous status and sex




| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander men (%) | 52 | 66 | 54 | 58 | 72 | 71 | 80 | 69 | 68 | 59 |
| Non-Indigenous men (%) | 59 | 62 | 63 | 62 | 65 | 63 | 61 | 72 | 68 | 76 |
| Aboriginal and Torres Strait Islander women (%) | 65 | 76 | 75 | 75 | 50 | 53 | 63 | 69 | 64 | 63 |
| Non-Indigenous women (%) | 43 | 46 | 45 | 44 | 54 | 49 | 52 | 52 | 71 | 64 |

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 Hepatitis C

Details of hepatitis C are given in this chapter. Please see p. 4 for summary.

## 2.1 Hepatitis C infections

This section focuses on newly notified 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 10 537 hepatitis C notifications were reported in Australia in 2017; 1210 (11%) occurred among the Aboriginal and Torres Strait Islander population, 4145 (39%) were among the non-Indigenous population, and there were a further 5182 (49%) notifications among people whose Indigenous status was not reported See Table 2.1.1 for further detail of hepatitis C notifications in Aboriginal and Torres Strait Islander people.

Table 2.1.1 Hepatitis C notifications in Aboriginal and Torres Strait people, by characteristic

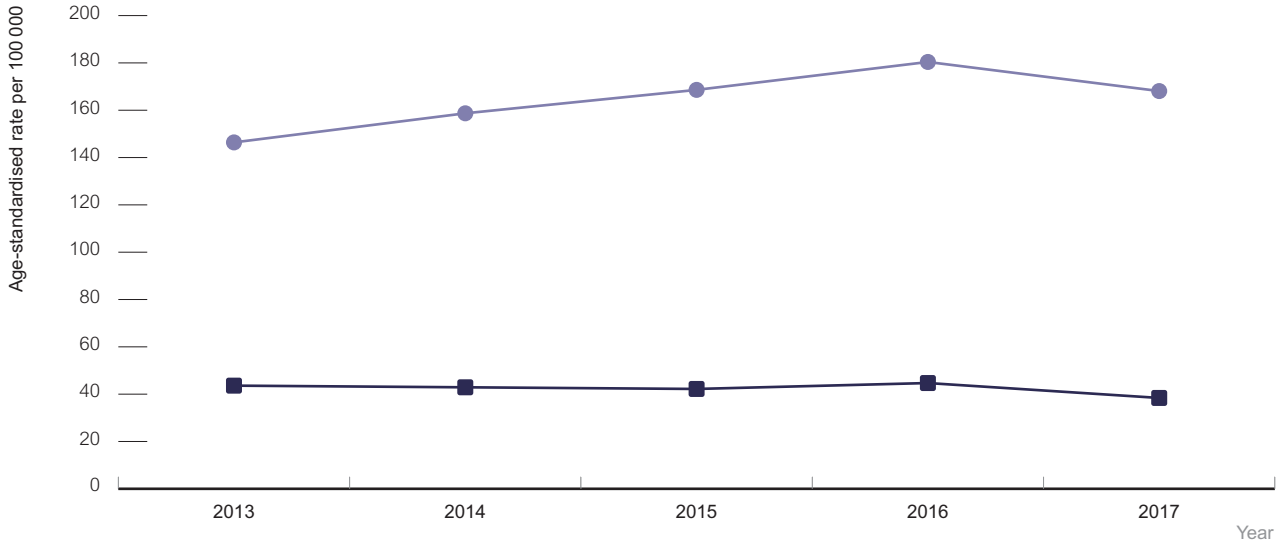
| | Year of hepatitis C notification | | | | | |
|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2013–2017[a] |
| **Characteristic** | | | | | | |
| **Total cases** | 594 | 659 | 731 | 780 | 744 | 3508 |
| **Sex** | | | | | | |
| Male | 360 | 430 | 497 | 500 | 504 | 2291 |
| Female | 234 | 229 | 234 | 280 | 240 | 1217 |
| **Median age in years** | 30 | 30 | 30 | 30 | 31 | 151 |
| **State/Territory** | | | | | | |
| Northern Territory | 24 | 37 | 34 | 28 | 25 | 148 |
| Queensland | 284 | 296 | 379 | 390 | 330 | 1679 |
| South Australia | 66 | 67 | 58 | 69 | 72 | 332 |
| Tasmania | 20 | 23 | 22 | 14 | 23 | 102 |
| Western Australia | 200 | 236 | 238 | 269 | 294 | 1237 |

a Table 2.1.1 includes data from jurisdictions with at least 50% reporting of Indigenous status in each of five years 2013-2017 (Northern Territory, Queensland, South Australia, Tasmania, Western Australia). Approximately two-thirds (61%) of the Aboriginal and Torres Strait Islander population reside in these jurisdictions, and therefore the data may not be nationally representative.

Notification rates were based on data from five jurisdictions (the Northern Territory, Queensland, South Australia, Tasmania and Western Australia) where Indigenous status was at least 50% complete for hepatitis C notifications for each of the past five years (2013–2017). Incomplete reporting of Indigenous status can result in a misrepresentation of the true extent of the notifications in the Aboriginal and Torres Strait Islander population and may not reflect national trends.

In the five-year period 2013–2017, the age-standardised notification rate of hepatitis C in the Aboriginal and Torres Strait Islander population increased by almost 15% from 146.4 per 100 000 in 2013 to 168.1 per 100 000 in 2017, whereas the rate in the non-Indigenous population decreased by 12% at 43.6 per 100 000 in 2013 to 38.4 per 100 000 in 2017 (Figure 2.1.1).

Figure 2.1.1 Hepatitis C notification rates per 100 000 population, 2013–2017, by Indigenous status



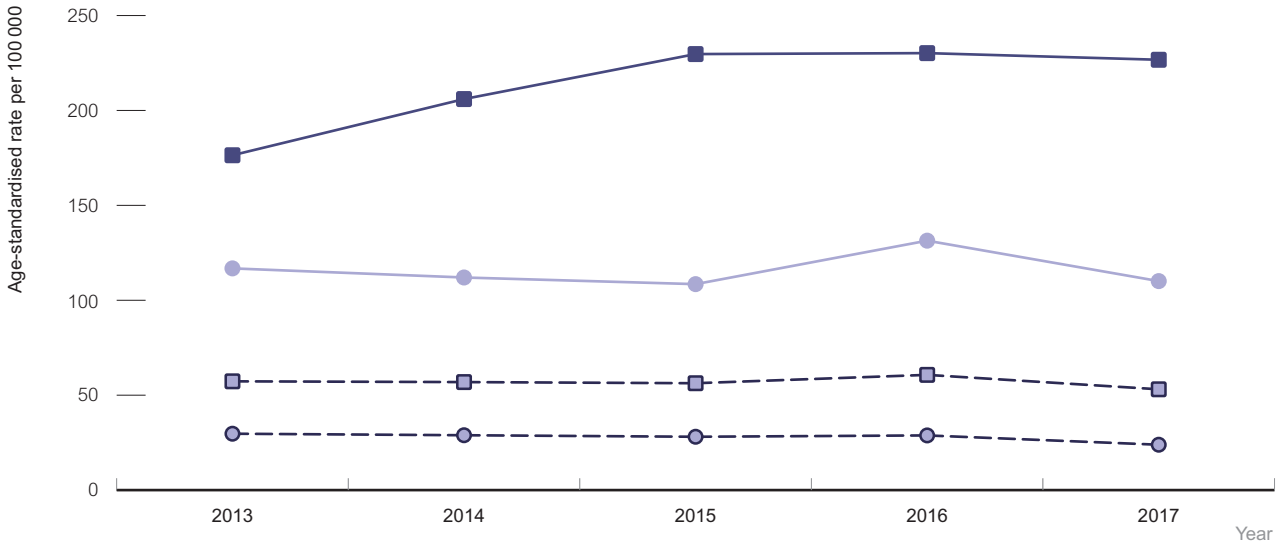

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander | 146.4 | 158.7 | 168.6 | 180.4 | 168.1 |
| Non-Indigenous | 43.6 | 42.9 | 42.2 | 44.7 | 38.4 |

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Indigenous status completeness≥50% (Northern Territory, South Australia, Tasmania, Queensland and Western Australia) for each of the five years 2013–2017.

HCV

In all years 2013–2017, the hepatitis C notification rate was higher in both male and female Aboriginal and Torres Strait Islander people than in the gender equivalent non-Indigenous population (Figure 2.1.2). In Aboriginal and Torres Strait Islander males, the hepatitis C notification rate increased by 28.5% from 176.4 in 2013 to 226.7 per 100 000 in 2017, and in females decreased by 6% from 116.8 in 2013 to 110.1 per 100 000 in 2017. The rate in non-Indigenous males and females remained stable during the same time-period.

Figure 2.1.2 Hepatitis C notification rates per 100 000, 2013–2017, by Indigenous status and sex



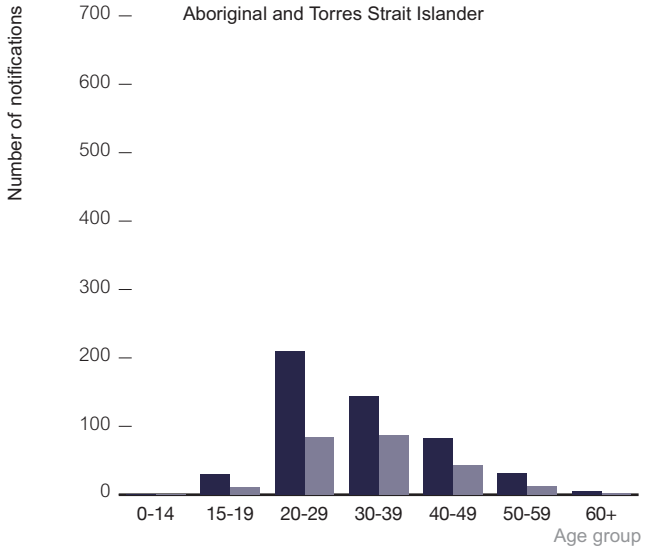

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander males | 176.4 | 206.0 | 229.7 | 230.2 | 226.7 |
| Non-Indigenous males | 57.3 | 56.9 | 56.3 | 60.7 | 53.1 |
| Aboriginal and Torres Strait Islander females | 116.8 | 112.0 | 108.5 | 131.4 | 110.1 |
| Non-Indigenous females | 29.7 | 28.9 | 28.1 | 28.8 | 23.9 |

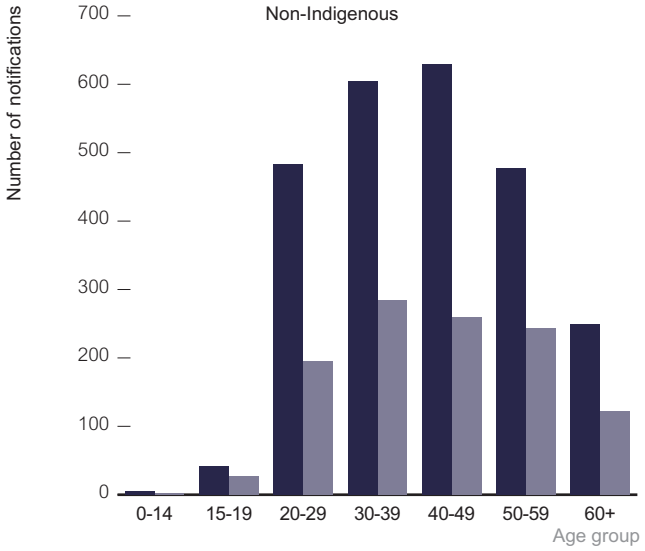
Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Indigenous status completeness≥50% (Northern Territory, South Australia, Tasmania, Queensland and Western Australia) for each of the five years 2013–2017.

In 2017, the majority (over 90%) of hepatitis C notifications in both the Aboriginal and Torres Strait Islander and the non-Indigenous population occurred in people aged over 20 years (Figure 2.1.3).

For notifications of hepatitis C infection for 2017 within the Aboriginal and Torres Strait Islander population, 68% were in males and 32% were in females. Similarly, in the non-Indigenous population, 69% of notified hepatitis C infections were in males and 31% were in females (Figure 2.1.3 & Table 2.1.1).

Figure 2.1.3 Number of notifications of hepatitis C infection, 2017, by Indigenous status, age and sex




| | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
|---|---|---|---|---|---|---|---|
| Males | 1 | 30 | 210 | 144 | 83 | 31 | 5 |
| Females | 1 | 11 | 84 | 87 | 43 | 12 | 2 |

| | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
|---|---|---|---|---|---|---|---|
| Males | 5 | 41 | 483 | 604 | 630 | 478 | 249 |
| Females | 2 | 27 | 195 | 285 | 260 | 243 | 122 |

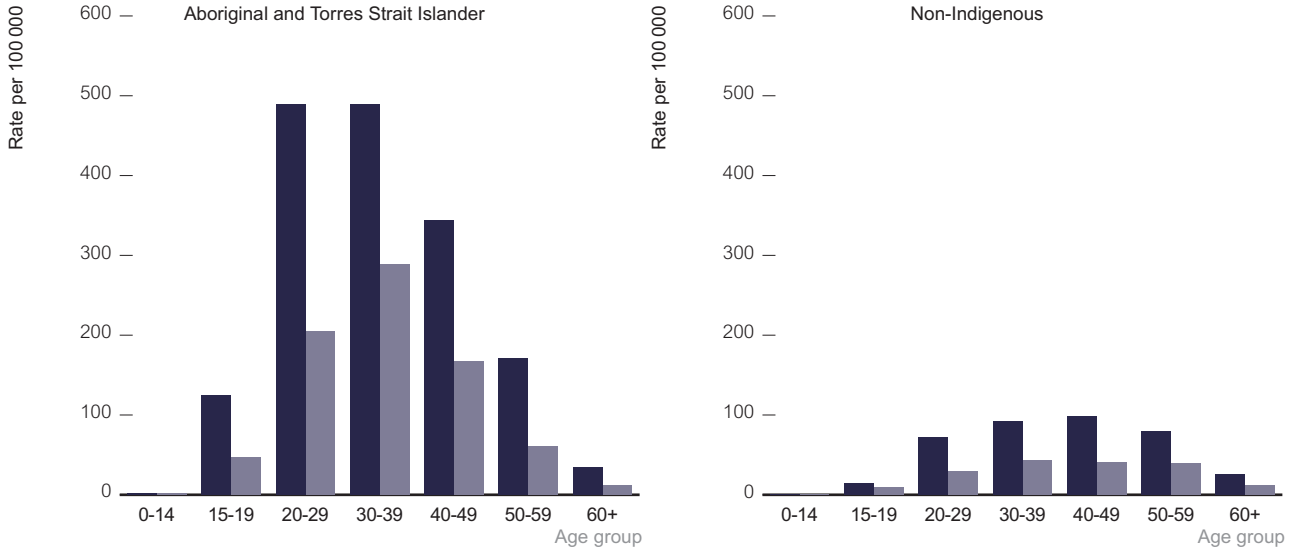
Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Indigenous status completeness≥50% (Northern Territory, South Australia, Tasmania, Queensland and Western Australia) for each of the five years 2013–2017.

HCV

The greatest difference in notification rates of 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 hepatitis C infection in the Aboriginal and Torres Strait Islander male population aged 15–19 and 20–29 years in 2017 were nine and seven 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 five and three times higher respectively (Figure 2.1.4).

Similar findings were observed in females: for every age group under 60+ years, notification rates in the Aboriginal and Torres Strait Islander female population were two to seven times as high as in the non-Indigenous female population (Figure 2.1.4).

Figure 2.1.4 Hepatitis C notification rate per 100 000 population, 2017, by Indigenous status, sex and age group



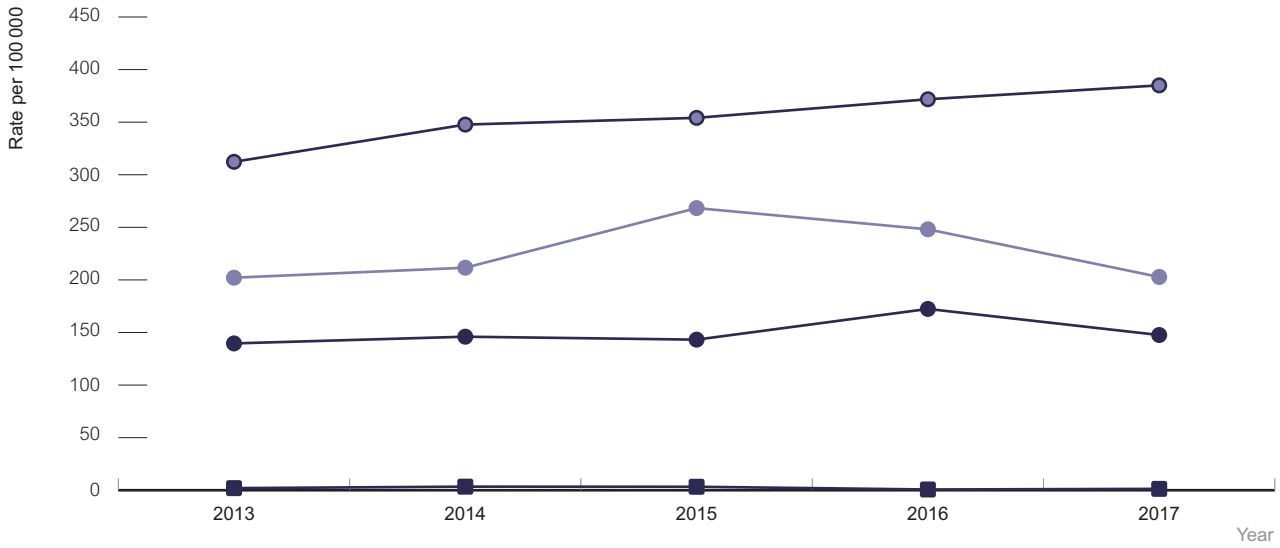

| | Aboriginal and Torres Strait Islander | | | | | | | Non-Indigenous | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
| Males | 1.3 | 125.2 | 488.7 | 489.9 | 344.0 | 171.1 | 34.1 | 0.6 | 14.1 | 72.5 | 91.9 | 98.9 | 79.2 | 25.5 |
| Females | 1.3 | 47.3 | 204.9 | 289.2 | 166.8 | 61.3 | 11.8 | 0.2 | 9.8 | 29.9 | 42.9 | 40.1 | 39.1 | 11.4 |

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Indigenous status completeness≥50% (Northern Territory, South Australia, Tasmania, Queensland and Western Australia) for each of the five years 2013–2017.

Despite fluctuations in the five-year period 2013–2017, the hepatitis C notification rate in Aboriginal and Torres Strait Islander people aged 15–24 years and over 40 years showed very little change between 2013 and 2017. By contrast, there has been an increase of 23% in the 25–39 age group (312.3 in 2013 to 385.0 per 100 000 in 2017) (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 notifications in those under 25 years can be a proxy for the incidence of hepatitis C infection [11].

Between 2013 and 2017, the hepatitis C notification rate in Aboriginal and Torres Strait Islander people aged 25 years and under showed a slight increase (2%) from 75.4 in 2013 to 76.7 per 100 000 in 2017. Conversely, a 22% decline was seen in non-Indigenous people within the same age group (15.6 per 100 000 in 2013 to 12.2 per 100 000 in 2017) (Figure 2.1.6).

Figure 2.1.5 Hepatitis C notification rate in Aboriginal and Torres Strait Islander people per 100 000 population, 2013–2017, by age group




| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| 0–14 | 2.0 | 3.4 | 3.3 | 0.7 | 1.3 |
| 15–24 | 202.1 | 211.6 | 268.3 | 248.1 | 202.8 |
| 25–39 | 312.3 | 347.7 | 354.1 | 371.8 | 385.0 |
| 40+ | 139.6 | 146.0 | 143.2 | 172.4 | 147.6 |

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Indigenous status completeness≥50% (Northern Territory, South Australia, Tasmania, Queensland and Western Australia) for each of the five years 2013–2017.

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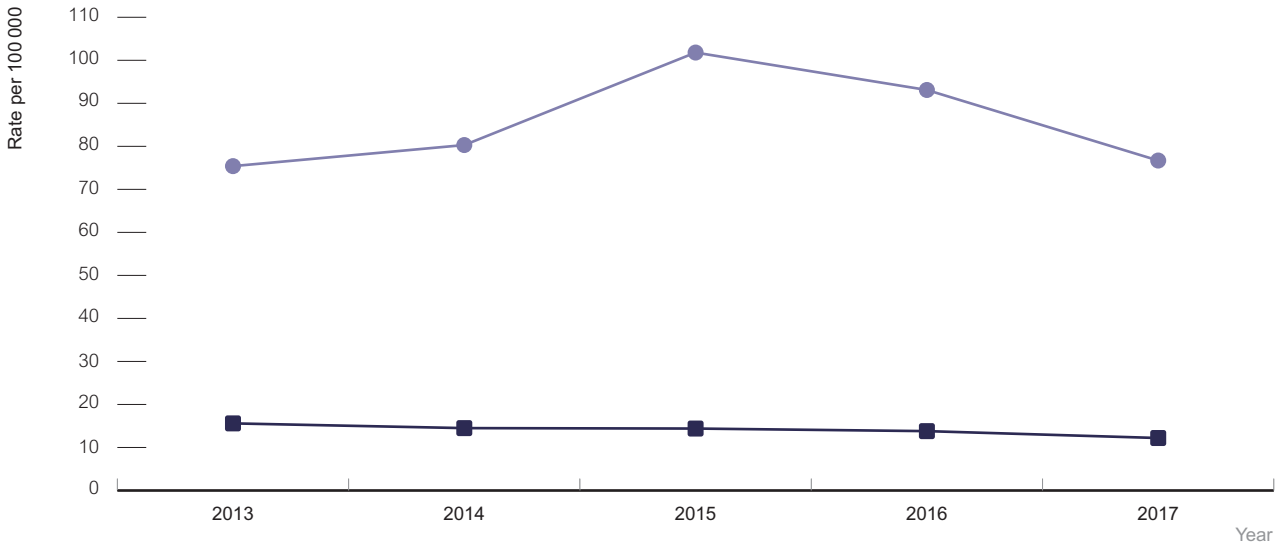
Figure 2.1.6 Hepatitis C notification rate per 100 000 in people aged 25 years and younger, 2013–2017, by Indigenous status

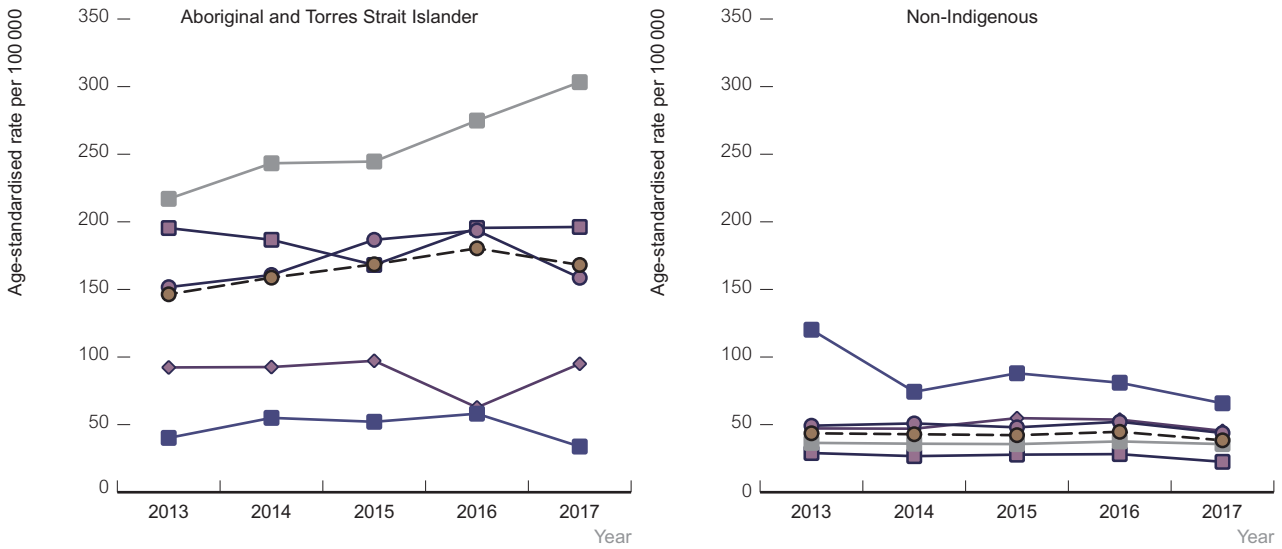



| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander | 75.4 | 80.3 | 101.8 | 93.1 | 76.7 |
| Non-Indigenous | 15.6 | 14.5 | 14.4 | 13.8 | 12.2 |

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Northern Territory, South Australia, Tasmania, Queensland and Western Australia) for each of the five years 2013–2017.

For the years 2013 to 2017 in Queensland, South Australia and Western Australia, the rate of hepatitis C notification was three to eight times as great in the Aboriginal and Torres Strait Islander population as in the non-Indigenous population, and has increased in all three jurisdictions since 2013 (Figure 2.1.7). For the same period in the Northern Territory, the rate of hepatitis C notification was around two-times lower in the Aboriginal and Torres Strait Islander population than the non-Indigenous population, while in Tasmania it has remained about two-times higher (Figure 2.1.7).

Figure 2.1.7 Hepatitis C notification rate per 100 000 people, 2013–2017, by Indigenous status and state/territory

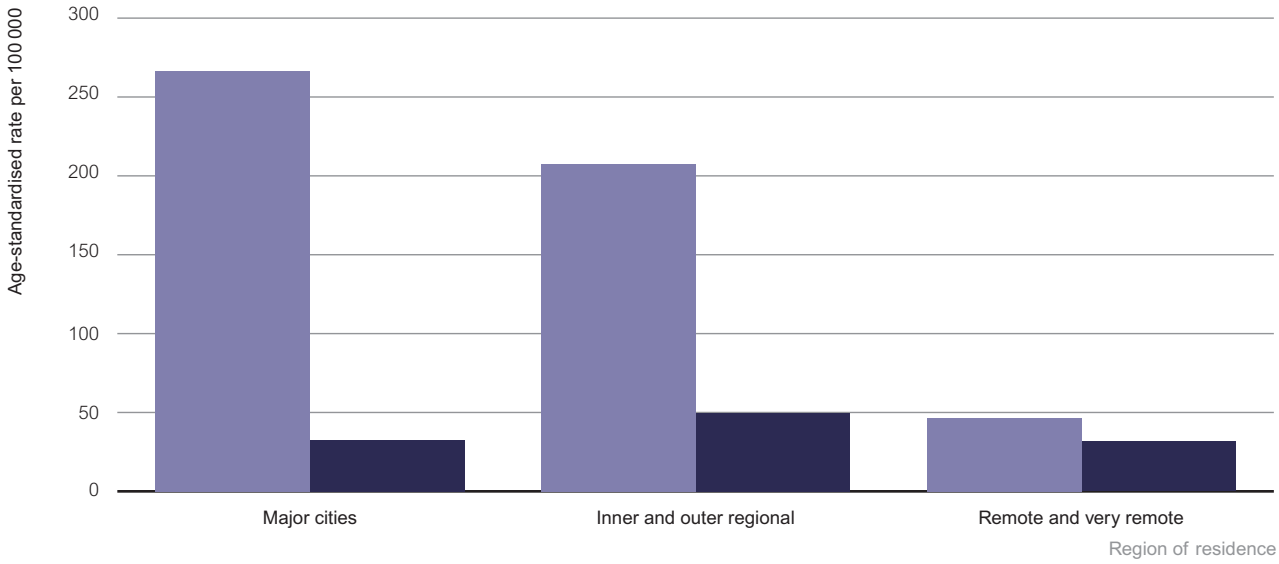



| | Aboriginal and Torres Strait Islander | | | | | Non-Indigenous | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Australia | 146.4 | 158.7 | 168.6 | 180.4 | 168.1 | 43.6 | 42.9 | 42.2 | 44.7 | 38.4 |
| NT | 40.2 | 55.0 | 52.1 | 58.1 | 33.8 | 120.2 | 74.3 | 88.0 | 81.0 | 65.8 |
| TAS | 92.3 | 92.6 | 97.2 | 62.7 | 95.0 | 47.2 | 47.0 | 54.8 | 53.7 | 45.4 |
| WA | 217.0 | 243.3 | 244.6 | 274.9 | 303.3 | 36.5 | 35.9 | 35.6 | 37.6 | 35.6 |
| SA | 195.4 | 186.7 | 168.1 | 195.5 | 196.2 | 29.0 | 26.7 | 27.8 | 28.2 | 22.5 |
| QLD | 151.7 | 160.7 | 186.7 | 193.6 | 158.6 | 49.2 | 50.9 | 48.0 | 52.1 | 43.8 |

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Indigenous status completeness≥50% (Northern Territory, South Australia, Tasmania, Queensland and Western Australia) for each of the five years 2013–2017.

In 2017, the notification rate of 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 and outer regional areas, the rate among Aboriginal and Torres Strait Islander people was four times as high as in the non-Indigenous population. Rates in Aboriginal and Torres Strait Islander and non-Indigenous populations were similar in remote and very remote areas (Figure 2.1.8).

Figure 2.1.8 Hepatitis C notification rate per 100 000 population, 2017, by Indigenous status and area of residence

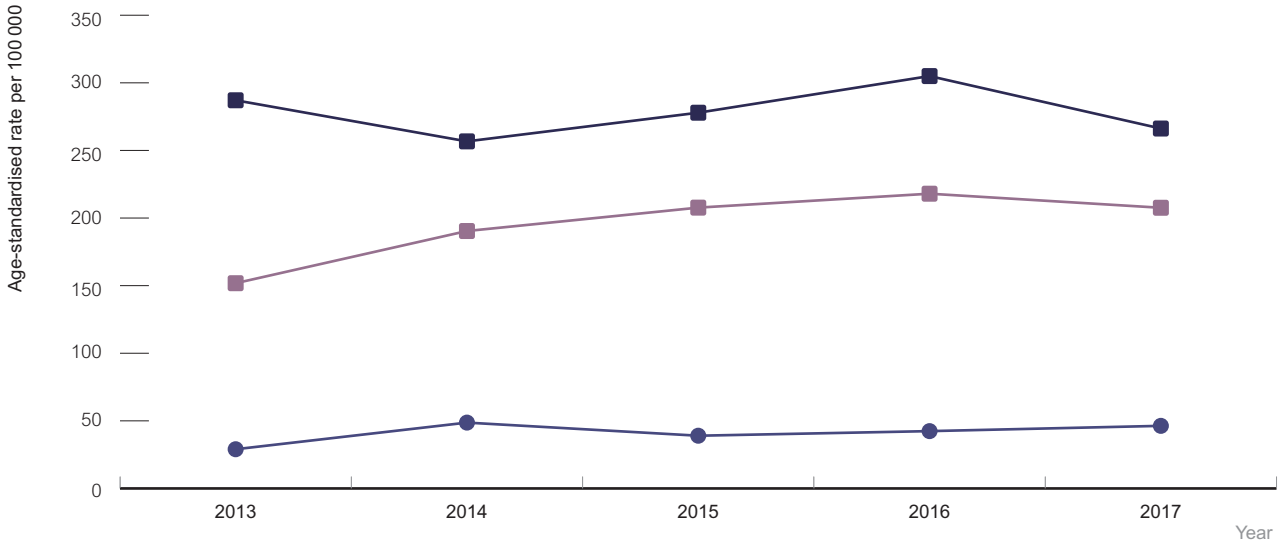



| | Major cities | Inner and outer regional | Remote and very remote |
|---|---|---|---|
| Aboriginal and Torres Strait Islander | 266.3 | 207.6 | 46.4 |
| Non-Indigenous | 32.7 | 49.7 | 31.5 |

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Indigenous status completeness≥50% (Northern Territory, South Australia, Tasmania, Queensland and Western Australia) for each of the five years 2013–2017.

Between 2013 and 2017 the notification rate of hepatitis C infection in Aboriginal and Torres Strait Islander people decreased in major cities by 7%, but increased in inner and outer regional areas by 36%, and in remote and very remote areas by 60% (Figure 2.1.9).

Figure 2.1.9 Hepatitis C notification rate in Aboriginal and Torres Strait Islander people, per 100 000 population, 2013–2017, by area of residence




| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Major cities | 287.1 | 256.7 | 277.9 | 305.0 | 266.2 |
| Inner and outer regional | 151.8 | 190.4 | 207.7 | 218.0 | 207.6 |
| Remote and very remote | 29.0 | 48.7 | 39.0 | 42.4 | 46.3 |

Source: Australian National Notifiable Disease Surveillance System; includes jurisdictions with Indigenous status completeness≥50% (Northern Territory, South Australia, Tasmania, Queensland and Western Australia) for each of the five years 2013–2017.

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# 2.2 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 misrepresent 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.

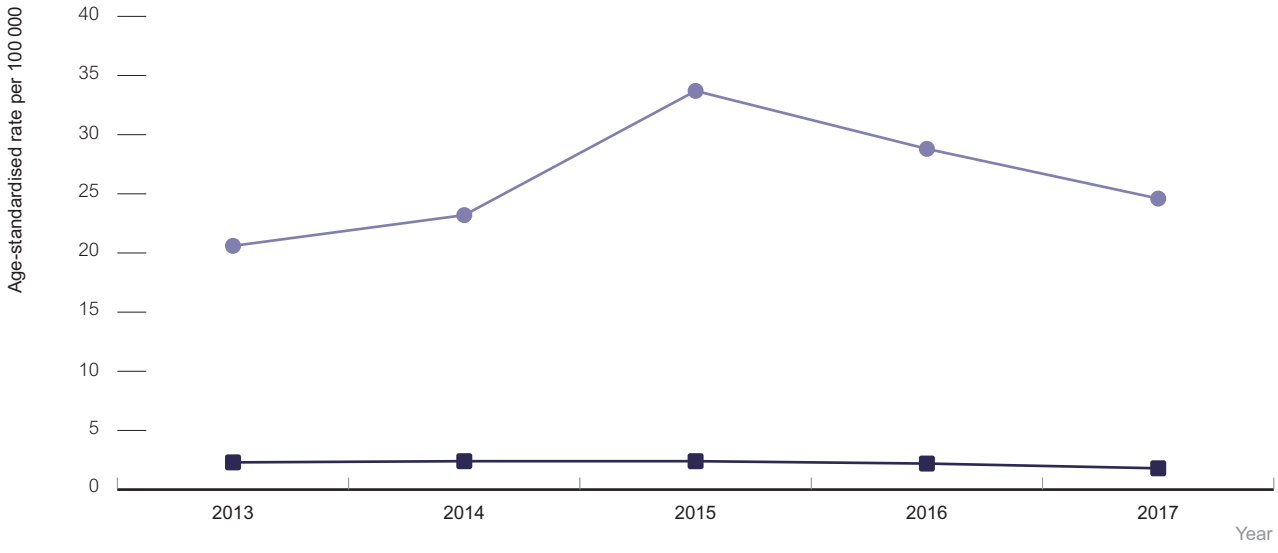
Indigenous status was reported for at least 50% of notifications of newly acquired hepatitis C infection in all jurisdictions in the period 2013-2017, and therefore all jurisdictions are included here.

In 2017, of the 610 newly acquired hepatitis C infections notified, 192 (31%) were notified in the Aboriginal and Torres Strait Islander population, 300 (49%) in the non-Indigenous population and 110 (18%) were in people whose Indigenous status was not recorded.

In 2017, the age-standardised notification rate of newly acquired hepatitis C infection in the Aboriginal and Torres Strait Islander population was 14 times that of the non-Indigenous population (24.6 vs 1.8 per 100 000) (Figure 2.2.1).

In the five-year period 2013–2017, the notification rate of newly acquired hepatitis C infection in the Aboriginal and Torres Strait Islander population increased from 20.6 in 2013 to 24.6 per 100 0000 in 2017 (Figure 2.2.1). Over the same period, the notification rates of newly acquired hepatitis C decreased slightly (2.3 to 1.8 per 100 000) in the non-Indigenous population.

Figure 2.2.1 Newly acquired hepatitis C notification rate per 100 000 population, 2013–2017, by Indigenous status

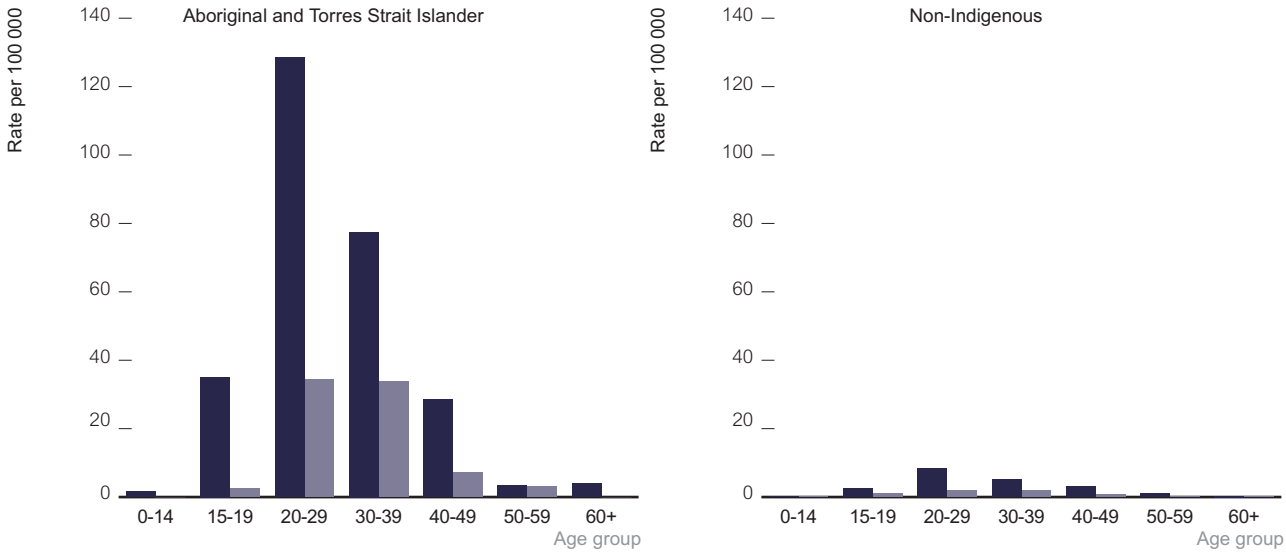



| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander | 20.6 | 23.2 | 33.7 | 28.8 | 24.6 |
| Non-Indigenous | 2.3 | 2.4 | 2.4 | 2.2 | 1.8 |

Source: Australian National Notifiable Disease Surveillance System

In 2017 the rate of newly acquired hepatitis C notifications was highest in the age group 20–29 years, and was 15 times as high among Aboriginal and Torres Strait Islander men as among non-Indigenous men within this age group (128.5 vs 8.3 per 100 000). Similarly, rates were 17 times as high among Aboriginal and Torres Strait Islander women as among non-Indigenous women aged 20–29 (34.3 vs 2 per 100 000) (Figure 2.2.2).

Figure 2.2.2 Newly acquired hepatitis C notification rate per 100 000 population, 2017, by Indigenous status, age group 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+ |
| Males | 1.5 | 35.1 | 128.5 | 77.5 | 28.5 | 3.3 | 3.9 | 0.1 | 2.6 | 8.3 | 5.1 | 3.0 | 1.0 | 0.3 |
| Females | 0.0 | 2.6 | 34.3 | 33.9 | 7.2 | 3.1 | 0.0 | 0.1 | 1.0 | 2.0 | 2.0 | 0.7 | 0.2 | 0.1 |

Source: Australian National Notifiable Disease Surveillance System

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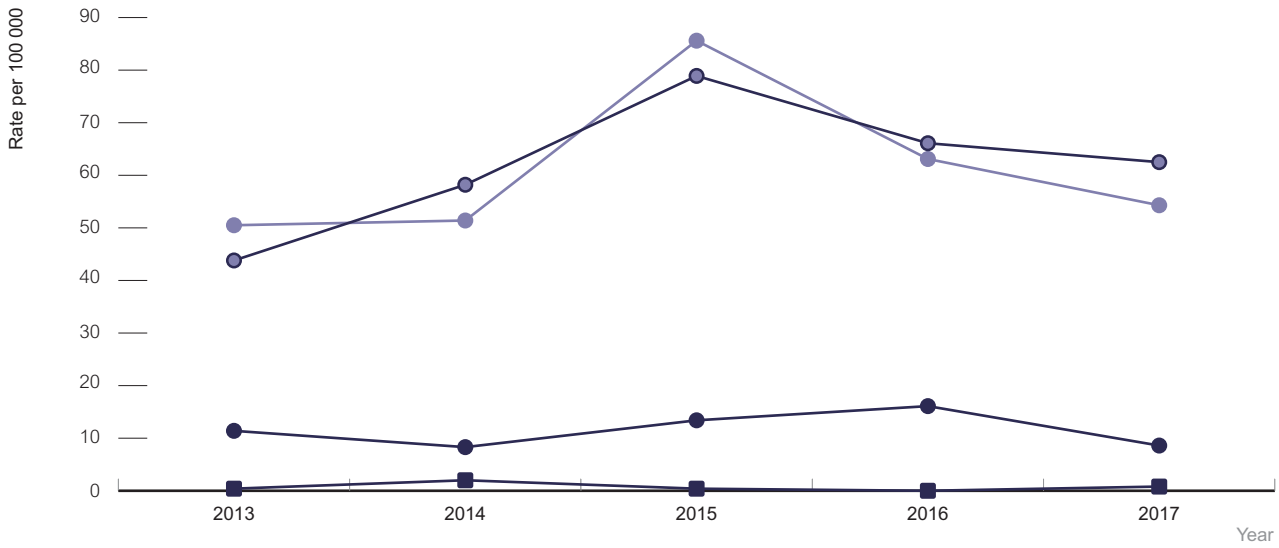
Between 2013 and 2017 in the Aboriginal and Torres Strait Islander population, the notification rate of newly acquired hepatitis C in the age group 25–39 years increased by 43% from 43.8 per 100 000 in 2013 to 62.5 per 100 000 in 2017 (Figure 2.2.3). Conversely, these rates decreased by 25% in Aboriginal and Torres Strait Islander people aged 40 years and older (11.4 per 100 000 in 2013 to 8.6 per 100 000 in 2017) (Figure 2.2.3).

Figure 2.2.3 Newly acquired hepatitis C notification rate in Aboriginal and Torres Strait Islander people per 100 000 population, 2013–2017, by age group

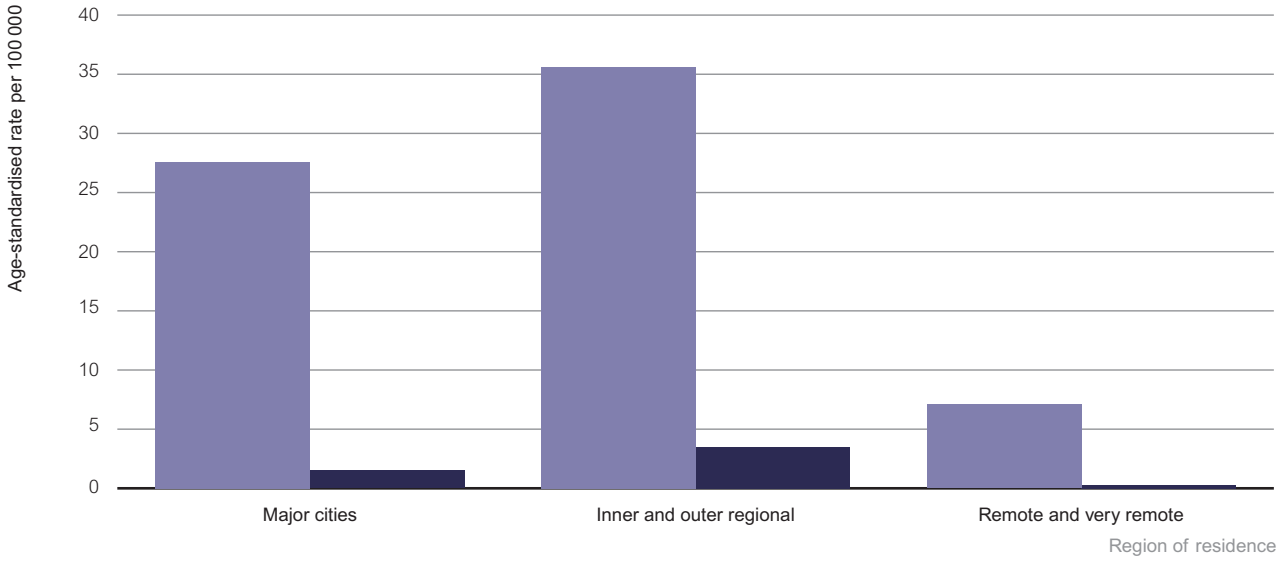



| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| 0–14 | 0.4 | 2.0 | 0.4 | 0.0 | 0.8 |
| 15–24 | 50.5 | 51.4 | 85.6 | 63.1 | 54.3 |
| 25–39 | 43.8 | 58.2 | 78.9 | 66.1 | 62.5 |
| 40+ | 11.4 | 8.3 | 13.4 | 16.1 | 8.6 |

Source: Australian National Notifiable Disease Surveillance System

In 2017 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, 10 times as high in inner and outer regional areas, and 24 times as high in remote and very remote areas (Figure 2.2.4).

Figure 2.2.4 Newly acquired hepatitis C notification rate per 100 000 population, 2017, by Indigenous status and area of residence

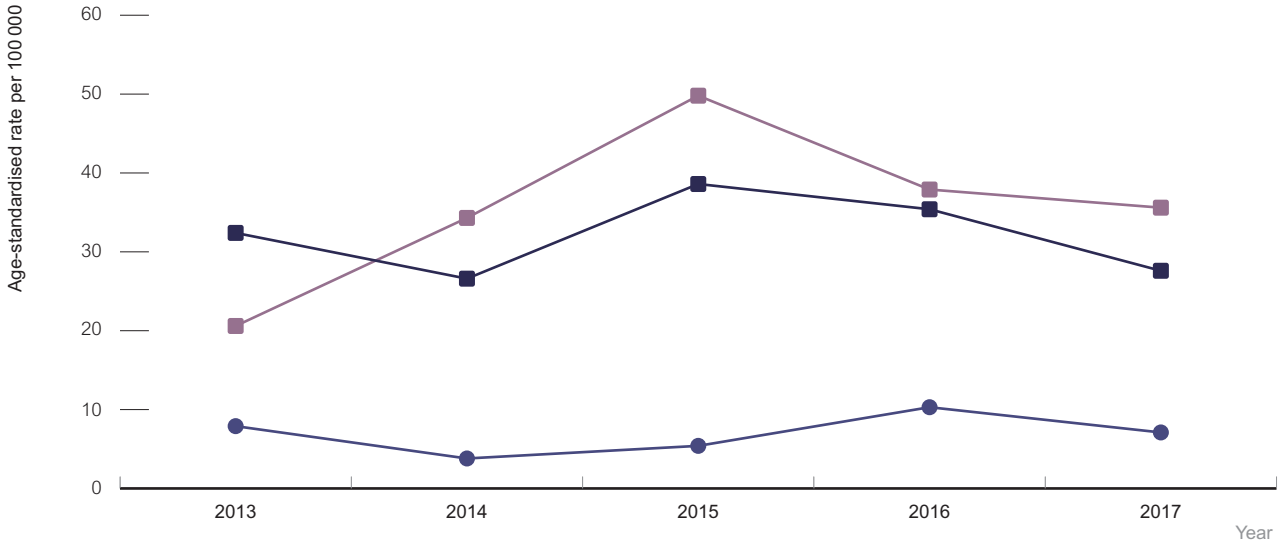



| | Major cities | Inner and outer regional | Remote and very remote |
|---|---|---|---|
| Aboriginal and Torres Strait Islander | 27.6 | 35.6 | 7.1 |
| Non-Indigenous | 1.5 | 3.5 | 0.3 |

Source: Australian National Notifiable Disease Surveillance System

From 2013 to 2017, notification rates of newly acquired hepatitis C in the Aboriginal and Torres Strait Islander population decreased by 15% in major cities and by 10% in remote and very remote areas, but increased by 73% in inner and outer regional areas (Figure 2.2.5).

Figure 2.2.5 Newly acquired hepatitis C notification rate per 100 000 population, 2013–2017, by area of residence




| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Major cities | 32.4 | 26.6 | 38.6 | 35.4 | 27.6 |
| Inner and outer regional | 20.6 | 34.3 | 49.8 | 37.9 | 35.6 |
| Remote and very remote | 7.9 | 3.8 | 5.4 | 10.3 | 7.1 |

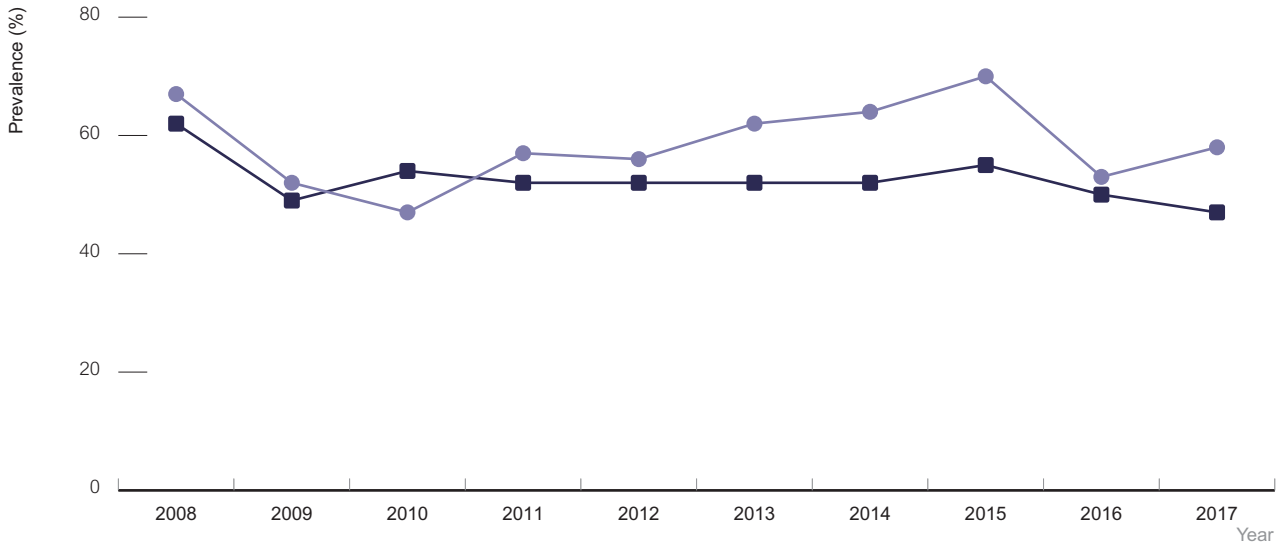
Source: Australian National Notifiable Disease Surveillance System

# 2.3 Hepatitis C prevalence

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

Over the past 10 years, hepatitis C antibody prevalence was higher among Aboriginal and Torres Strait Islander respondents than non-Indigenous respondents in each year of the Australian Needle and Syringe Program Surveys, except in 2010 (Figure 2.3.1). The hepatitis C antibody prevalence among Aboriginal and Torres Strait Islander participants in the five-year period 2013–2017 has fluctuated between 53% and 70%. This compares with a relatively stable prevalence in non-Indigenous respondents at 47% to 55% over the same period (Figure 2.3.1).

Figure 2.3.1 Hepatitis C antibody prevalence in needle and syringe program participants, 2008–2017, by Indigenous status




| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander (%) | 67 | 52 | 47 | 57 | 56 | 62 | 64 | 70 | 53 | 58 |
| Non-Indigenous (%) | 62 | 49 | 54 | 52 | 52 | 52 | 52 | 55 | 50 | 47 |

Source: Australian Needle and Syringe Program Survey

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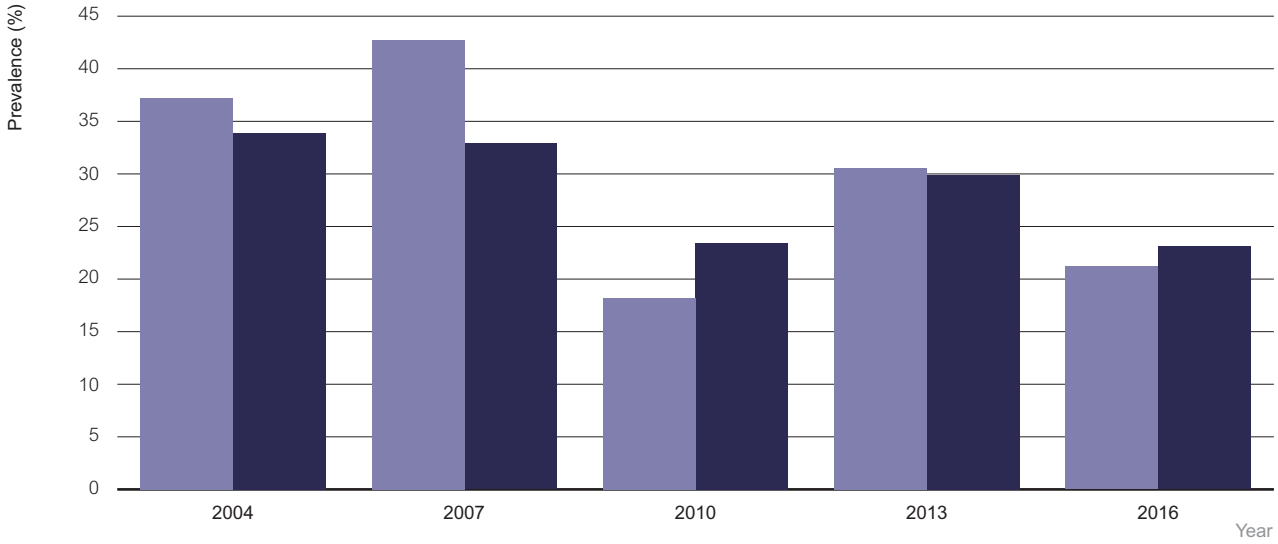
Aboriginal and Torres Strait Islander people have higher rates of risk factors for hepatitis C acquisition, including incarceration and receptive sharing of syringes. In 2016, just over 27% of prisoners (compared to 2% of the general population over 18 years of age) were Aboriginal and Torres Strait Islander.[12] 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 2.3.2).

Figure 2.3.2 Hepatitis C antibody prevalence among a sample of incoming Australian prisoners, by year of survey, and Indigenous status



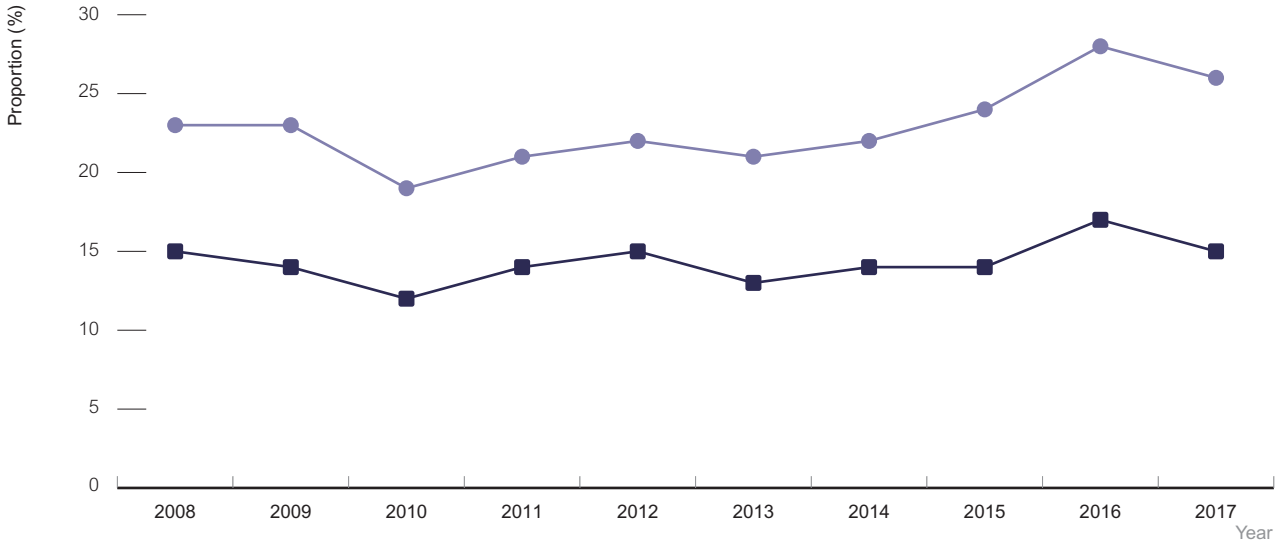

| | 2004 | 2007 | 2010 | 2013 | 2016 |
|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander (%) | 37.2 | 42.7 | 18.2 | 30.6 | 21.2 |
| Non-Indigenous (%) | 33.9 | 32.9 | 23.4 | 29.9 | 23.1 |

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

# 2.4 Injecting drug use

The proportion of Aboriginal and Torres Strait Islander people attending needle and syringe programs who reported receptive syringe sharing increased from 23% in 2008 to 26% in 2017. This proportion was higher than in non-Indigenous participants in each of the years 2008–2017, and in 2017 the proportion was 26%, compared to 15% in non-Indigenous participants (Figure 2.4.1). 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 2.4.1 Prevalence of receptive syringe sharing[a] by needle and syringe program participants, 2008–2017, by Indigenous status




| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander (%) | 23 | 23 | 19 | 21 | 22 | 21 | 22 | 24 | 28 | 26 |
| Non-Indigenous (%) | 15 | 14 | 12 | 14 | 15 | 13 | 14 | 14 | 17 | 15 |

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

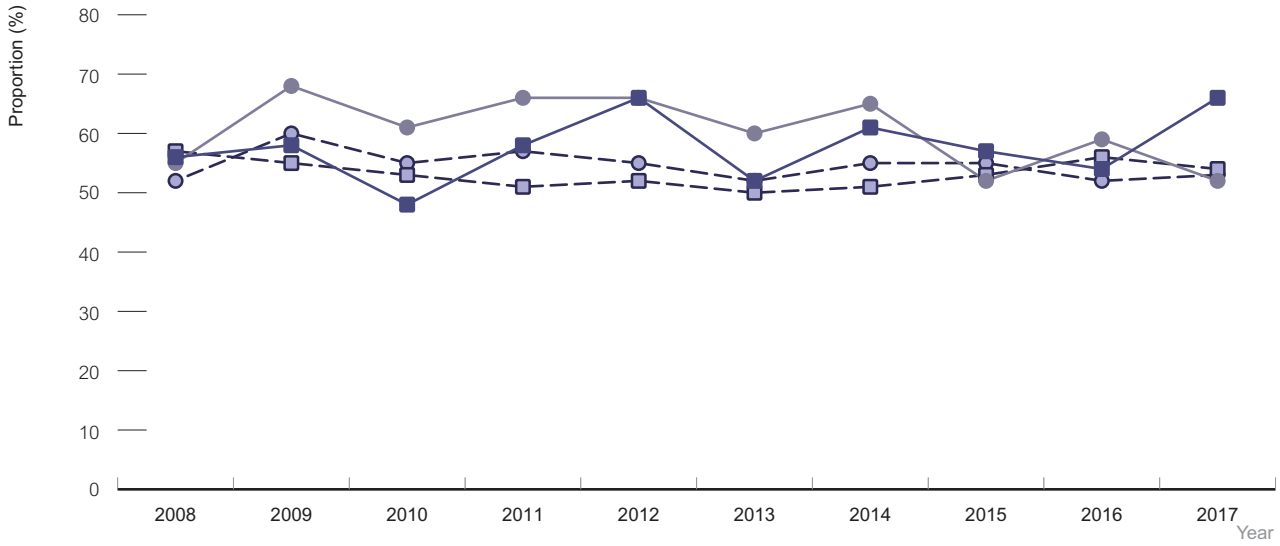
Source: Australian Needle and Syringe Program Survey

HCV

# 2.5 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 a hepatitis C antibody test in the past 12 months was higher than among non-Indigenous respondents in all years except 2015 (Figure 2.5.1). The proportion of Aboriginal and Torres Strait Islander men who were hepatitis C antibody negative and reported a hepatitis C antibody test in the past 12 months was also higher than among non-Indigenous responders in all years except 2008, 2010 and 2016 (Figure 2.5.1).

Figure 2.5.1 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, 2008–2017, by Indigenous status



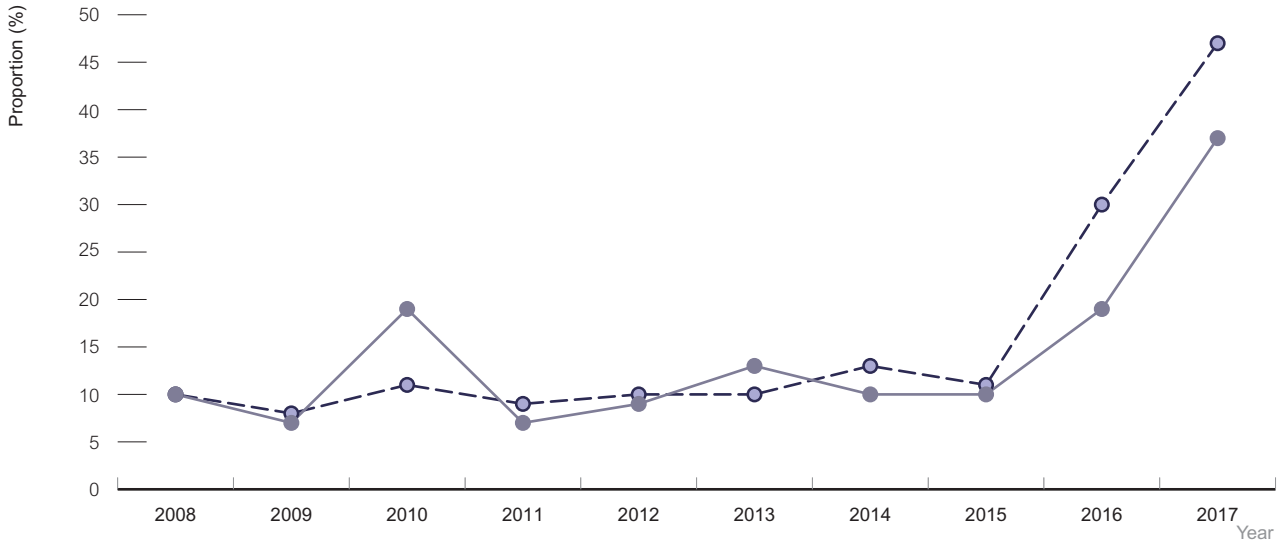

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander men (%) | 56 | 58 | 48 | 58 | 66 | 52 | 61 | 57 | 54 | 66 |
| Non-Indigenous men (%) | 57 | 55 | 53 | 51 | 52 | 50 | 51 | 53 | 56 | 54 |
| Aboriginal and Torres Strait Islander women (%) | 55 | 68 | 61 | 66 | 66 | 60 | 65 | 52 | 59 | 52 |
| Non-Indigenous women (%) | 52 | 60 | 55 | 57 | 55 | 52 | 55 | 55 | 52 | 53 |

Source: Australian Needle and Syringe Program Survey

# 2.6 Treatment

In 2017, among Aboriginal and Torres Strait Islander participants in the Australian Needle and Syringe Program Survey, 37% reported a lifetime history of hepatitis C treatment, an increase from 10% in 2015 (Figure 2.6.1). In 2017, Aboriginal and Torres Strait Islander participants had lower lifetime (37% vs 47%) uptake of treatment than non-Indigenous participants. Increases in treatment uptake after 2015 reflect interferon-free direct-acting antiviral regimens becoming available in Australia in March 2016.

Figure 2.6.1 Hepatitis C antiviral therapy ever for hepatitis C antibody-positive needle and syringe program participants, 2008–2017, by Indigenous status




| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Lifetime history of treatment, Aboriginal and Torres Strait Islander (%) | 10 | 7 | 19 | 7 | 9 | 13 | 10 | 10 | 19 | 37 |
| Lifetime history of treatment, non-Indigenous (%) | 10 | 8 | 11 | 9 | 10 | 10 | 13 | 11 | 30 | 47 |

Source: Australian Needle and Syringe Program Survey

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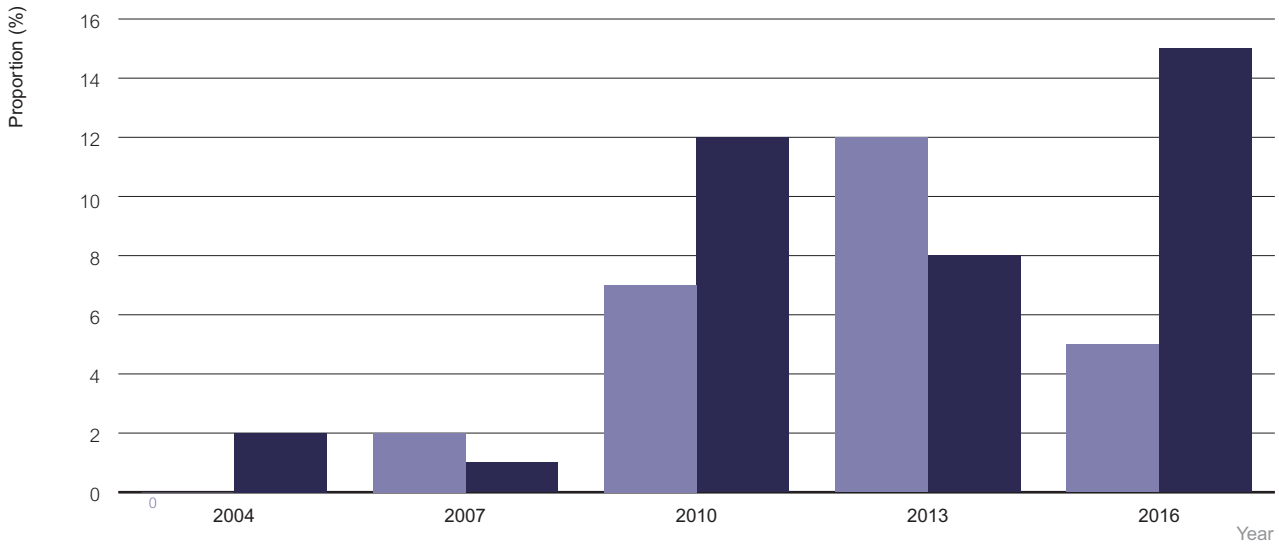
In 2016, of Aboriginal and Torres Strait Islander prison entrants in the National Prison Entrants' Bloodborne Virus Survey with chronic hepatitis C, 5% reported ever having received treatment for hepatitis C, compared to 15% of non-Indigenous respondents to the survey. The proportion reporting ever having 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 2.6.2). Caution should be taken in interpretation of these small numbers, as differences may not be statistically significant.

Figure 2.6.2 Proportion of prison entrants with hepatitis C reporting ever having received hepatitis C treatment, by year of survey and Indigenous 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.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# 3 Hepatitis B

## 3.1 Hepatitis B notifications

This section focuses on newly notified 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 notifications 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 was a total of 6102 notifications of hepatitis B infection in Australia in 2017. Of these 151 (2%) were among the Aboriginal and Torres Strait Islander population, 2810 (46%) were among the non-Indigenous population, and 3141 (51%) were among people whose Indigenous status was not reported. See Table 3.1.1 for further details of Aboriginal and Torres Strait Islander hepatitis B notifications.

Table 3.1.1 Hepatitis B notifications in Aboriginal and Torres Strait people by characteristic

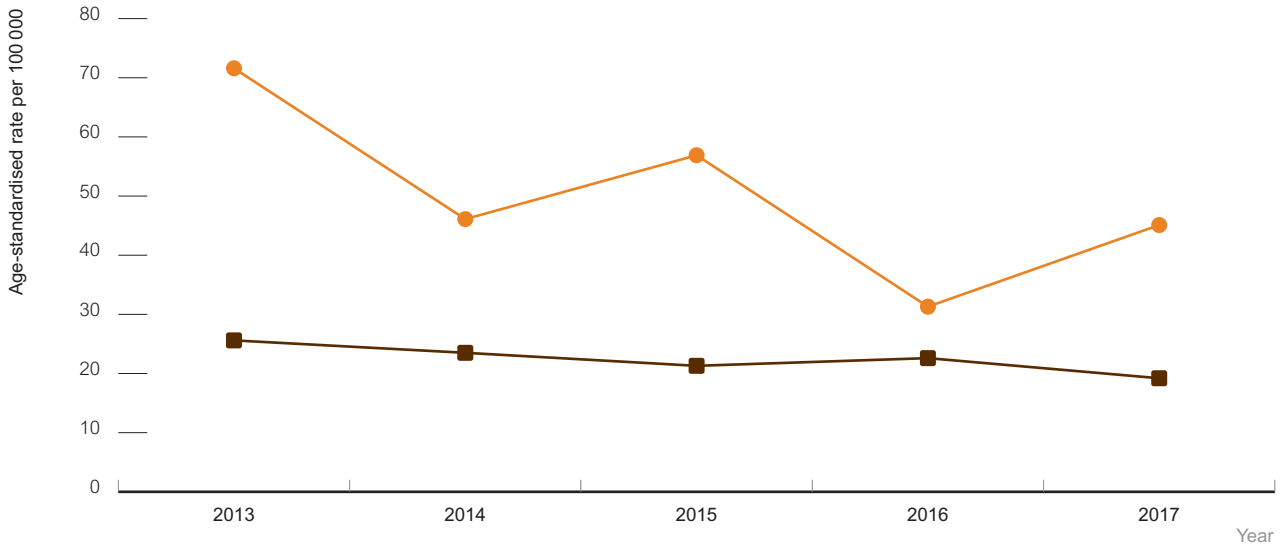
| | Year of hepatitis B notification | | | | | |
|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2013–2017[a] |
| Characteristic | | | | | | |
| Total cases | 118 | 78 | 111 | 56 | 73 | 436 |
| Sex | | | | | | |
| Male | 73 | 50 | 60 | 33 | 53 | 269 |
| Female | 45 | 28 | 51 | 23 | 20 | 167 |
| Median age in years | 41 | 36 | 41 | 41 | 42 | 201 |
| State/Territory | | | | | | |
| Australian Capital Territory | 3 | 0 | 2 | 0 | 1 | 6 |
| Northern Territory | 73 | 36 | 66 | 22 | 32 | 229 |
| South Australia | 13 | 18 | 14 | 8 | 7 | 60 |
| Tasmania | 2 | 0 | 0 | 0 | 0 | 2 |
| Western Australia | 26 | 24 | 29 | 26 | 33 | 138 |

a Table 3.1.1 includes data from jurisdictions with at least 50% reporting of Indigenous status in each of the five years 2013-2017 (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia). Approximately one-third (33%) of the Aboriginal and Torres Strait Islander population reside in these jurisdictions, and therefore the data may not be nationally representative.

In the five-year period 2013–2017, Indigenous status was recorded in at least 50% of notifications per year in the Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia. Incomplete reporting of Indigenous status can result in a misrepresentation of the true extent of the notifications in the Aboriginal and Torres Strait Islander population and may not reflect national trends.

In 2017, the age-standardised notification rate of notified hepatitis B infection for the Aboriginal and Torres Strait Islander population was 2.3 times as high as for the non-Indigenous population (45.1 per 100 000 vs 19.2 per 100 000) (Figure 3.1.1). This represents a 14% relative decrease from 2013, when the notification rate of notified hepatitis B infection for the Aboriginal and Torres Strait Islander population was 2.8 times as high as in the non-Indigenous population (71.6 per 100 000 vs 25.6 per 100 000). This relative decrease is due to a 37% decline in the hepatitis B notification rate in the Indigenous population since 2013.

Figure 3.1.1 Hepatitis B notification rate per 100 000 population, 2013–2017, by Indigenous status



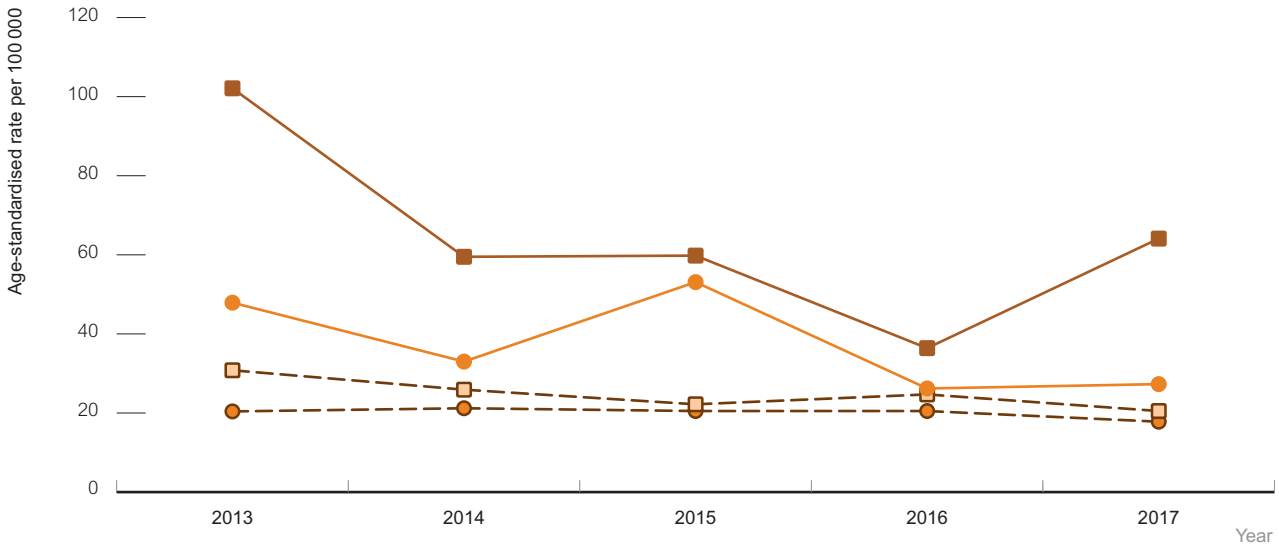

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Non-Indigenous | 25.6 | 23.5 | 21.3 | 22.6 | 19.2 |
| Aboriginal and Torres Strait Islander | 71.6 | 46.1 | 56.9 | 31.3 | 45.1 |

Source: Australian National Notifiable Disease System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2013–2017.

HBV

For the years 2013 to 2017, notification rates of hepatitis B infection have been consistently higher in Aboriginal and Torres Strait Islander males than in Aboriginal and Torres Strait Islander females. These rates have fluctuated, both in Aboriginal and Torres Strait Islander males (36.4 per 100 000 to 102.1 per 100 000) and females (26.2 per 100 00 to 53.1 per 100 000) (Figure 3.1.2).

Figure 3.1.2 Hepatitis B notification rate per 100 000 population, 2013–2017, by Indigenous status and sex

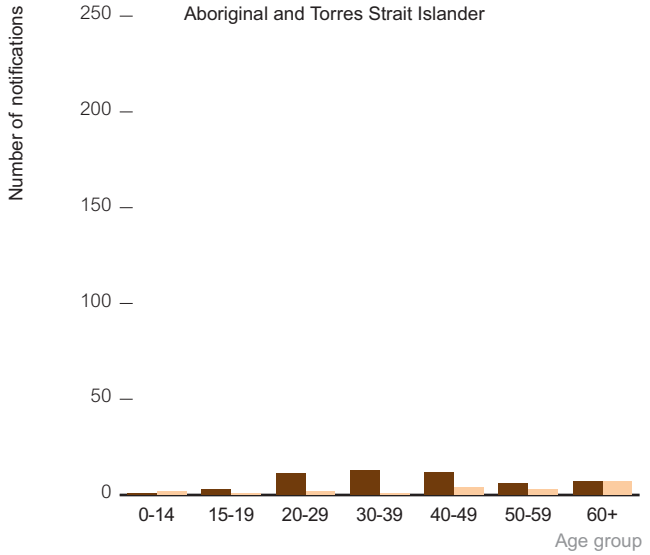


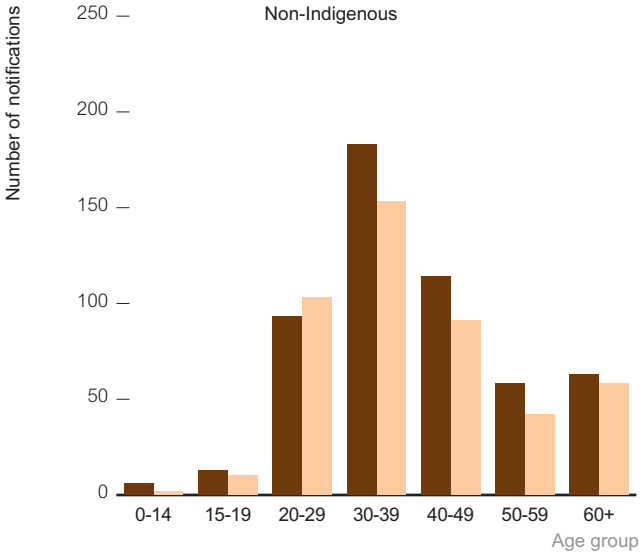

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander males | 102.1 | 59.5 | 59.8 | 36.4 | 64.1 |
| Non-Indigenous males | 30.8 | 25.9 | 22.2 | 24.7 | 20.5 |
| Aboriginal and Torres Strait Islander females | 47.9 | 33.0 | 53.1 | 26.2 | 27.3 |
| Non-Indigenous females | 20.4 | 21.2 | 20.5 | 20.5 | 17.8 |

Source: Australian National Notifiable Disease System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2013–2017.

In 2017, 90% of notifications of hepatitis B infection in the Aboriginal and Torres Strait Islander population, and 97% in the non-Indigenous population, were in those aged 20 years and over (Figure 3.1.3).

Figure 3.1.3 Number of cases of notified hepatitis B, 2017, by Indigenous status, age group and sex




| | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
|---|---|---|---|---|---|---|---|
| Males | 1 | 3 | 11 | 13 | 12 | 6 | 7 |
| Females | 2 | 1 | 2 | 1 | 4 | 3 | 7 |

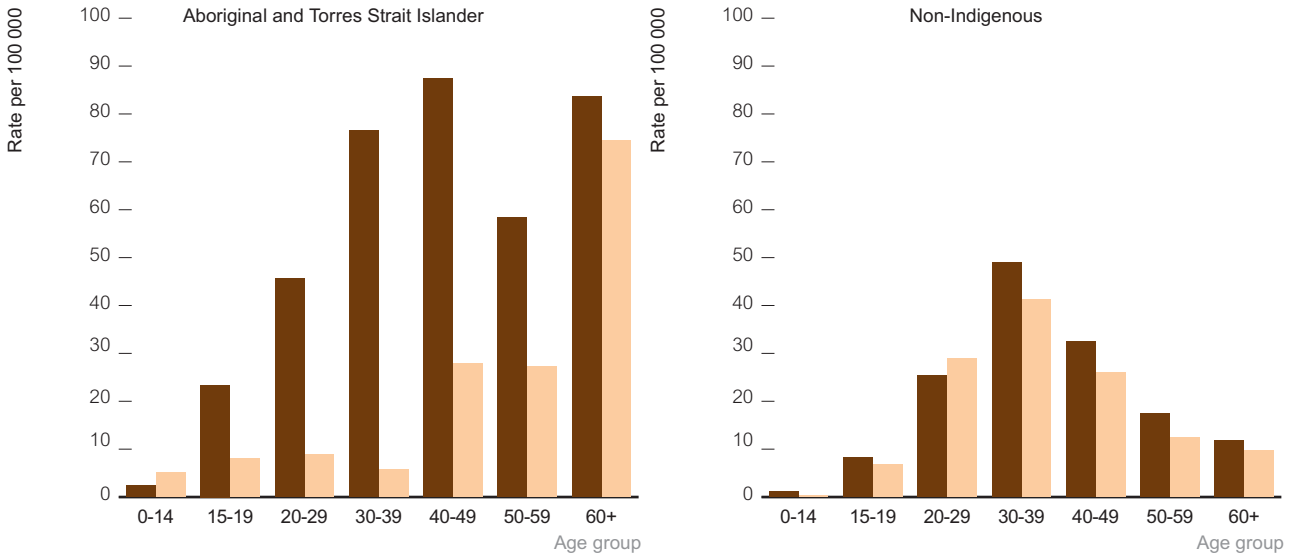
| | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
|---|---|---|---|---|---|---|---|
| Males | 6 | 13 | 93 | 183 | 114 | 58 | 63 |
| Females | 2 | 10 | 103 | 153 | 91 | 42 | 58 |

HBV

Source: Australian National Notifiable Disease System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2013–2017.

In 2017, Aboriginal and Torres Strait Islander people experienced higher rates of notified hepatitis B infection than non-Indigenous people, particularly among men aged 40 years and over (Figure 3.1.4). Among those aged 20 - 29 and 30 - 39, rates were higher for non-Indigenous women than for Aboriginal and Torres Strait Islander women.

Figure 3.1.4 Hepatitis B notification rate per 100 000 population, 2017, by Indigenous status, age group and sex

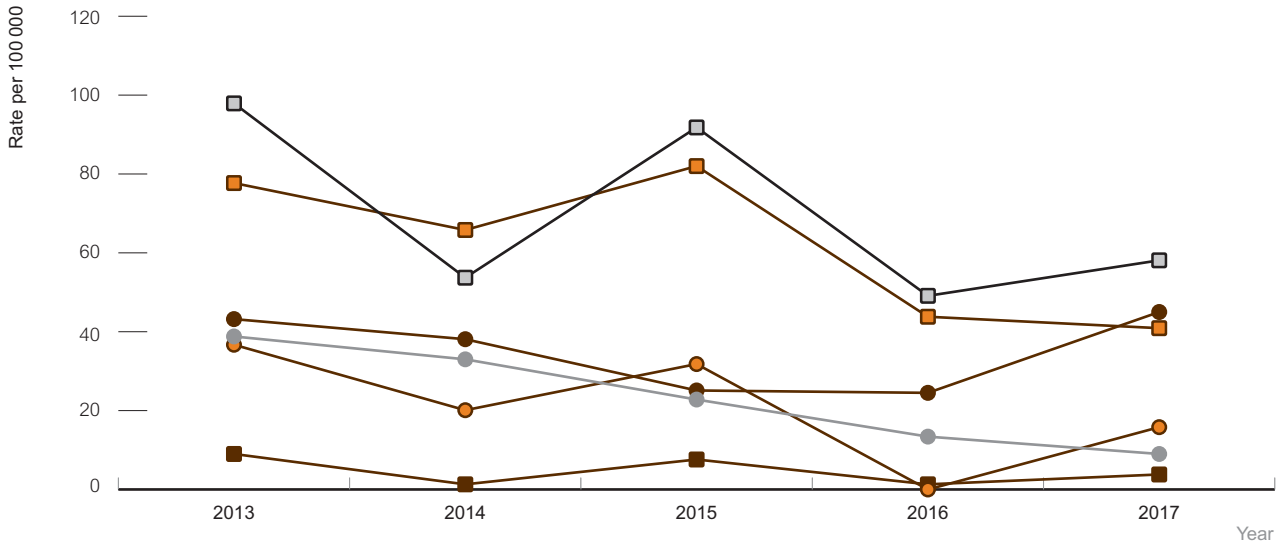



| | Aboriginal and Torres Strait Islander | | | | | | | Non-Indigenous | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
| Males | 2.5 | 23.4 | 45.7 | 76.5 | 87.5 | 58.4 | 83.6 | 1.2 | 8.3 | 25.3 | 49.0 | 32.5 | 17.4 | 11.8 |
| Females | 5.2 | 8.0 | 8.8 | 5.8 | 27.8 | 27.2 | 74.5 | 0.4 | 6.8 | 29.0 | 41.2 | 26.0 | 12.4 | 9.8 |

Source: Australian National Notifiable Disease System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2013–2017.

The rate of hepatitis B notifications has declined in Aboriginal and Torres Strait Islander people in all age groups, with fluctuations in some years (Figure 3.1.5). The highest rates in 2017 were found in those aged 40 years and over (58.1 notifications per 100 000), reflecting the impact of childhood and adolescent vaccination programs on younger groups.

Figure 3.1.5 Hepatitis B notification rate per 100 000 population, 2013–2017, in Aboriginal and Torres Strait Islander people, by age group



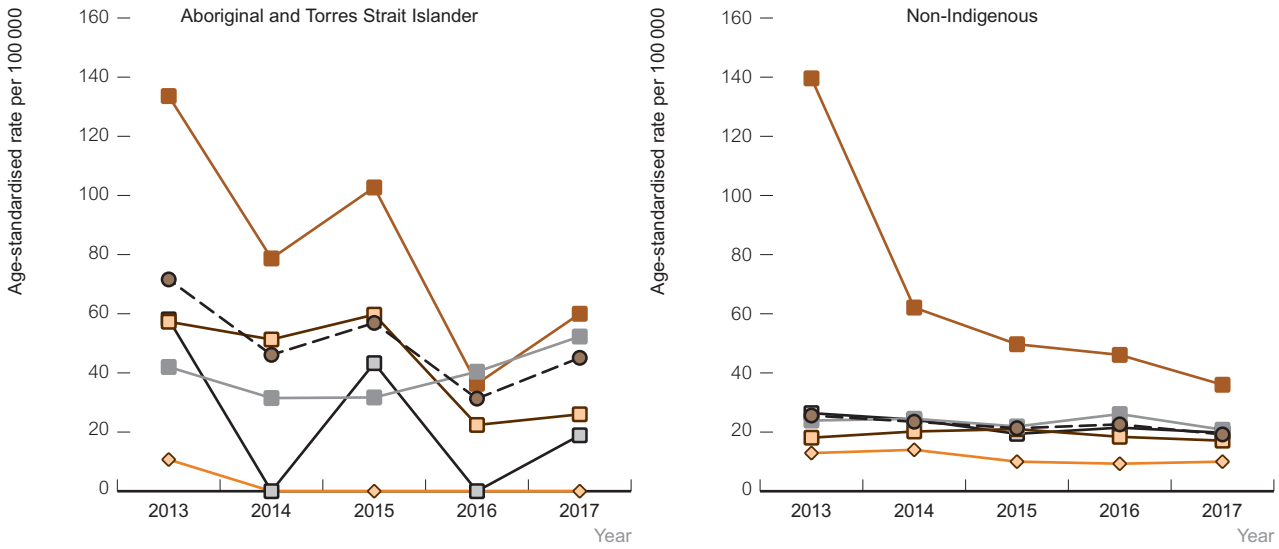

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| 0–14 | 9.0 | 1.3 | 7.6 | 1.3 | 3.8 |
| 15–19 | 36.7 | 20.1 | 31.8 | 0.0 | 15.8 |
| 20–24 | 43.2 | 38.1 | 25.1 | 24.5 | 45.0 |
| 25–29 | 38.8 | 33.0 | 22.8 | 13.4 | 9.0 |
| 30–39 | 77.7 | 65.8 | 82.0 | 43.8 | 40.9 |
| 40+ | 97.9 | 53.7 | 91.8 | 49.1 | 58.1 |

Source: Australian National Notifiable Disease System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2013–2017.

HBV

From 2013 to 2017, rates of notified hepatitis B infection among the Aboriginal and Torres Strait Islander population declined by 55% in both the Northern Territory and South Australia and increased by 25% in Western Australia (Figure 3.1.6). The elevation in notifications in the Northern Territory 2013 can be attributed to hepatitis B testing in irregular maritime arrivals in Darwin [13].

Figure 3.1.6 Hepatitis B notification rate per 100 000 population, 2013–2017, by Indigenous status and State/Territory

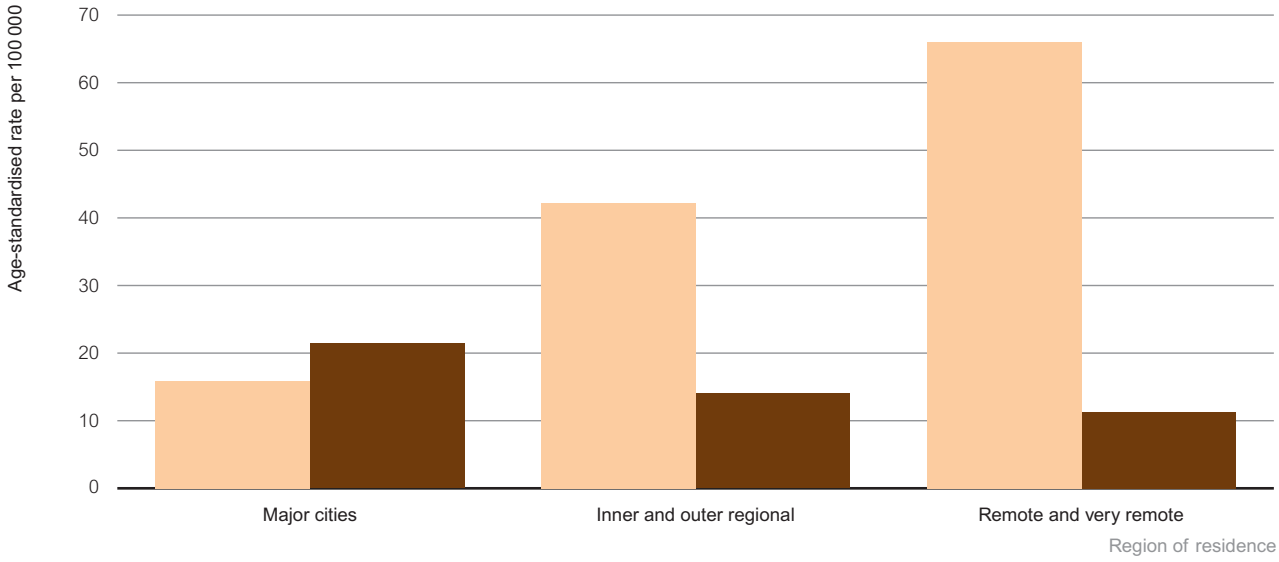



| | Aboriginal and Torres Strait Islander | | | | | Non-Indigenous | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Australia | 71.6 | 46.1 | 56.9 | 31.3 | 45.1 | 25.6 | 23.5 | 21.3 | 22.6 | 19.2 |
| ACT | 133.6 | 78.7 | 102.7 | 36.3 | 60.0 | 139.6 | 62.1 | 49.7 | 46.1 | 36.0 |
| NT | 10.7 | 0.0 | 0.0 | 0.0 | 0.0 | 12.9 | 14.0 | 10.0 | 9.3 | 10.0 |
| SA | 42.0 | 31.5 | 31.7 | 40.4 | 52.3 | 23.9 | 24.5 | 21.9 | 26.1 | 20.8 |
| TAS | 58.1 | 0.0 | 43.3 | 0.0 | 18.9 | 26.4 | 24.2 | 19.4 | 21.5 | 19.8 |
| WA | 57.3 | 51.3 | 59.7 | 22.4 | 26.0 | 18.1 | 20.2 | 21.0 | 18.4 | 17.1 |

Source: Australian National Notifiable Disease System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2013–2017.

In 2017, the rates of notified hepatitis B infection in the Aboriginal and Torres Strait Islander population were higher than in the non-Indigenous population in all areas of residence except in major cities, where the rates are slightly lower in Aboriginal and Torres Strait Islander population (21.4 vs 15.9 per 100 000) (Figure 3.1.7).

**Figure 3.1.7** Hepatitis B notification rate per 100 000 population, 2017, by Indigenous status and area of residence



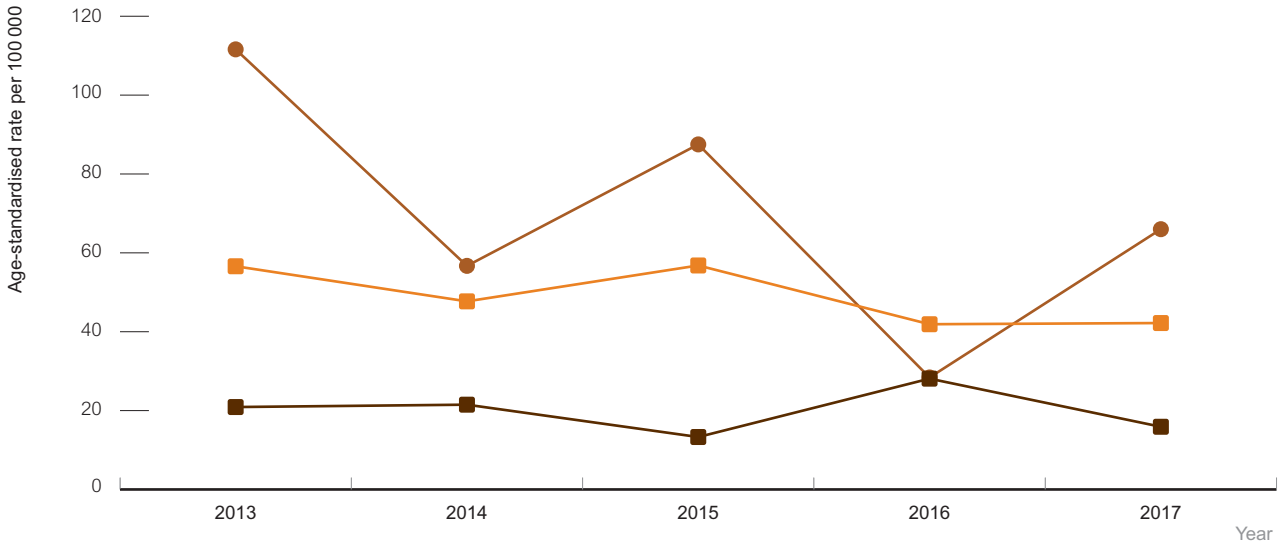

| | Major cities | Inner and outer regional | Remote and very remote |
|---|---|---|---|
| Aboriginal and Torres Strait Islander | 15.9 | 42.2 | 66.0 |
| Non-Indigenous | 21.4 | 14.0 | 11.3 |

Source: Australian National Notifiable Disease System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2013–2017.

HBV

With the exception of 2016, rates of hepatitis B notification among Aboriginal and Torres Strait Islander people were lower in major cities than other areas of residence between 2013 and 2017. For this five year period, notification rates decreased in every area of residence (24% for major cities, 25% for regional areas and 41% for remote areas). (Figure 3.1.8).

Figure 3.1.8 Hepatitis B notification rate per 100 000 population, 2013–2017, in Aboriginal and Torres Strait Islander people, by area of residence




| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Major cities | 20.9 | 21.5 | 13.3 | 28.1 | 15.9 |
| Inner and outer Regional | 56.6 | 47.7 | 56.8 | 41.9 | 42.2 |
| Remote and very Remote | 111.6 | 56.7 | 87.5 | 28.4 | 66.0 |

Source: Australian National Notifiable Disease System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2013–2017.

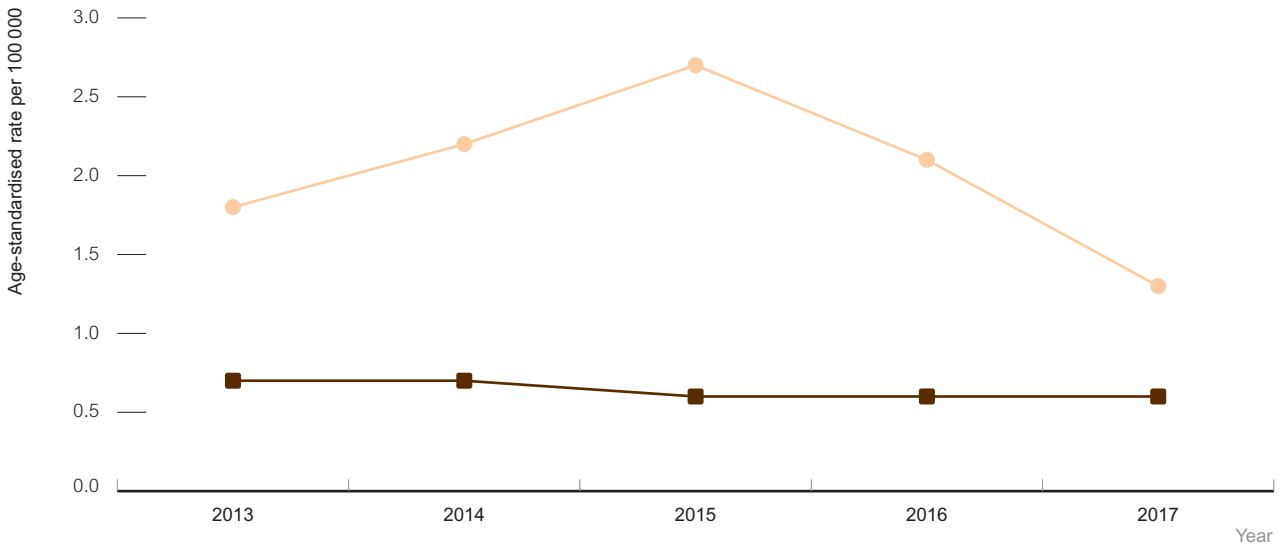
# 3.2 Newly acquired hepatitis B infection

Newly acquired hepatitis B infection is defined as 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 2013–2017, information on Indigenous status was reported for at least 50% of notifications of newly acquired hepatitis B infection in all jurisdictions with the exception of Australian Capital Territory. Of the 141 notifications of newly acquired hepatitis B infection in 2017, eight (6%) were in the Aboriginal and Torres Strait Islander population and 132 (94%) in the non-Indigenous population, and one notification did not report Indigenous status.

In the five-year period 2013–2017 the age-standardised notification rate of newly acquired hepatitis B infection in the Aboriginal and Torres Strait Islander population fluctuated between 1.8 and 1.3 per 100 000 and was stable (between 0.7 and 0.6 per 100 000) in the non-Indigenous population over the same time period (Figure 3.2.1). Hepatitis B notification rates in the Aboriginal and Torres Strait Islander population are based on extremely small numbers and may reflect localised occurrences rather than national patterns.

Figure 3.2.1 Newly acquired hepatitis B notification rate per 100 000 population, 2013–2017, by Indigenous status




| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander | 1.8 | 2.2 | 2.7 | 2.1 | 1.3 |
| Non-Indigenous | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 |

Source: Australian National Notifiable Disease System; includes jurisdictions with Indigenous status completeness ≥50% (New South Wales, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2013–2017

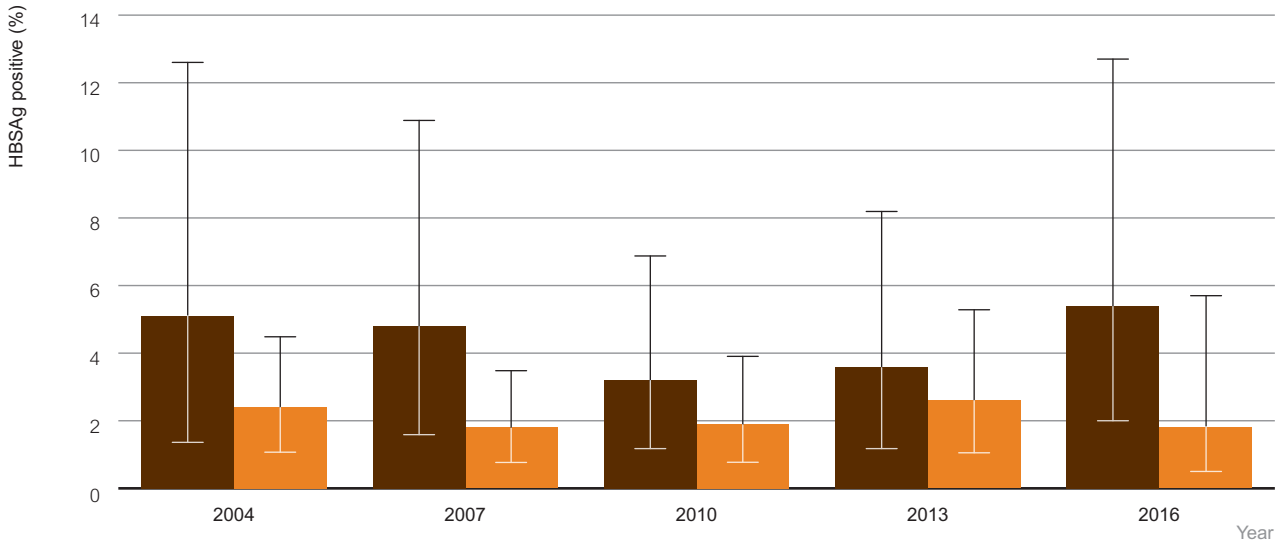
HBV

## 3.3 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 2017, 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 (248 536). Hepatitis B prevalence in the Aboriginal and Torres Strait Islander population was estimated to be 4% in 2017.

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 3.3.1). 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 3.3.1** Hepatitis B surface antigen (HBsAg) prevalence among a sample of incoming Australian prisoners, by year of survey, and Indigenous status

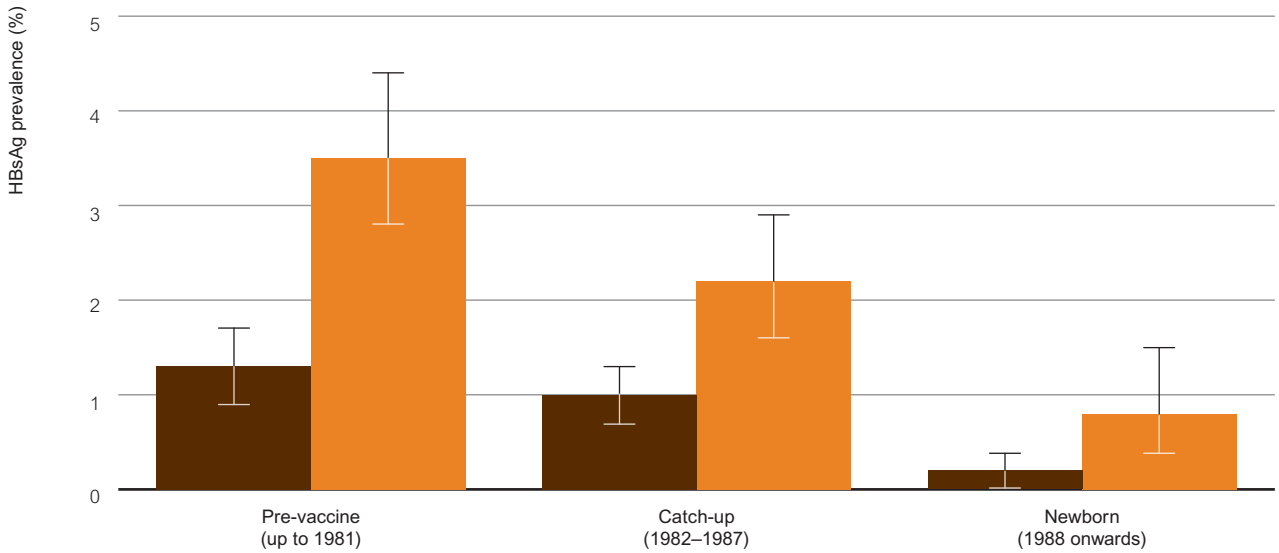



| | 2004 | 2007 | 2010 | 2013 | 2016 |
|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander (%) | 5.1 | 4.8 | 3.2 | 3.6 | 5.4 |
| Non-Indigenous (%) | 2.4 | 1.8 | 1.9 | 2.6 | 1.8 |

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

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 [14] and New South Wales [15] 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 3.3.2).

Figure 3.3.2 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 |

Source: Deng et al.[15] and Liu et al.[14]

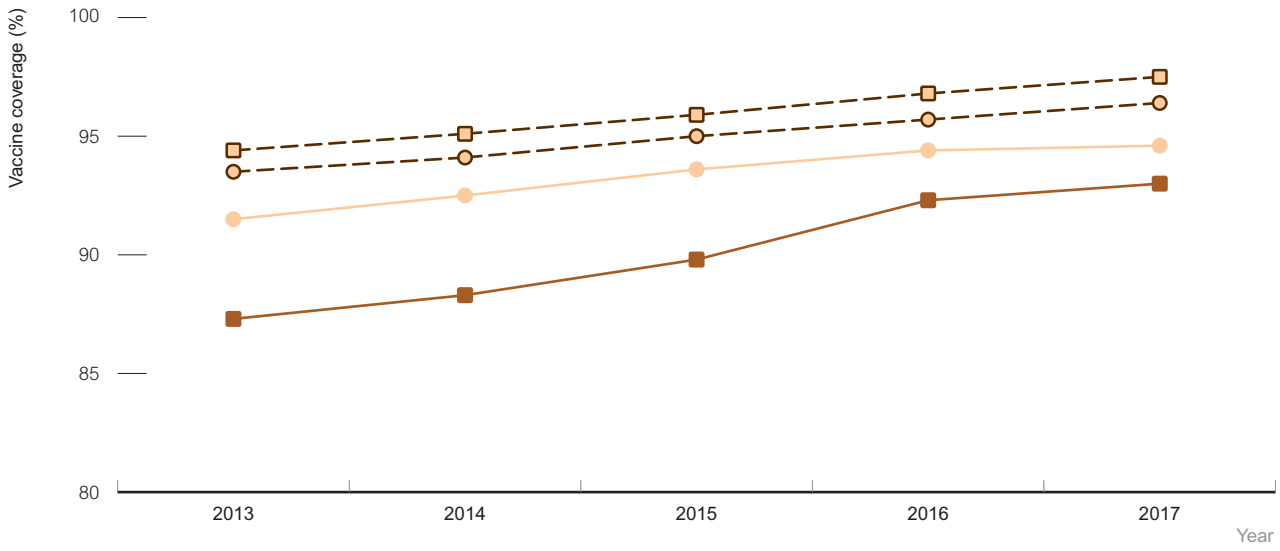
HBV

# 3.4 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 2013–2017, hepatitis B vaccination coverage rates for children were high overall in 2017, for Aboriginal and Torres Strait Islander children, coverage was marginally lower than for non-Indigenous children at 12 months of age (at 93% to 95%). The difference was reversed at 24 months of age, with vaccination coverage of 98% in Aboriginal and Torres Strait Islander children and 96% in non-Indigenous children (Figure 3.4.1).

**Figure 3.4.1** Hepatitis B vaccination coverage estimates at 12 and 24 months, 2013–2017, by Indigenous status




| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander children 12 months (%) | 87.3 | 88.3 | 89.8 | 92.3 | 93.0 |
| Aboriginal and Torres Strait Islander children 24 months (%) | 94.4 | 95.1 | 95.9 | 96.8 | 97.5 |
| Non-Indigenous 12 months (%) | 91.5 | 92.5 | 93.6 | 94.4 | 94.6 |
| Non-Indigenous 24 months (%) | 93.5 | 94.1 | 95.0 | 95.7 | 96.4 |

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

HBV

# 4 Sexually transmissible infections

This chapter gives details of STI notifications. Please see pp. 6 for summary data.

## 4.1 Chlamydia

Chlamydia was the most frequently notified sexually transmissible infection in Australia in 2017, with a total of 100 775 notifications, of which 7015 (7%) were among the Aboriginal and Torres Strait Islander population, 31 502 (31%) were among the non-Indigenous population, and 62 258 (62%) were for people whose Indigenous status was not reported.

Table 4.1.1 Chlamydia notifications in Aboriginal and Torres Strait people by characteristic

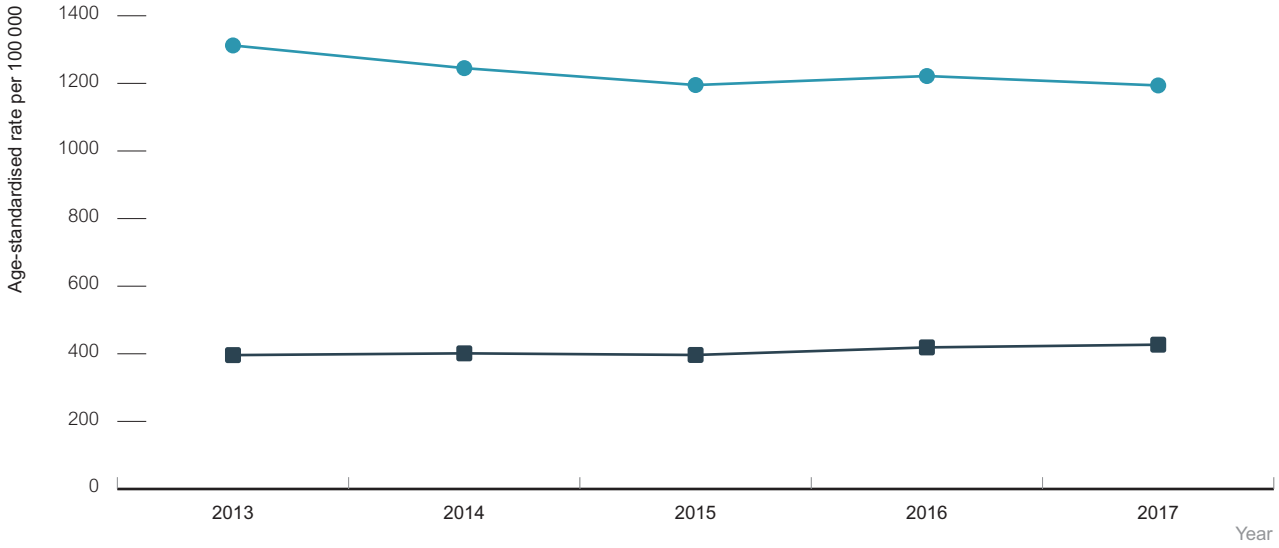
| | Year of chlamydia notification | | | | | |
|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2013–2017[a] |
| Characteristic | | | | | | |
| Total cases | 6662 | 6430 | 6331 | 6601 | 6597 | 32 621 |
| Sex | | | | | | |
| Male | 2338 | 2161 | 2234 | 2344 | 2356 | 11 433 |
| Female | 4324 | 4269 | 4097 | 4257 | 4241 | 21 188 |
| Median age in years | 20 | 21 | 21 | 21 | 21 | 104 |
| State/Territory | | | | | | |
| Northern Territory | 1694 | 1690 | 1557 | 1563 | 1498 | 8 002 |
| Queensland | 2986 | 2820 | 2995 | 3130 | 3162 | 15 093 |
| South Australia | 372 | 441 | 368 | 331 | 335 | 1 847 |
| Western Australia | 1610 | 1479 | 1411 | 1577 | 1602 | 7 679 |

a Table 4.1.1 includes data from jurisdictions with at least 50% reporting of Indigenous status in each of the five years 2013-2017 (Northern Territory, Queensland, South Australia and Western Australia). Just over half (57%) of the Aboriginal and Torres Strait Islander population reside in these jurisdictions, and therefore the data may not be nationally representative.

Notification rates are based on data from four jurisdictions (the Northern Territory, Queensland, South Australia and Western Australia), where Indigenous status was at least 50% complete for chlamydia notifications for each of the past five years (2013–2017). Incomplete reporting of Indigenous status can result in a misrepresentation of the true extent of the notifications in the Aboriginal and Torres Strait Islander population and may not reflect national trends.

The chlamydia notification rate for the Aboriginal and Torres Strait Islander population in 2017 of 1193.9 per 100 000 population was nearly three times that of the non-Indigenous population at 427.0 per 100 000 population. Since 2013, the notification rate of chlamydia in the Aboriginal and Torres Strait Islander population and non-Indigenous population has remained stable (Figure 4.1.1).

Figure 4.1.1 Chlamydia notification rate per 100 00 population, 2013–2017, by Indigenous status



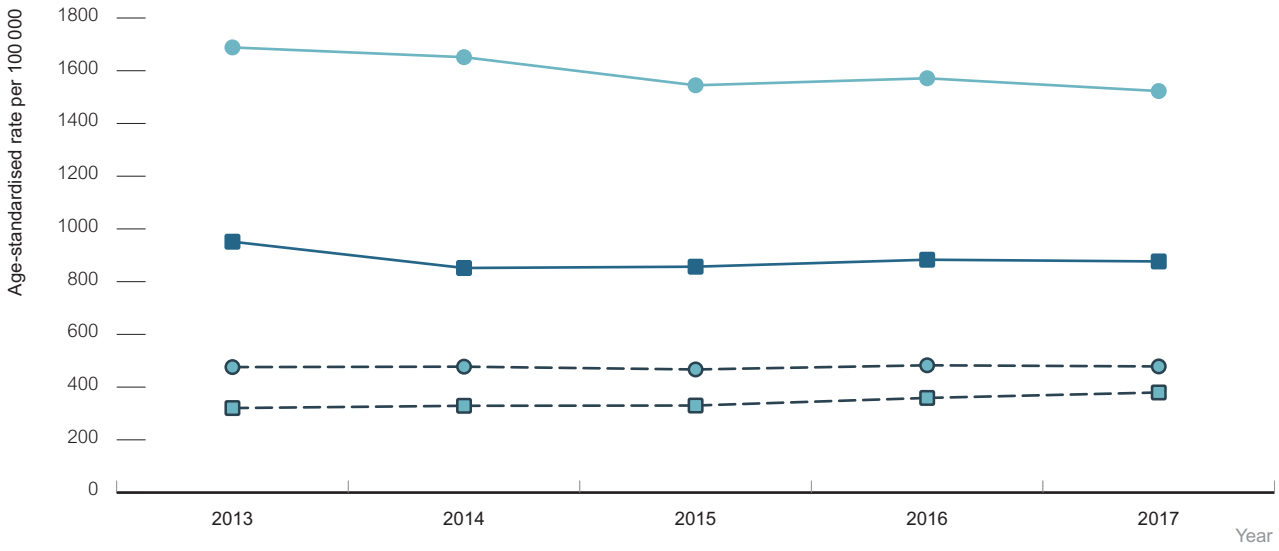

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Non-Indigenous | 396.1 | 401.3 | 396.5 | 418.9 | 427.0 |
| Aboriginal and Torres Strait Islander | 1312.2 | 1245.1 | 1195.1 | 1221.7 | 1193.9 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Northern Territory, Queensland, South Australia and Western Australia) for each of the five years 2013–2017.

STIs

Between 2013 and 2017 the chlamydia notification rate for the Aboriginal and Torres Strait Islander population was highest among Aboriginal and Torres Strait Islander females, at 1688.4 per 100 000 in 2013 and 1522.9 per 100 000 in 2017. In 2017, the rate was three times as high in Aboriginal and Torres Strait Islander females as in non-Indigenous females (1522.9 vs 478.4 per 100 000) and twice as high in Aboriginal and Torres Strait Islander males as in non-Indigenous males (876.6 vs 379.6 per 100 000) (Figure 4.1.2).

Figure 4.1.2 Chlamydia notification rates per 100 000 population, 2013–2017, by Indigenous status and sex

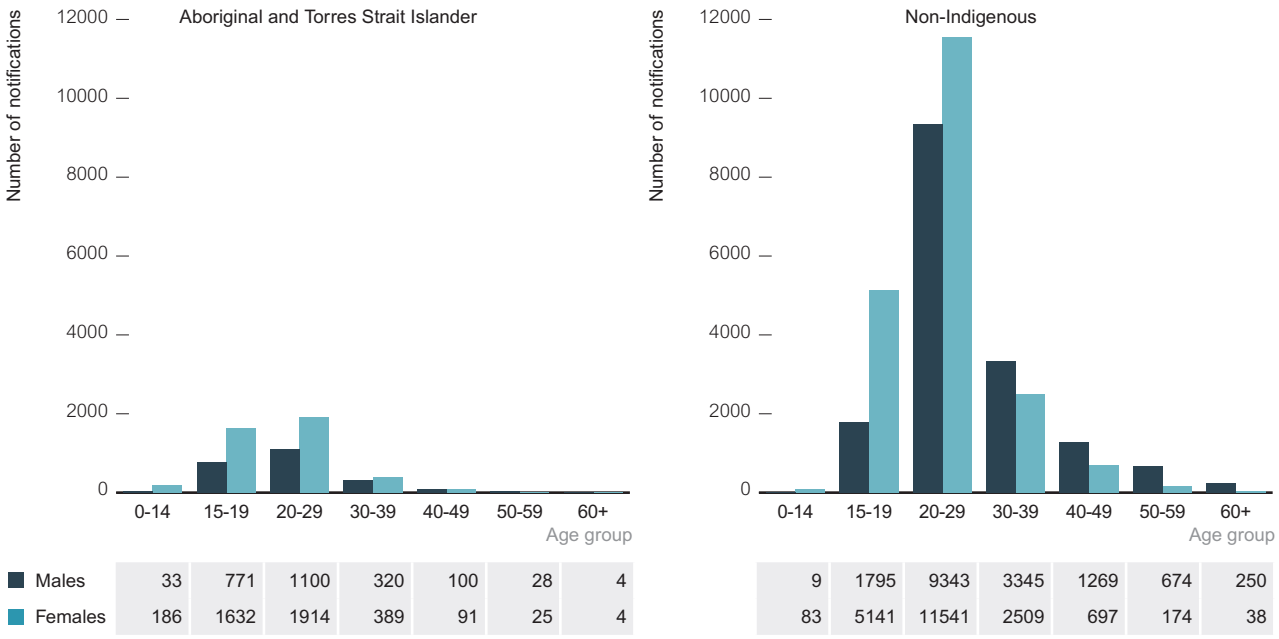



| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander males | 951.5 | 851.8 | 856.7 | 883.2 | 876.6 |
| Aboriginal and Torres Strait Islander females | 1688.4 | 1651.4 | 1544.8 | 1571.4 | 1522.9 |
| Non-Indigenous males | 320.5 | 329.1 | 330.1 | 358.9 | 379.6 |
| Non-Indigenous females | 475.9 | 477.5 | 466.9 | 482.7 | 478.4 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Northern Territory, Queensland, South Australia and Western Australia) for each of the five years 2013–2017.

Chlamydia is notified predominantly among young people. In 2017, 82% of chlamydia notifications were in the 15–29 age group in the Aboriginal and Torres Strait Islander population, as were 75% of notifications in the non-Indigenous population. In 2017, of the chlamydia notifications in the Aboriginal and Torres Strait Islander population, 2356 were among males and 4241 among females, providing a male-to-female ratio of 0.5:1 compared to 0.8:1 in the non-Indigenous population (Figure 4.1.3).

Figure 4.1.3 Number of notifications of chlamydia in 2017, by Indigenous status, sex and age group



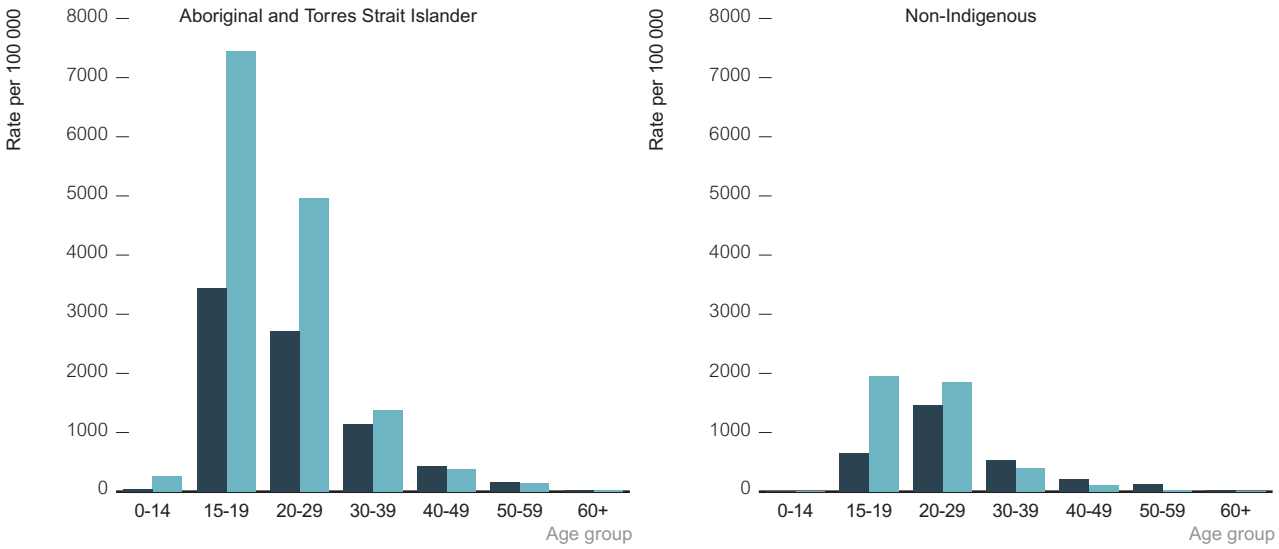

| | Aboriginal and Torres Strait Islander | | | | | | | Non-Indigenous | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
| Males | 33 | 771 | 1100 | 320 | 100 | 28 | 4 | 9 | 1795 | 9343 | 3345 | 1269 | 674 | 250 |
| Females | 186 | 1632 | 1914 | 389 | 91 | 25 | 4 | 83 | 5141 | 11541 | 2509 | 697 | 174 | 38 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Northern Territory, Queensland, South Australia and Western Australia) for each of the five years 2013–2017.

STIs

The chlamydia notification rate in Aboriginal and Torres Strait Islander men in 2017 was five 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 4.1.4). The chlamydia notification rate in Aboriginal and Torres Strait Islander women aged 15–19 and 20–29 in 2017 was four times and nearly three times as high, respectively, as in the non-Indigenous population (Figure 4.1.4). Notification rates were highest in Aboriginal and Torres Strait Islander females, particularly in the 15–19 age group (7450 per 100 000 population in 2017), which may reflect greater healthcare attendance and testing.

Figure 4.1.4 Chlamydia notification rate per 100 000 population, 2017, by Indigenous status, sex and age group

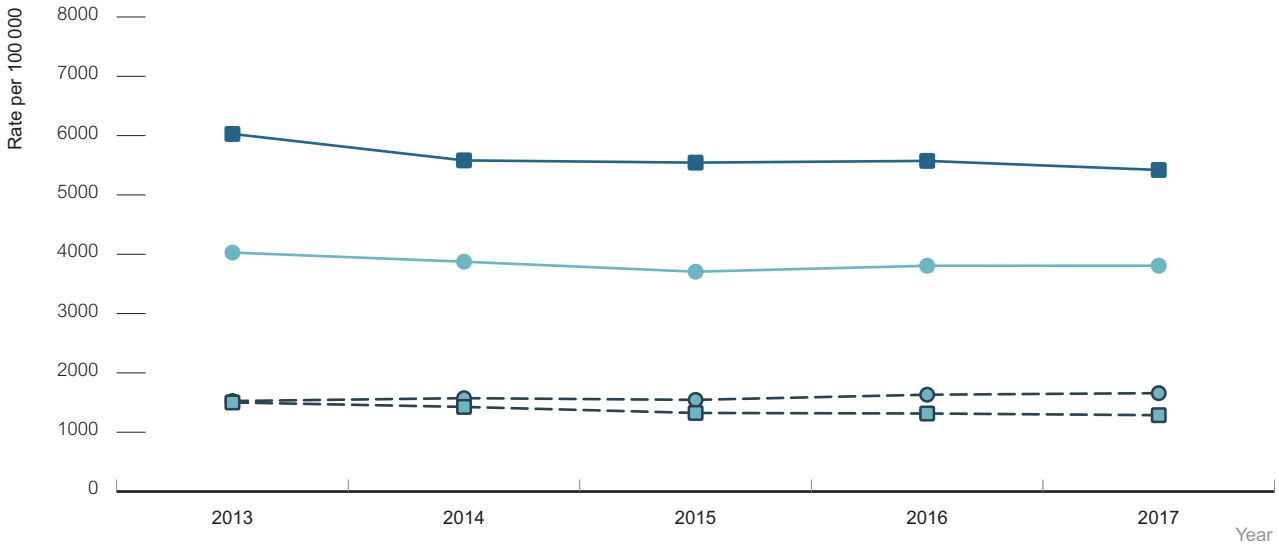



| | Aboriginal and Torres Strait Islander | | | | | | | Non-Indigenous | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
| Males | 44.7 | 3438.8 | 2712.1 | 1148.5 | 437.5 | 165.1 | 29.7 | 1.0 | 649.2 | 1469.0 | 531.5 | 209.3 | 118.4 | 27.3 |
| Females | 262.3 | 7450.0 | 4956.9 | 1371.7 | 374.1 | 136.8 | 25.2 | 10.1 | 1958.8 | 1851.6 | 394.6 | 113.2 | 29.8 | 3.8 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Northern Territory, Queensland, South Australia and Western Australia) for each of the five years 2013–2017.

After a slight drop in 2014, the chlamydia notification rate in the Aboriginal and Torres Strait Islander population in the age groups 15–19 and 20–29 years have remained stable between 2014 and 2017. (Figure 4.1.5). The rates in the equivalent non-Indigenous population have also remained stable throughout the same time-period.

Figure 4.1.5 Chlamydia notification rate per 100 000 population in Aboriginal and Torres Strait Islander people, 2013–2017, by selected age groups and sex



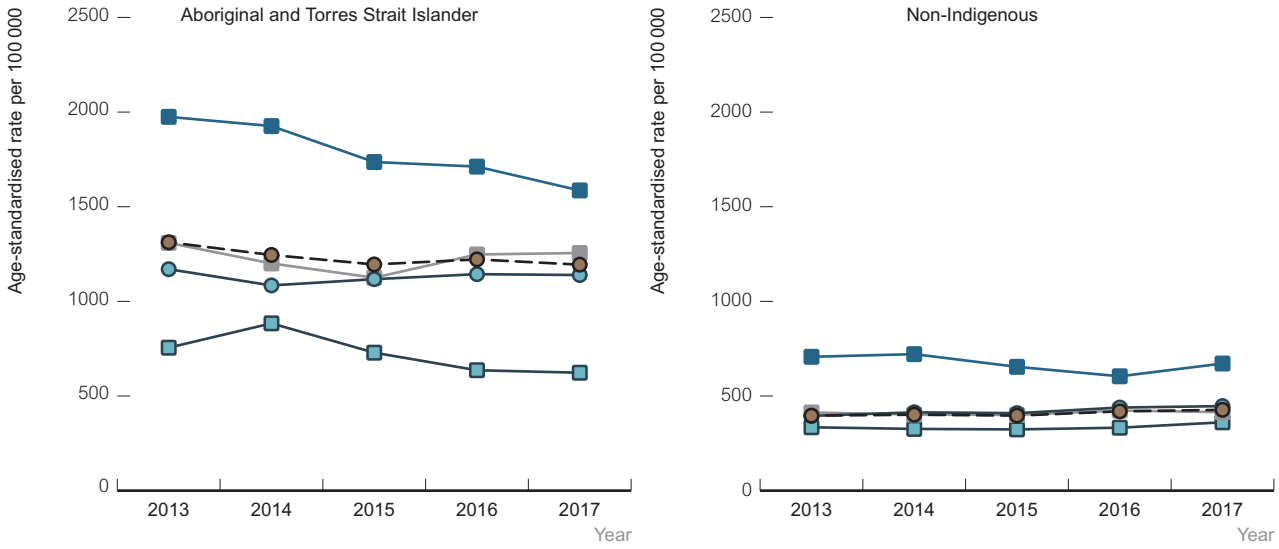

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander people aged 15-19 | 6028.2 | 5582.3 | 5544.7 | 5573.7 | 5421.1 |
| Aboriginal and Torres Strait Islander people aged 20-29 | 4028.3 | 3874.4 | 3705.8 | 3806.1 | 3806.9 |
| Non-Indigenous people aged 15-19 | 1501.3 | 1426.5 | 1324.6 | 1315.4 | 1287.0 |
| Non-Indigenous people aged 20-29 | 1525.4 | 1573.9 | 1545.2 | 1632.3 | 1658.3 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Northern Territory, Queensland, South Australia and Western Australia) for each of the five years 2013–2017.

STIs

Although rates have been declining in the Northern Territory, the chlamydia notification rates for 2013–2017 (1974.9 in 2013 to 1586.1 in 2017) in the Aboriginal and Torres Strait Islander population have remained consistently higher in this jurisdiction than other jurisdictions (Figure 4.1.6). The rates in the other jurisdictions have remained relatively stable although South Australia has seen a 17.5% decline in its Aboriginal and Torres Strait Islander chlamydia rates since 2013 (755.3 per 100 00 to 623.0 per 100 000).

**Figure 4.1.6** Chlamydia notification rate per 100 000 population, 2013–2017, by Indigenous status, state/territory and year

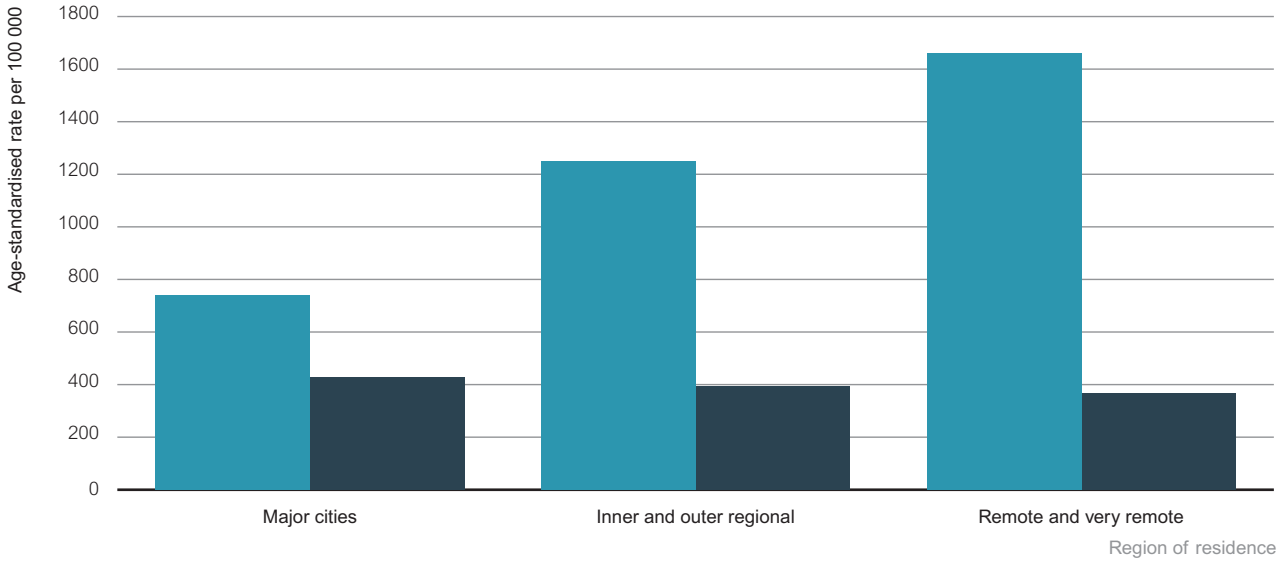



| | Aboriginal and Torres Strait Islander | | | | | Non-Indigenous | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Australia | 1312.2 | 1245.1 | 1195.1 | 1221.7 | 1193.9 | 396.1 | 401.3 | 396.5 | 418.9 | 427.0 |
| WA | 1308.9 | 1200.4 | 1125.1 | 1247.8 | 1255.6 | 413.0 | 402.3 | 400.1 | 423.3 | 414.6 |
| NT | 1974.9 | 1926.1 | 1736.2 | 1712.0 | 1586.1 | 707.1 | 721.3 | 654.2 | 604.2 | 671.6 |
| QLD | 1170.0 | 1084.2 | 1117.3 | 1143.7 | 1139.2 | 395.1 | 413.8 | 409.5 | 439.0 | 446.7 |
| SA | 755.3 | 883.9 | 729.0 | 636.2 | 623.0 | 334.8 | 326.2 | 323.6 | 332.6 | 361.1 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Northern Territory, Queensland, South Australia and Western Australia) for each of the five years 2013–2017.

In 2017, 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 and outer regional centres, and five times as high in remote and very remote areas (Figure 4.1.7).

Figure 4.1.7 Chlamydia notification rate per 100 000 population, 2017, by Indigenous status and area of residence



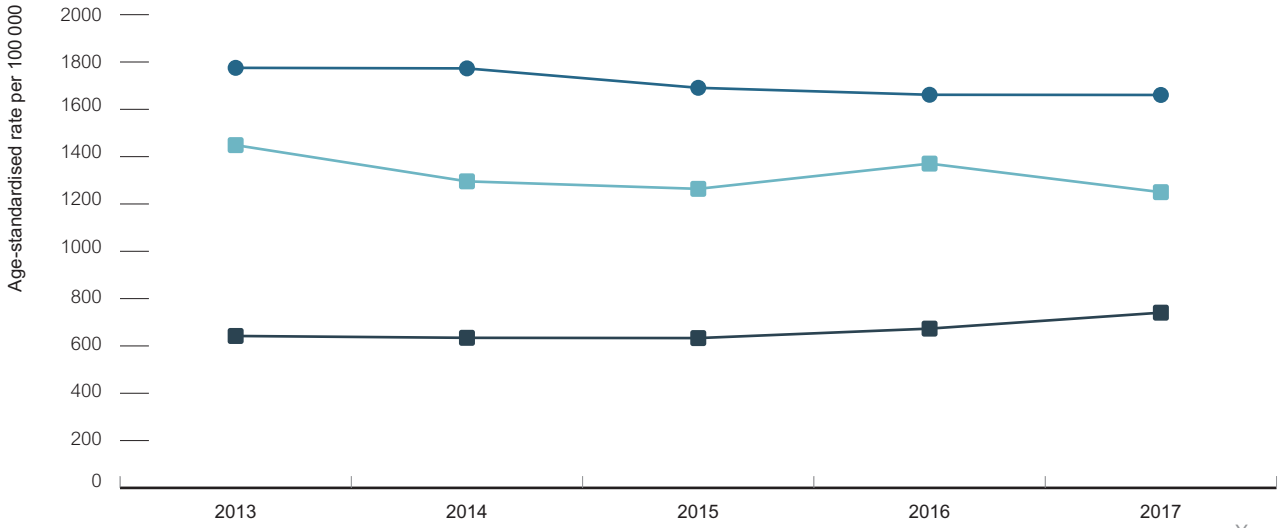

| | Major cities | Inner and outer regional | Remote and very remote |
|---|---|---|---|
| Aboriginal and Torres Strait Islander | 740.6 | 1249.9 | 1660.7 |
| Non-Indigenous | 427.4 | 394.3 | 366.6 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Northern Territory, Queensland, South Australia and Western Australia) for each of the five years 2013–2017.

STIs

Between 2013 and 2017, chlamydia notification rates in Aboriginal and Torres Strait Islander people living in inner and outer regional areas decreased by 14% from 1448.7 to 1249.9 per 100 000 people. Rates in major cities increased 15%, with a 10% increase since last year (673.2 per 100 000 in 2016 to 740.6 per 100 000 in 2017)(Figure 4.1.8).

Figure 4.1.8 Chlamydia notification rate in the Aboriginal and Torres Strait Islander population per 100 000 population, 2013–2017, by area of residence




| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Major cities | 642.1 | 634.3 | 633.2 | 673.2 | 740.6 |
| Inner and outer regional | 1448.7 | 1295.6 | 1263.9 | 1370.6 | 1249.9 |
| Remote and very remote areas | 1775.3 | 1773.0 | 1690.9 | 1661.5 | 1660.7 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Northern Territory, Queensland, South Australia and Western Australia) for each of the five years 2013–2017.

# 4.2 Gonorrhoea

There were 28 364 gonorrhoea notifications in Australia in 2017, an increase of 16% from 23 875 notifications in 2016. Of these, 4119 (15%) were among Aboriginal and Torres Strait Islander people, 15 284 (54%) were in the non-Indigenous population, and 8961 (32%) were in people whose Indigenous status was not reported.

Table 4.2.1 Gonorrhoea notifications in Aboriginal and Torres Strait Islanders people by characteristic

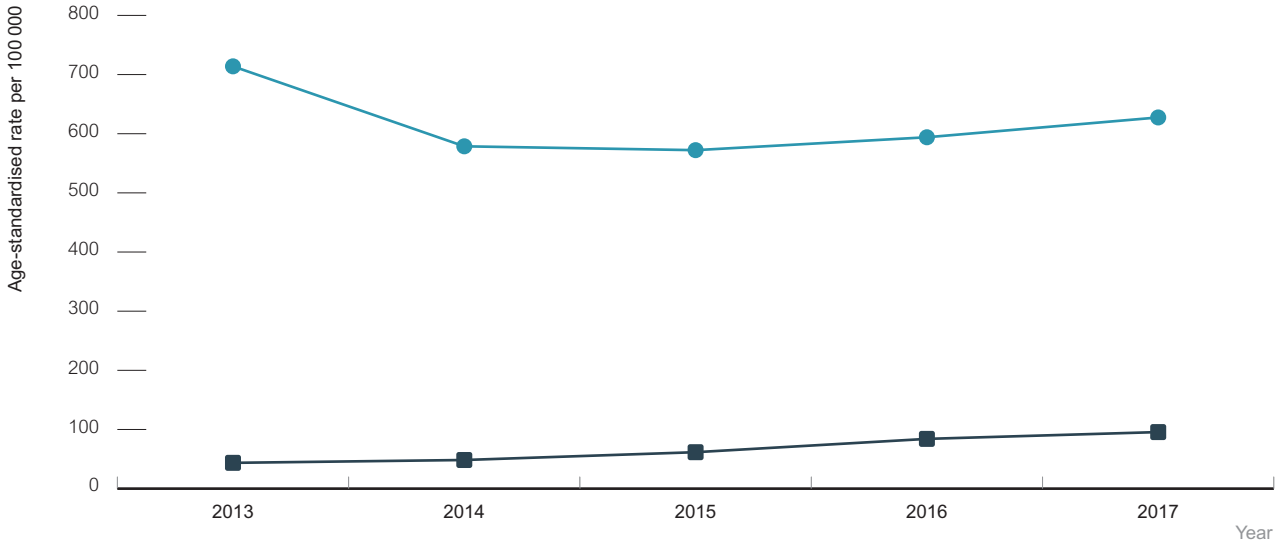
| | Year of gonorrhoea notification | | | | | |
|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2013–2017[a] |
| **Characteristic** | | | | | | |
| Total cases | 4054 | 3396 | 3435 | 3646 | 3936 | 18 467 |
| Sex | | | | | | |
| Male | 1879 | 1544 | 1551 | 1675 | 1800 | 8 449 |
| Female | 2175 | 1852 | 1884 | 1970 | 2135 | 10 016 |
| Median age in years | 22 | 22 | 22 | 22 | 22 | 110 |
| State/Territory | | | | | | |
| Australian Capital Territory | 2 | 1 | 2 | 5 | 11 | 21 |
| Northern Territory | 1729 | 1558 | 1640 | 1585 | 1570 | 8 082 |
| Queensland | 907 | 675 | 766 | 781 | 879 | 4 008 |
| South Australia | 297 | 222 | 186 | 220 | 251 | 1 176 |
| Tasmania | 1 | 1 | 0 | 2 | 4 | 8 |
| Victoria | 20 | 41 | 31 | 51 | 67 | 210 |
| Western Australia | 1098 | 898 | 810 | 1002 | 1153 | 4 961 |

a Table 4.2.1 includes data from jurisdictions with at least 50% reporting of Indigenous status in each of the five years 2013-2017 (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia). Approximately two-thirds (69%) of the Aboriginal and Torres Strait Islander population reside in these jurisdictions, and therefore the data may not be nationally representative.

In the period 2013–2017, Indigenous 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. Incomplete reporting of Indigenous status can result in a misrepresentation of the true extent of the notifications in the Aboriginal and Torres Strait Islander population and may not reflect national trends.

The gonorrhoea notification rate for the Aboriginal and Torres Strait Islander population in 2017 of 627.5 per 100 000 population was seven times that of the non-Indigenous population at 95.6 per 100 000 population. Since 2013, the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population has declined by 12% compared to the notification rate more than doubling in the non-Indigenous population (Figure 4.2.1).

Figure 4.2.1 Gonorrhoea notification rate per 100 000 population, 2013–2017, by Indigenous status

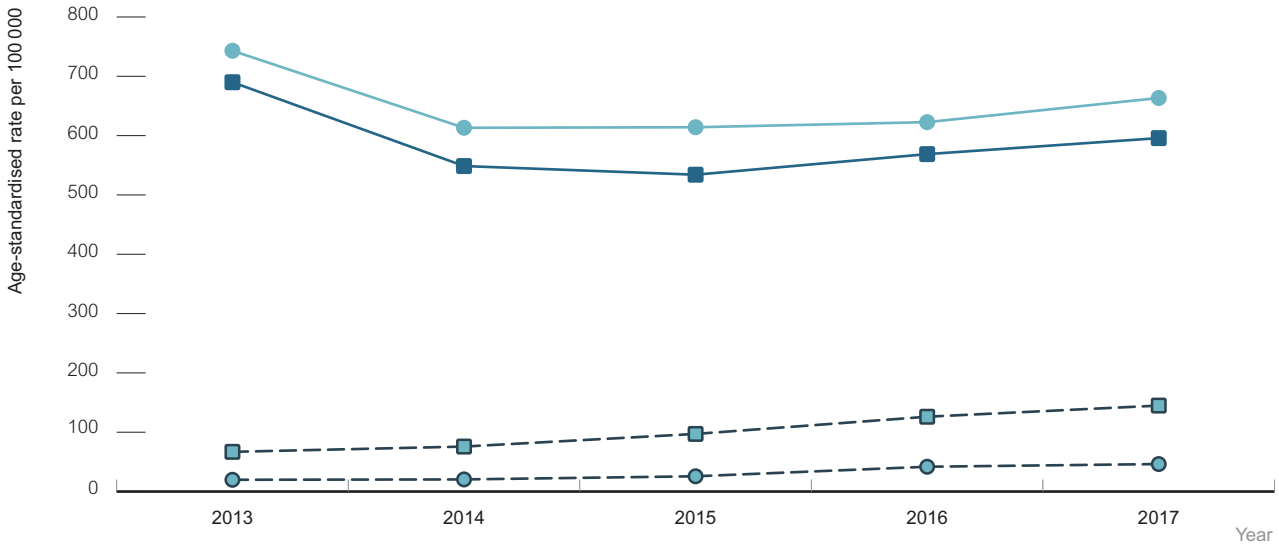



| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Non-Indigenous | 43.6 | 48.4 | 61.6 | 84.1 | 95.6 |
| Aboriginal and Torres Strait Islander | 713.9 | 578.7 | 572.2 | 594.0 | 627.5 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2013–2017.

The gonorrhoea notification rate for Aboriginal and Torres Strait Islander females in 2017 was 14 times that of non-Indigenous females (663.4 vs 46.3 per 100 000) (Figure 4.2.2). The gonorrhoea notification rate for Aboriginal and Torres Strait Islander males in 2017 was four times that of non-Indigenous males (595.8 vs 144.9 per 100 000) (Figure 4.2.2).

Figure 4.2.2 Gonorrhoea notification rate per 100 000 population, 2013–2017, by Indigenous status and sex



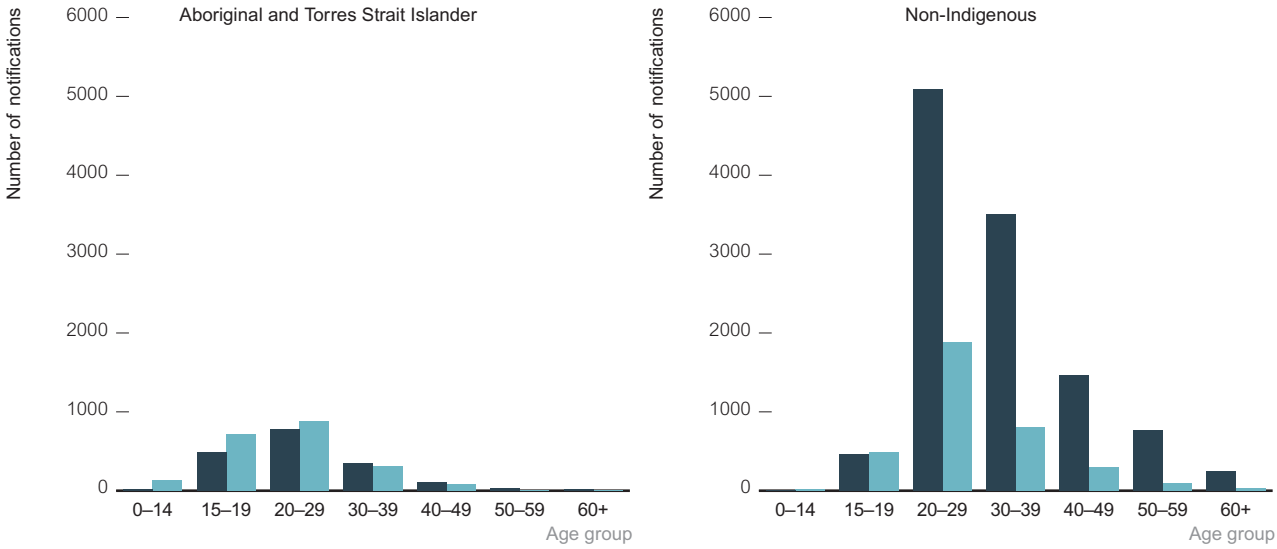

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander male | 690.0 | 548.7 | 534.1 | 568.8 | 595.8 |
| Non-Indigenous male | 66.9 | 75.8 | 97.1 | 126.1 | 144.9 |
| Aboriginal and Torres Strait Islander female | 743.1 | 613.2 | 614.1 | 622.7 | 663.4 |
| Non-Indigenous female | 19.8 | 20.4 | 25.7 | 41.8 | 46.3 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2013–2017.

Differences in age at notification exist between the Aboriginal and Torres Strait Islander population and the non-Indigenous population. In 2017, 31% of gonorrhoea notifications among Aboriginal and Torres Strait Islander people were in people aged 15–19, compared with 6% in the non-Indigenous population (Figure 4.2.3).

In 2017, among Aboriginal and Torres Strait Islander people, there were 1800 notifications of gonorrhoea in males and 2135 among females, giving a male-to-female ratio of 0.8:1. This suggests that transmission is predominantly through heterosexual contact (Figure 4.2.3). In comparison, in the non-Indigenous population there were 11 548 notifications of gonorrhoea in males and 3626 in females. This male-to-female ratio of 3:1 suggests that transmission occurs predominantly through sex between men (Figure 4.2.3). 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 female (Figure 4.2.4).

Figure 4.2.3 Number of gonorrhoea notifications, 2017, by Indigenous status, sex and age group

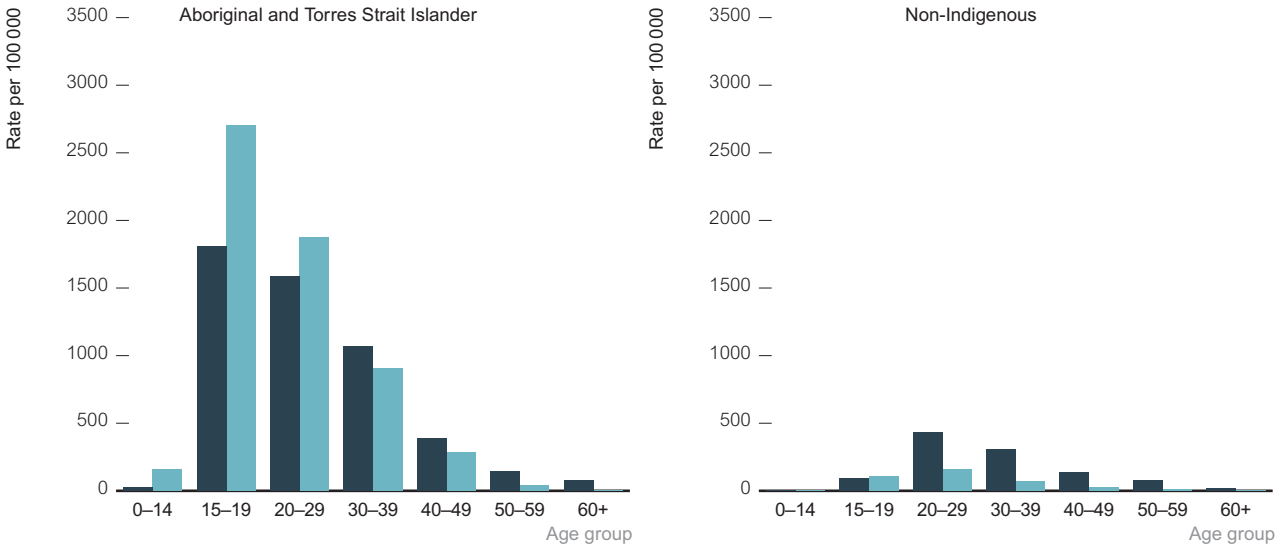



| | 0–14 | 15–19 | 20–29 | 30–39 | 40–49 | 50–59 | 60+ |
|---|---|---|---|---|---|---|---|
| Males | 20 | 493 | 785 | 354 | 106 | 29 | 13 |
| Females | 139 | 713 | 882 | 308 | 83 | 9 | 1 |

| | 0–14 | 15–19 | 20–29 | 30–39 | 40–49 | 50–59 | 60+ |
|---|---|---|---|---|---|---|---|
| Males | 5 | 469 | 5088 | 3509 | 1467 | 768 | 242 |
| Females | 23 | 493 | 1883 | 810 | 294 | 97 | 26 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2013–2017.

Figure 4.2.4 Gonorrhoea notification rate per 100 000 population, 2017, by Indigenous status, sex and age group



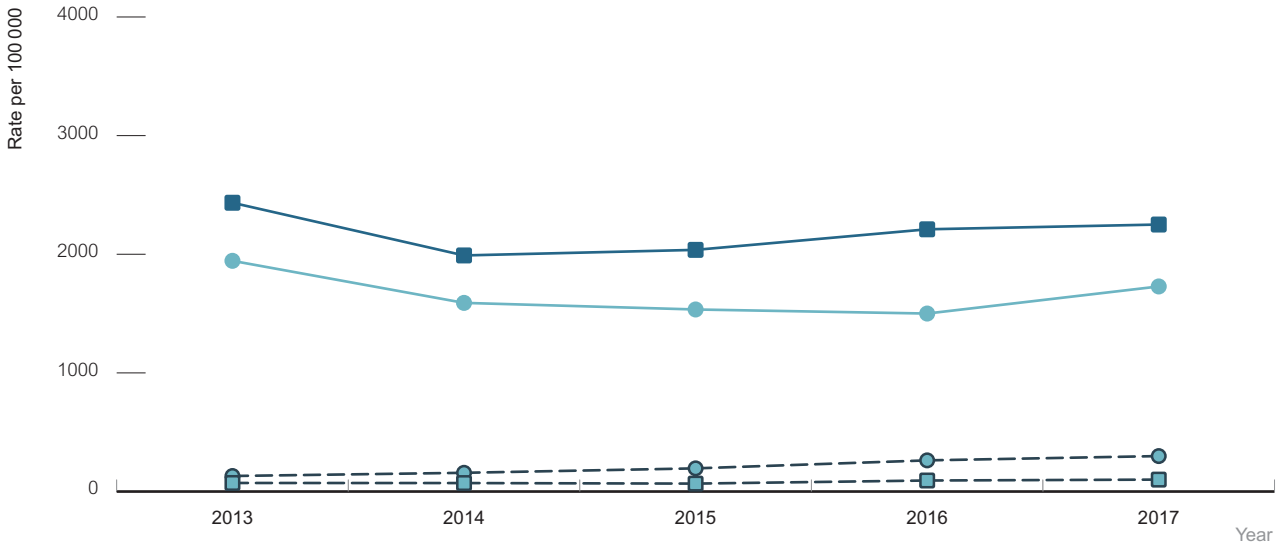

| | Aboriginal and Torres Strait Islander | | | | | | | Non-Indigenous | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0–14 | 15–19 | 20–29 | 30–39 | 40–49 | 50–59 | 60+ | 0–14 | 15–19 | 20–29 | 30–39 | 40–49 | 50–59 | 60+ |
| Males | 22.4 | 1809.8 | 1589.4 | 1067.1 | 388.7 | 140.8 | 78.1 | 0.3 | 95.3 | 430.5 | 305.8 | 136.8 | 77.1 | 15.0 |
| Females | 162.6 | 2706.2 | 1874.8 | 908.7 | 287.0 | 41.0 | 5.2 | 1.6 | 105.3 | 162.7 | 69.7 | 26.8 | 9.4 | 1.5 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2013–2017.

STIs

Since 2013, the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population has remained relatively stable in both the 15 to 19 and 20 to 29 year age-groups. (Figure 4.2.5). By contrast, there has been increases of 39% and 128% respectively in the same age groups in the non-Indigenous population (Figure 4.2.5)

Figure 4.2.5 Gonorrhoea notification rate per 100 000 population, 2013–2017, by Indigenous status and selected age group

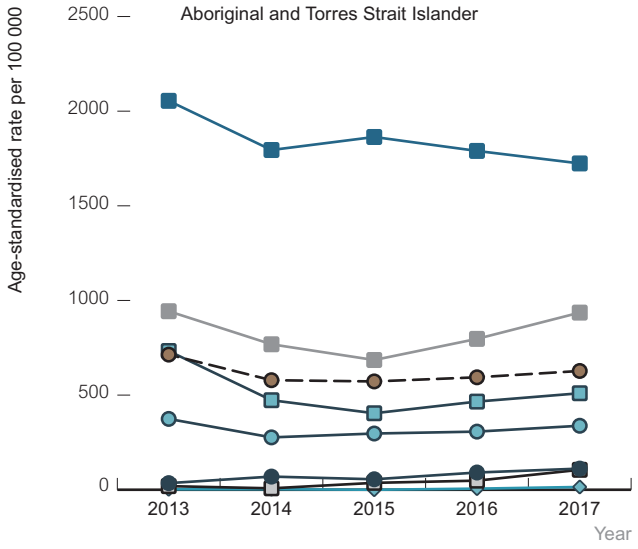


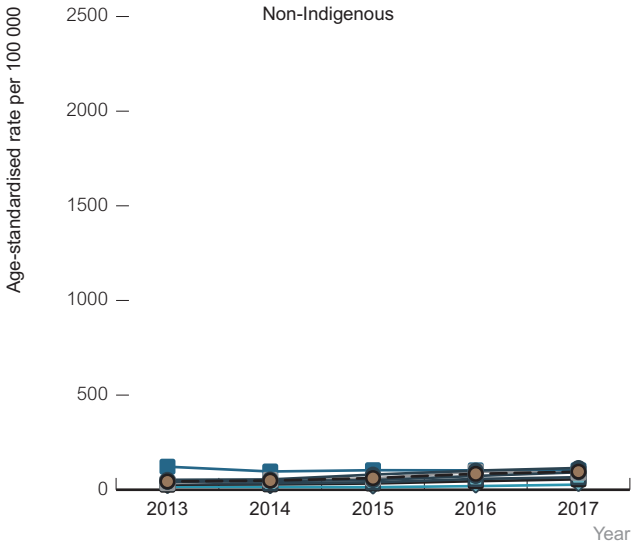

| | | | | | |
|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander people aged 15-19 | 2434.1 | 1990.0 | 2036.9 | 2210.3 | 2250.5 |
| Aboriginal and Torres Strait Islander people aged 20-29 | 1944.6 | 1590.1 | 1534.5 | 1500.2 | 1728.6 |
| Non-Indigenous people aged 15-19 | 72.1 | 71.4 | 66.8 | 92.9 | 100.5 |
| Non-Indigenous people aged 20-29 | 130.9 | 157.8 | 195.2 | 262.6 | 298.8 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2013–2017.

From 2013 to 2017, 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 4.2.6). For 2017, notification rates were higher in the Aboriginal and Torres Strait Islander population than the non-Indigenous population in the Northern Territory, Queensland, South Australia and Western Australia (Figure 4.2.6). Rates of gonorrhoea notification in the Aboriginal and Torres Strait Islander population declined between 2013 and 2017 by 16% in the Northern Territory (from 2054.6 to 1723.9 per 100 000), 9.7% in Queensland (from 374.2 to 338 per 100 000), 30% in South Australia (from 733 to 509.8 per 100 000)and remained relatively stable in Western Australia (from 943.2 to 935.8 per 100 000). Rates increased by 451% in the Australian Capital Territory (from 19.1 per 100 000 in 2013 to 105.3 per 100 000 in 2017) and by 220% in Victoria over the same period (from 34.9 per 100 000 in 2013 to 111.6 per 100 000 in 2017) (Figure 4.2.6)

**Figure 4.2.6** Gonorrhoea notification rate per 100 000 population, 2013–2017, by Indigenous status and state/territory



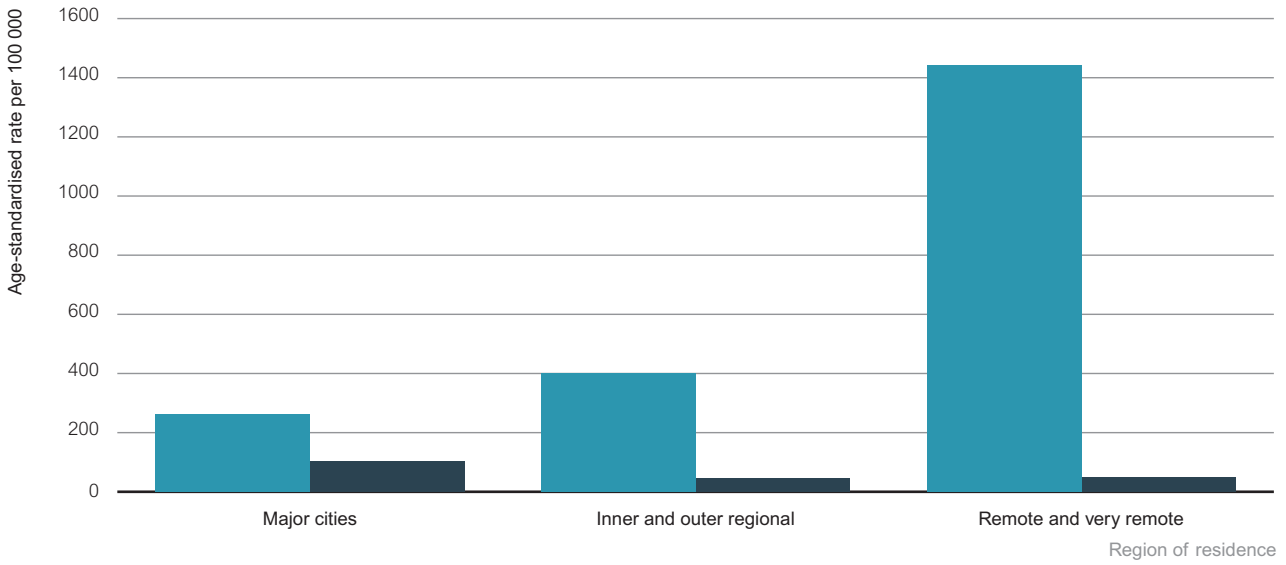




| | Aboriginal and Torres Strait Islander | | | | | Non-Indigenous | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Australia | 713.9 | 578.7 | 572.2 | 594.0 | 627.5 | 43.6 | 48.4 | 61.6 | 84.1 | 95.6 |
| ACT | 19.1 | 7.5 | 36.4 | 48.0 | 105.3 | 26.7 | 28.5 | 33.0 | 45.3 | 55.0 |
| NT | 2054.6 | 1794.8 | 1863.6 | 1790.0 | 1723.9 | 121.8 | 96.4 | 103.2 | 102.4 | 102.6 |
| QLD | 374.2 | 276.6 | 297.0 | 307.1 | 338.0 | 41.5 | 46.5 | 51.0 | 72.8 | 92.3 |
| SA | 733.0 | 473.0 | 404.1 | 465.7 | 509.8 | 33.3 | 33.4 | 39.2 | 57.2 | 66.2 |
| TAS | 2.5 | 2.8 | 0.0 | 5.8 | 14.6 | 16.0 | 15.4 | 13.6 | 19.1 | 27.0 |
| VIC | 34.9 | 69.5 | 55.3 | 91.0 | 111.6 | 52.4 | 54.5 | 80.0 | 101.1 | 114.9 |
| WA | 943.2 | 768.5 | 685.4 | 797.0 | 935.8 | 34.9 | 52.0 | 59.9 | 95.8 | 89.8 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2013–2017.

In 2017, in the Aboriginal and Torres Strait Islander population resident in major cities, the notification rate of gonorrhoea was nearly three times greater than in the non-Indigenous population, almost nine times as high in inner and outer regional areas and 30 times as high in remote and very remote areas (Figure 4.2.7). In the five-year period 2013–2017 there were declines in the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population in inner and outer regional areas, and remote and very remote areas, with rates in major city areas fluctuating (Figure 4.2.8).

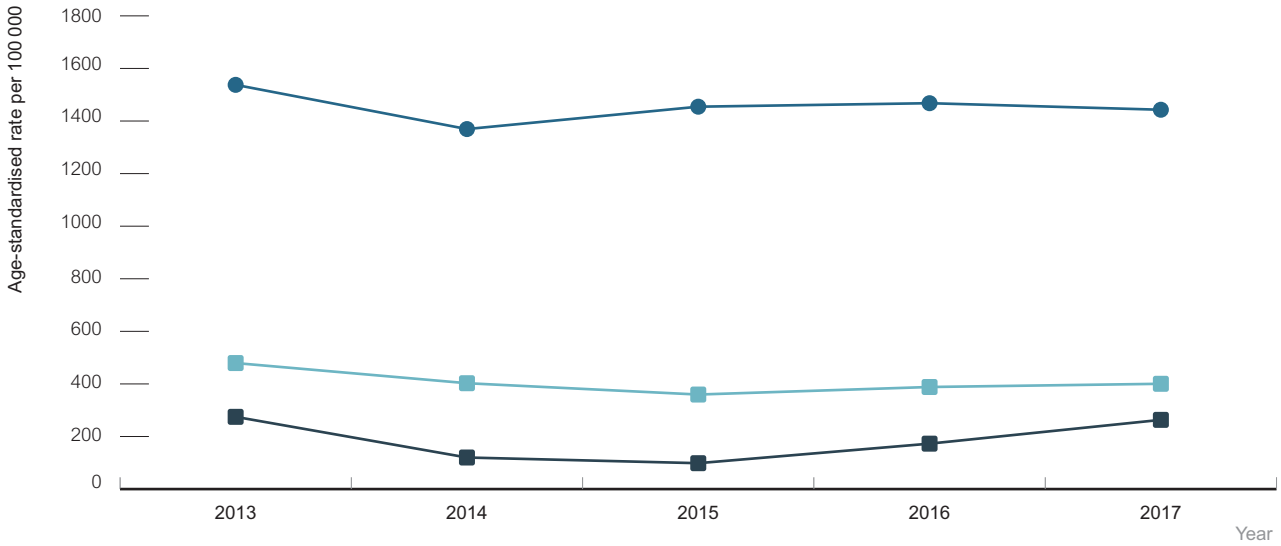
Figure 4.2.7 Gonorrhoea notification rate per 100 000 population, 2017, by Indigenous status and area of residence




| | Major cities | Inner and outer regional | Remote and very remote |
|---|---|---|---|
| Aboriginal and Torres Strait Islander | 263.3 | 400.5 | 1442.9 |
| Non-Indigenous | 102.2 | 45.7 | 49.0 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2013–2017.

Figure 4.2.8 Gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population per 100 000 population, 2013–2017, by area of residence




| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Major cities | 274.8 | 120.1 | 98.5 | 172.8 | 263.3 |
| Inner and outer regional | 479.4 | 402.7 | 359.6 | 388.3 | 400.5 |
| Remote and very remote | 1537.6 | 1369.4 | 1454.5 | 1467.8 | 1442.9 |

Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Indigenous status completeness ≥50% (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of the five years 2013–2017.

# 4.3 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 [17]. 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, 2016 and 2017.

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 Indigenous status in every year of the last 10 years (completeness 80%) For this reason, infectious syphilis data are presented for 10 years.

There were 4398 infectious syphilis notifications nationally in 2017, an increase of 30% from 3381 notifications in 2016. In 2017, 779 (18%) notifications were among the Aboriginal and Torres Strait Islander population, an increase of over 400% since 2013 (Table 4.3.1). 3314 (75%) of all infectious syphilis notifications were among the non-Indigenous population and 305 (7%) were among people whose Indigenous status was not reported.

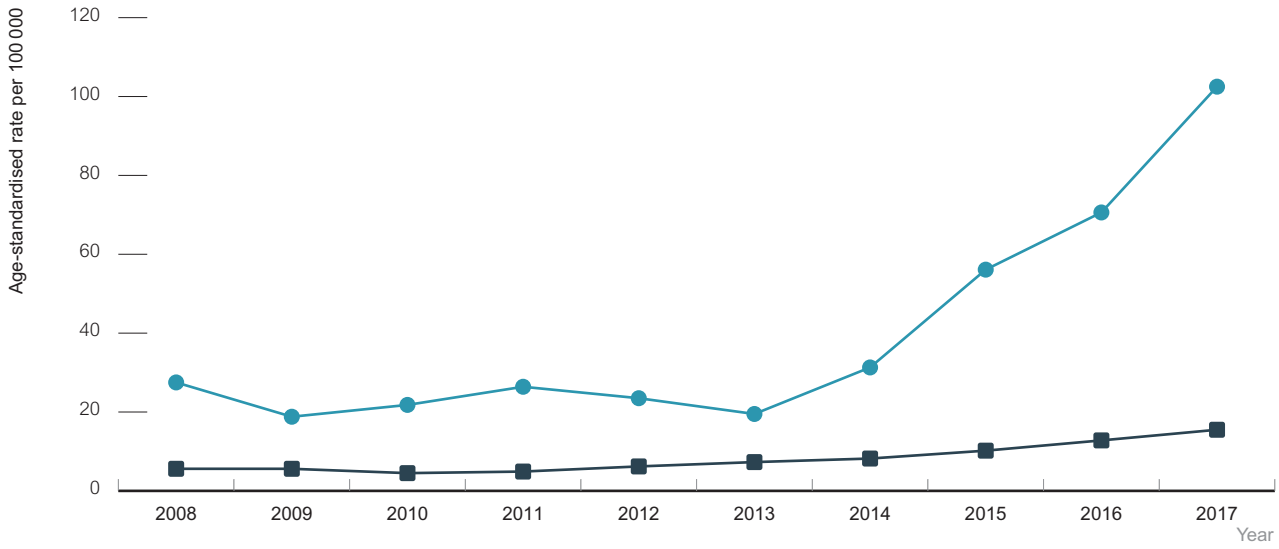
Table 4.3.1 Infectious syphilis notifications by characteristic

| | Year of infectious syphilis notification | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2008–2017[a] |
| Characteristic | | | | | | | | | | | |
| Total cases | 182 | 116 | 143 | 197 | 175 | 152 | 246 | 443 | 532 | 779 | 2965 |
| Sex | | | | | | | | | | | |
| Male | 97 | 71 | 84 | 97 | 92 | 80 | 131 | 249 | 288 | 392 | 1581 |
| Female | 85 | 45 | 58 | 100 | 83 | 72 | 115 | 194 | 244 | 386 | 1382 |
| Median age in years | 24 | 29 | 28 | 22 | 23 | 23 | 23 | 23 | 26 | 27 | 25 |
| State/Territory | | | | | | | | | | | |
| Australian Capital Territory | 0 | 1 | 0 | 0 | 1 | 0 | 3 | 1 | 0 | 1 | 7 |
| New South Wales | 7 | 13 | 12 | 6 | 9 | 17 | 28 | 17 | 20 | 34 | 163 |
| Northern Territory | 66 | 37 | 40 | 28 | 13 | 12 | 59 | 184 | 205 | 270 | 914 |
| Queensland | 23 | 29 | 68 | 121 | 120 | 102 | 132 | 168 | 217 | 350 | 1330 |
| South Australia | 5 | 2 | 3 | 7 | 11 | 6 | 3 | 11 | 12 | 28 | 88 |
| Tasmania | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| Victoria | 4 | 1 | 1 | 5 | 8 | 6 | 8 | 16 | 26 | 24 | 99 |
| Western Australia | 77 | 33 | 19 | 29 | 13 | 8 | 13 | 46 | 52 | 72 | 362 |

a Table 4.3.1 includes data from all jurisdictions due to high reporting of Indigenous status in each of the last ten years.

In 2017, the age-standardised infectious syphilis notification rate in the Aboriginal and Torres Strait Islander population was almost seven times that of the non-Indigenous population (102.5 vs 15.5 per 100 000 population) The Aboriginal and Torres Strait Islander notification rate for infectious syphilis has increased more than four-fold since 2013 (Figure 4.3.1).

Figure 4.3.1 Infectious syphilis notification rate per 100 000 population, 2008–2017, by Indigenous status



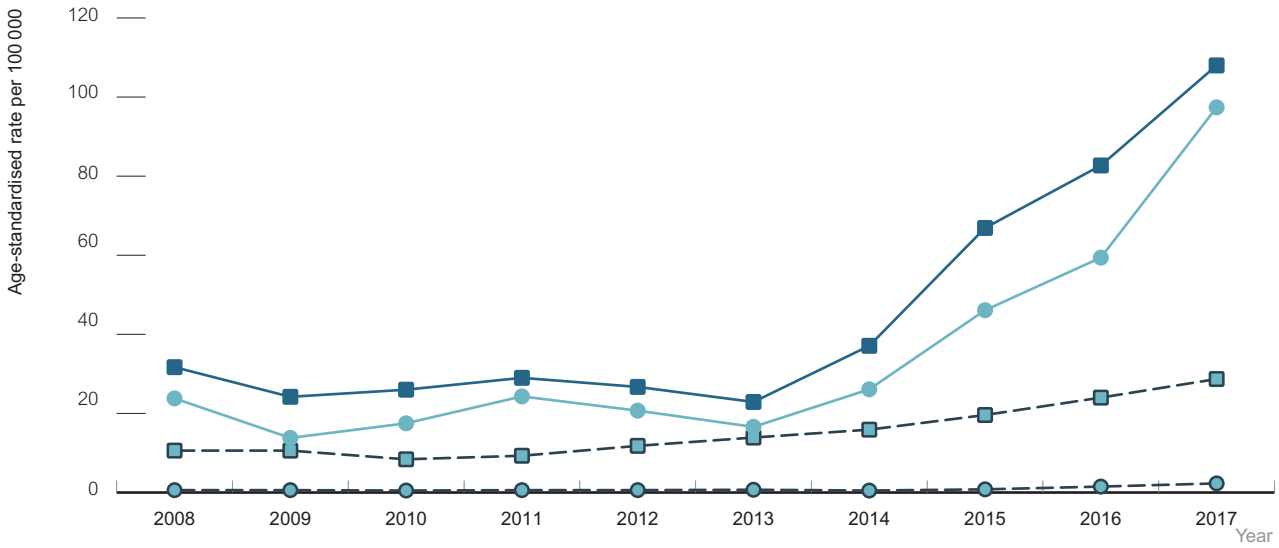

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander | 27.5 | 18.8 | 21.8 | 26.4 | 23.5 | 19.5 | 31.3 | 56.1 | 70.6 | 102.5 |
| Non-Indigenous | 5.6 | 5.6 | 4.5 | 4.9 | 6.2 | 7.3 | 8.2 | 10.2 | 12.8 | 15.5 |

Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Indigenous status was ≥50% in each of the 10 years presented.

STIs

The infectious syphilis rate in 2017 was four times greater in Aboriginal and Torres Strait Islander males (108.0 vs 28.7 per 100 000) and more than 40 times greater in Aboriginal and Torres Strait Islander females (97.4 vs 2.3 per 100 000) as in their non-Indigenous counterparts (Figure 4.3.2).

Figure 4.3.2 Infectious syphilis notification rate per 100 000 population, 2008–2017, by Indigenous status and sex



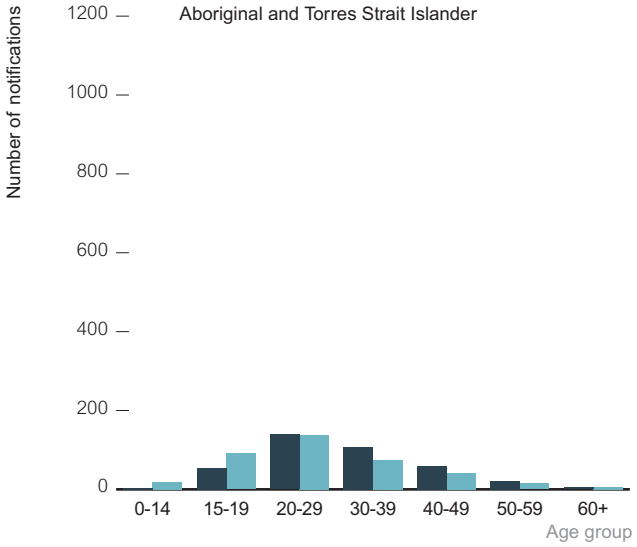

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander Male | 31.7 | 24.2 | 26.0 | 29.0 | 26.7 | 22.9 | 37.1 | 66.9 | 82.7 | 108.0 |
| Non-Indigenous Male | 10.6 | 10.6 | 8.4 | 9.3 | 11.8 | 13.9 | 15.9 | 19.6 | 24.0 | 28.7 |
| Aboriginal and Torres Strait Islander Female | 23.8 | 13.8 | 17.5 | 24.3 | 20.7 | 16.6 | 26.1 | 46.1 | 59.4 | 97.4 |
| Non-Indigenous Female | 0.6 | 0.6 | 0.5 | 0.6 | 0.6 | 0.7 | 0.5 | 0.8 | 1.5 | 2.3 |

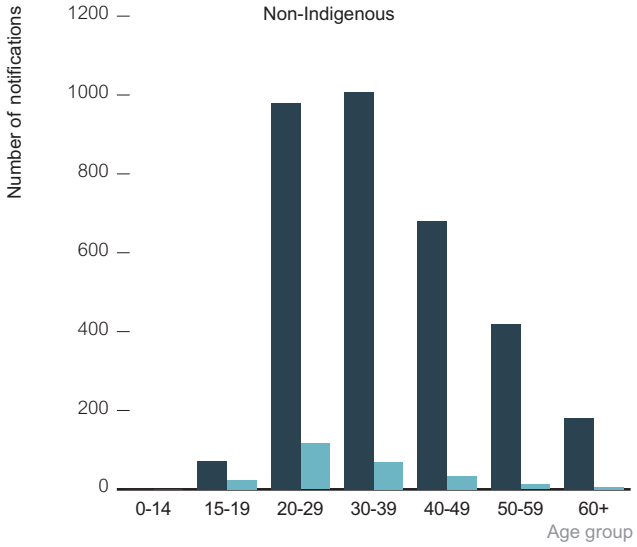
Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Indigenous status was ≥50% in each of the 10 years presented.

In 2017, 50% of notifications of infectious syphilis in the Aboriginal and Torres Strait Islander population were among males, compared with 87% in the non-Indigenous population (Figure 4.3.3). 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 2017, 19% of infectious syphilis notifications among the Aboriginal and Torres Strait Islander population were in people aged 15–19, compared with 3% in the non-Indigenous population (Figure 4.3.3).

Figure 4.3.3 Number of infectious syphilis notifications, 2017, by Indigenous status, sex and age group




| | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
|---|---|---|---|---|---|---|---|
| Males | 4 | 55 | 139 | 108 | 60 | 21 | 5 |
| Females | 19 | 91 | 138 | 75 | 42 | 15 | 6 |

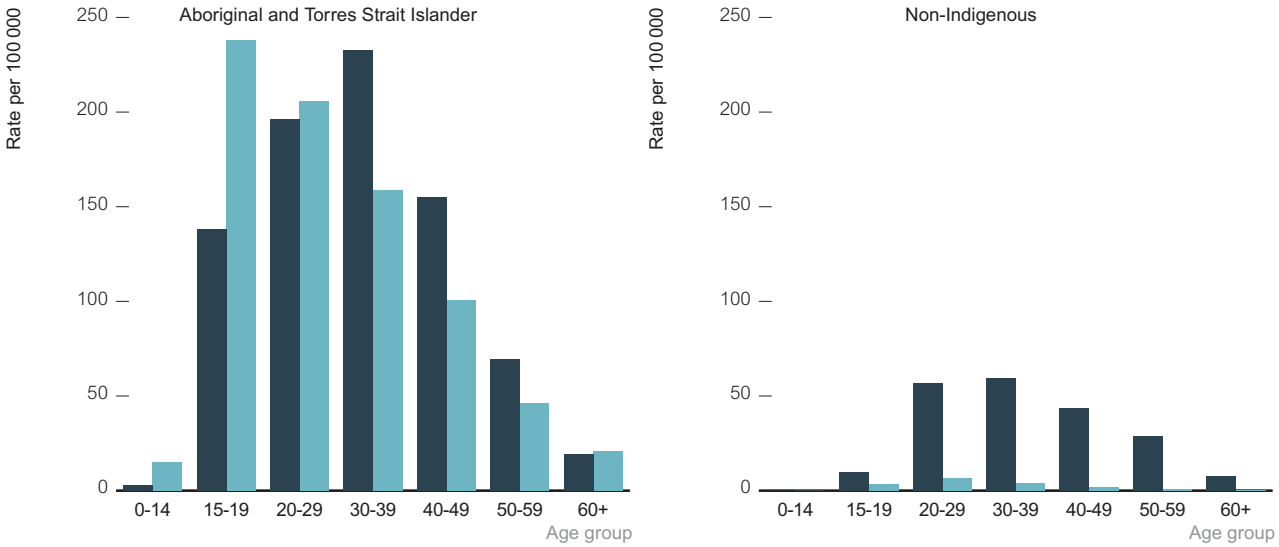
| | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
|---|---|---|---|---|---|---|---|
| Males | 0 | 72 | 980 | 1007 | 680 | 420 | 181 |
| Females | 0 | 24 | 116 | 70 | 33 | 12 | 6 |

Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Indigenous status was ≥50% in each of the 10 years presented.

STIs

In 2017, the infectious syphilis notification rate in males was highest in the 30–39 age group for both Aboriginal and Torres Strait Islander and non-Indigenous males (232.6 and 59.6 per 100 000 respectively). For Aboriginal and Torres Strait Islander females, the infectious syphilis notification rate was highest in the 15–19 age group (238 per 100 000); among non-Indigenous females the rate was highest in the 20–29 age group (6.8 per 100 000) (Figure 4.3.4).

Figure 4.3.4 Infectious syphilis notification rate per 100 000 population, 2017, by Indigenous status and age group

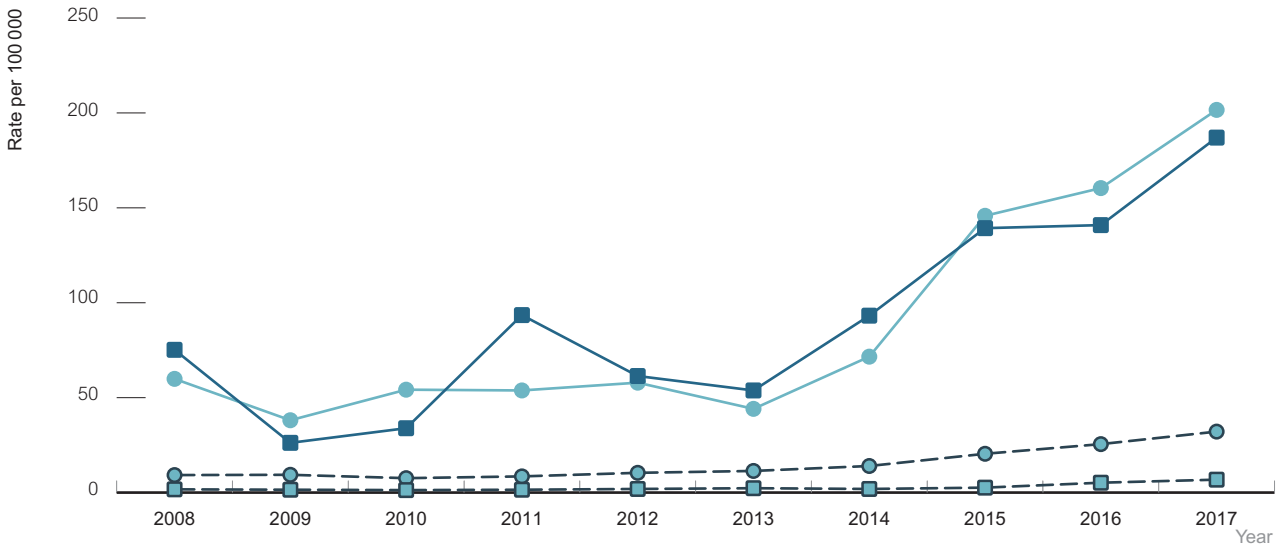



| | Aboriginal and Torres Strait Islander | | | | | | | Non-Indigenous | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ | 0-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
| Males | 3.1 | 138.1 | 196.3 | 232.6 | 155.3 | 69.7 | 19.4 | 0.0 | 10.0 | 56.6 | 59.6 | 43.4 | 28.7 | 7.5 |
| Females | 15.3 | 238.0 | 205.8 | 158.7 | 100.8 | 46.1 | 20.9 | 0.0 | 3.5 | 6.8 | 4.1 | 2.1 | 0.8 | 0.2 |

Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Indigenous status was ≥50% in each of the 10 years presented.

Between 2013 and 2017, notification rates of infectious syphilis have increased sharply in Aboriginal and Torres Strait Islander people aged 15–19 and 20–29 (247% and 357% respectively) (Figure 4.3.5). Infectious syphilis notification rates have almost tripled in the non-Indigenous population aged 15–19 between 2013 and 2017 (from 2.3 to 6.8 per 100 000). Amongst non-Indigenous people aged 20–29, increases have also been observed between from 2014 to 2017, but are less marked than in the Aboriginal and Torres Strait Islander population. In all years, the notification rate was higher in both age groups in the Aboriginal and Torres Strait Islander population than in the non-Indigenous population.

Figure 4.3.5 Infectious syphilis notification rate per 100 000 population in Aboriginal and Torres Strait Islander people, 2008–2017, by select age group




| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander aged 15-19 | 75.2 | 26.2 | 33.9 | 93.5 | 61.4 | 53.8 | 93.2 | 139.3 | 140.9 | 187.0 |
| Aboriginal and Torres Strait Islanderaged 20-29 | 59.9 | 38.1 | 54.2 | 53.8 | 57.9 | 44.1 | 71.6 | 145.8 | 160.4 | 201.6 |
| Non-Indigenous aged 15-19 | 1.7 | 1.5 | 1.3 | 1.5 | 1.9 | 2.3 | 1.9 | 2.6 | 5.2 | 6.8 |
| Non-Indigenous aged 20-29 | 9.22 | 9.36 | 7.59 | 8.52 | 10.40 | 11.39 | 14.00 | 20.43 | 25.52 | 32.12 |

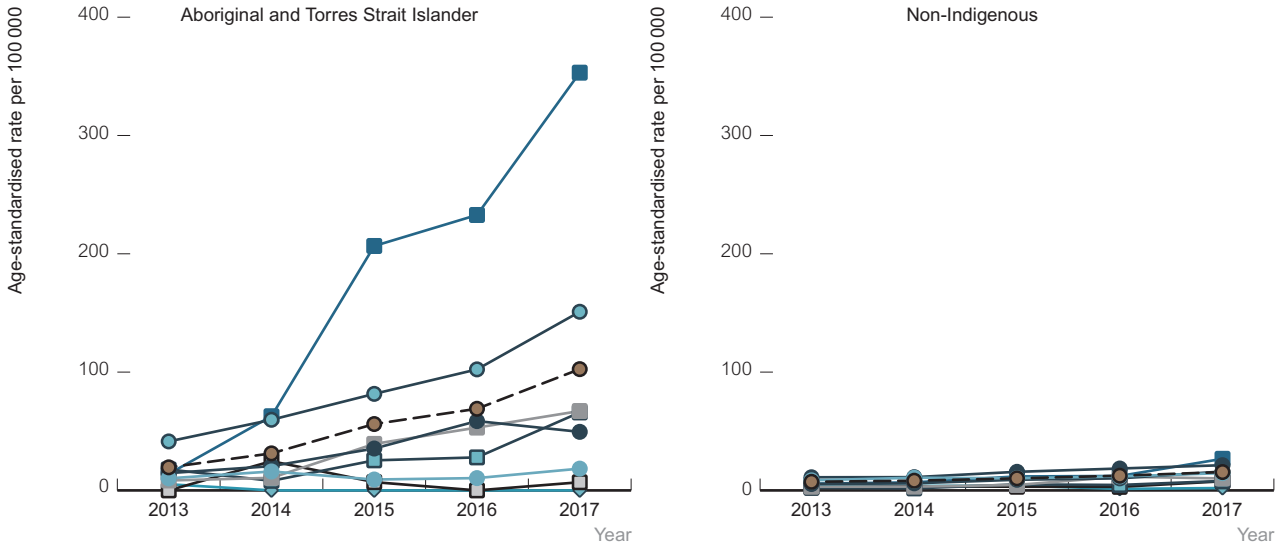
Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Indigenous status was ≥50% in each of the 10 years presented.

STIs

In 2017, the majority of the 779 infectious syphilis notifications in the Aboriginal and Torres Strait Islander population occurred in Queensland (45%), the Northern Territory (35%) and Western Australia (9%) (Table 4.3.1). In contrast the majority of the 3314 infectious syphilis notifications in the non-Indigenous population occurred in Victoria (37%) New South Wales (28%), and Queensland (20%).

Between 2013 and 2017, infectious syphilis notification rates in the Aboriginal and Torres Strait Islander population increased in the Northern Territory, Western Australia, Queensland, Victoria and New South Wales by 2434%, 696%, 264%, 238% and 80% respectively (Figure 4.3.6). Between 2016 and 2017, the infectious syphilis notification rate increased by 136%, 76%, 52% and 48% in South Australia, New South Wales, Northern Territory and Queensland respectively (Figure 4.3.6).

Figure 4.3.6 Infectious syphilis notification rate per 100 000 population, 2013–2017, by Indigenous status and state/territory

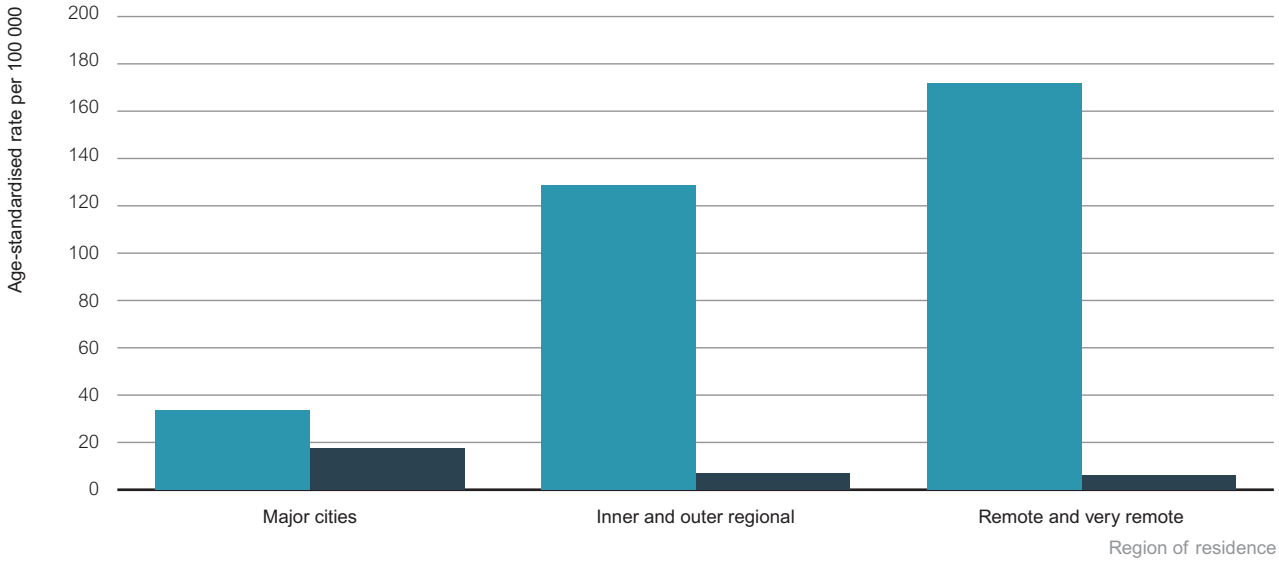



| | Aboriginal and Torres Strait Islander | | | | | Non-Indigenous | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Australia | 19.5 | 31.3 | 56.1 | 69.0 | 102.5 | 7.3 | 8.2 | 10.2 | 12.4 | 15.5 |
| ACT | 0.0 | 24.7 | 7.0 | 0.0 | 6.9 | 2.4 | 3.5 | 3.1 | 3.0 | 7.7 |
| NSW | 10.2 | 16.0 | 9.2 | 10.4 | 18.4 | 8.5 | 10.7 | 10.3 | 11.8 | 14.6 |
| NT | 13.9 | 62.7 | 206.6 | 232.8 | 353.1 | 5.7 | 6.8 | 11.8 | 12.2 | 26.7 |
| QLD | 41.4 | 59.7 | 81.6 | 102.3 | 151.0 | 5.4 | 6.0 | 9.0 | 10.2 | 16.0 |
| SA | 17.7 | 8.1 | 25.4 | 27.9 | 65.9 | 2.2 | 1.7 | 5.1 | 4.6 | 8.0 |
| TAS | 5.2 | 0.0 | 0.0 | 0.0 | 0.0 | 4.6 | 3.8 | 4.0 | 1.3 | 2.0 |
| VIC | 14.6 | 20.5 | 35.4 | 58.6 | 49.5 | 11.1 | 11.2 | 15.7 | 18.5 | 21.3 |
| WA | 8.4 | 10.6 | 39.3 | 53.1 | 67.1 | 3.1 | 3.2 | 4.6 | 11.6 | 10.1 |

Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Indigenous status was ≥50% in each of the 10 years presented.

In 2017, 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 19 times in inner and outer regional areas, and 27 times in remote and very remote areas (Figure 4.3.7).

Figure 4.3.7 Infectious syphilis notification rate per 100 000 population, 2017, by Indigenous status and area of residence

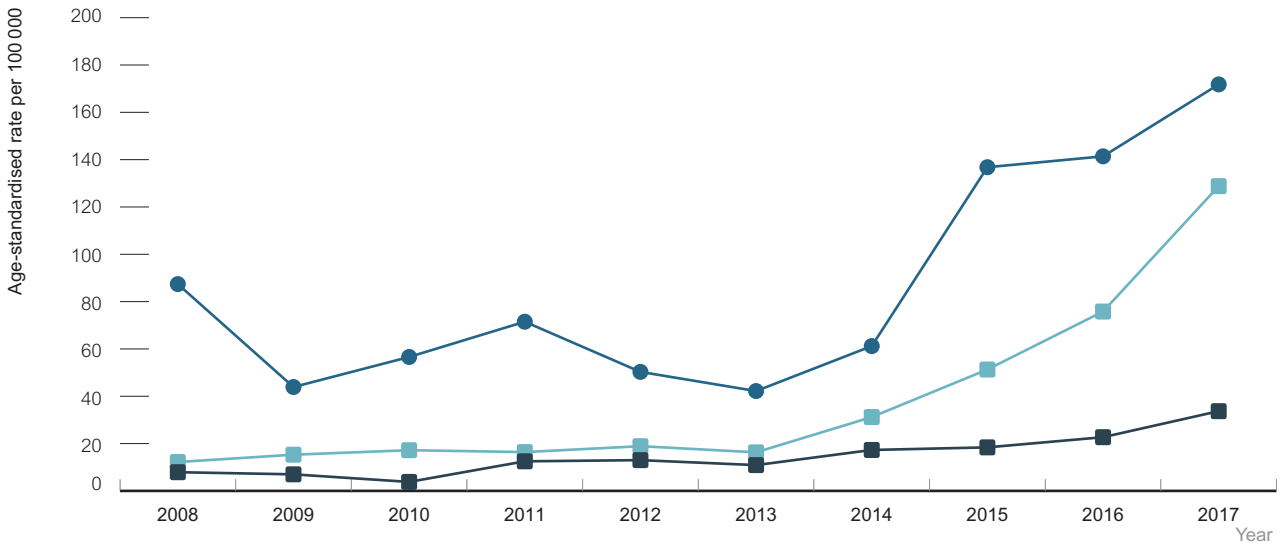



| | Major cities | Inner and outer regional | Remote and very remote |
|---|---|---|---|
| Aboriginal and Torres Strait Islander | 33.7 | 128.8 | 171.8 |
| Non-Indigenous | 17.6 | 6.8 | 6.3 |

Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Indigenous status was ≥50% in each of the 10 years presented.

Infectious syphilis notification rates in Aboriginal and Torres Strait Islander people in all areas of residence were relatively stable between 2008 and 2013 (Figure 4.3.8). Between 2013 and 2017, rates increased by 230% in major cities, 690% in inner and outer regional areas, and 307% in remote and very remote areas (Figure 4.3.8).

Figure 4.3.8 Infectious syphilis notification rate per 100 000 population, 2008–2017, by area of residence



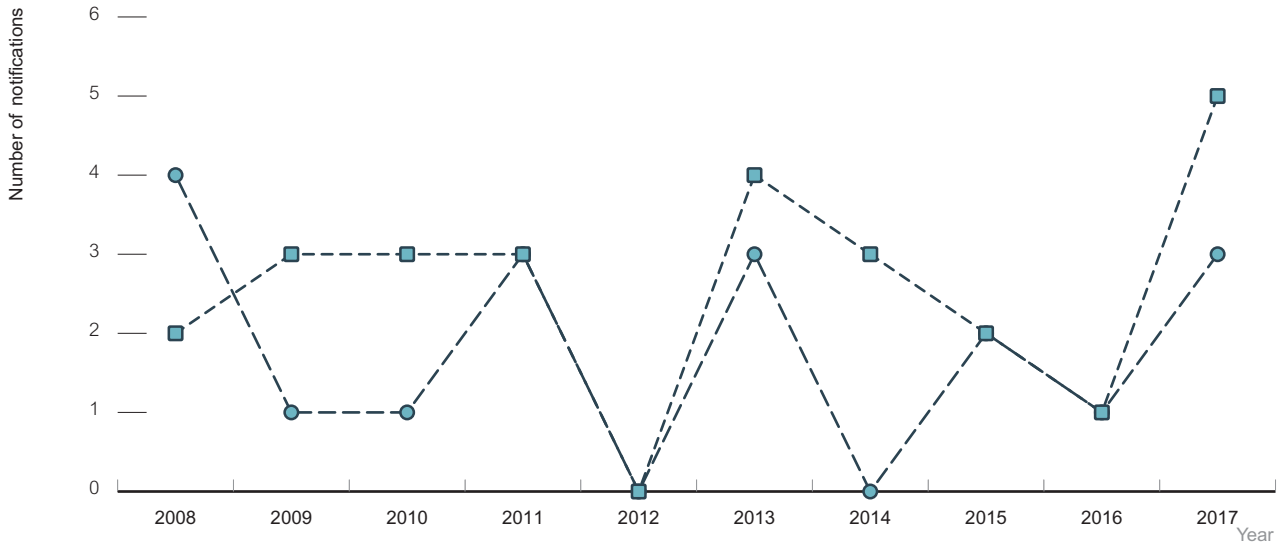

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Major cities | 7.9 | 7.0 | 3.8 | 12.5 | 13.0 | 10.9 | 17.3 | 18.4 | 22.7 | 33.7 |
| Inner and outer regional | 12.2 | 15.3 | 17.2 | 16.4 | 18.9 | 16.3 | 31.2 | 51.3 | 75.8 | 128.8 |
| Remote and very remote | 87.4 | 43.9 | 56.6 | 71.5 | 50.3 | 42.2 | 61.2 | 136.8 | 141.4 | 171.8 |

Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Indigenous 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 (26) of the 44 congenital syphilis notifications were in Aboriginal and Torres Strait Islander infants (Figure 4.3.9). The notification rate of congenital syphilis in the Aboriginal and Torres Strait Islander population was 0.36 per 100 000 live births in 2017 in comparison with 0.01 per 100 000 in the non-Indigenous population (Figure 4.3.10). Note that caution should be taken in interpretation of these rates due to the small number of cases.

Figure 4.3.9 Number of congenital syphilis cases, 2008–2017, by Indigenous status




| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Number of Aboriginal and Torres Strait Islander notifications | 2 | 3 | 3 | 3 | 0 | 4 | 3 | 2 | 1 | 5 |
| Number of non-Indigenous notifications[a] | 4 | 1 | 1 | 3 | 0 | 3 | 0 | 2 | 1 | 3 |

a Includes notifications where Indigenous status was not reported.

Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Indigenous status was ≥50% in each of the 10 years present

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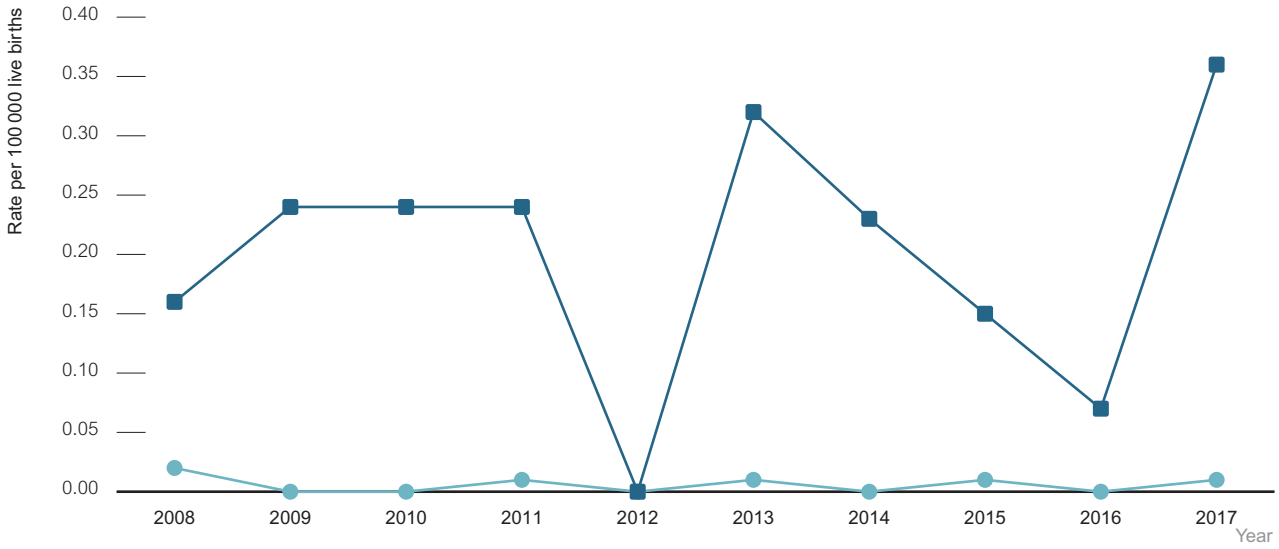
## Figure 4.3.10 Congenital syphilis rate per 100 000 live births, 2008–2017, by Indigenous status




| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Rate per 100 000 Aboriginal and Torres Strait Islander births | 0.16 | 0.24 | 0.24 | 0.24 | 0.00 | 0.32 | 0.23 | 0.15 | 0.07 | 0.36 |
| Rate per 100 000 non-Indigenous births[a] | 0.02 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 |

a Includes notifications where Indigenous status was not reported.

Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Indigenous status was ≥50% in each of the 10 years presented.

## 4.4 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 Indigenous status was reported for at least 50% of notifications in each year over the past five years.

From 2013 to 2017, a total of 3190 cases of chlamydia, 1932 cases of gonorrhoea and 160 cases of infectious syphilis were reported among Aboriginal and Torres Strait Islander people aged under 16 years. In the same period 2287 cases of chlamydia, 245 cases of gonorrhoea and 3 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 (96% for chlamydia, 93% for gonorrhoea and 94% for infectious syphilis) were among people aged 13 to 15 years. A similar pattern of notification occurred among the non-Indigenous young population, where 98% of chlamydia, 81% of gonorrhoea and 100% of infectious syphilis notifications among the under-16s were in people aged 13 to 15 years. The majority of notifications 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. A significant proportion of these notifications are the result of earlier sexual debut and/or sex with same-aged peers and therefore should not be interpreted as being related to child sexual assault.

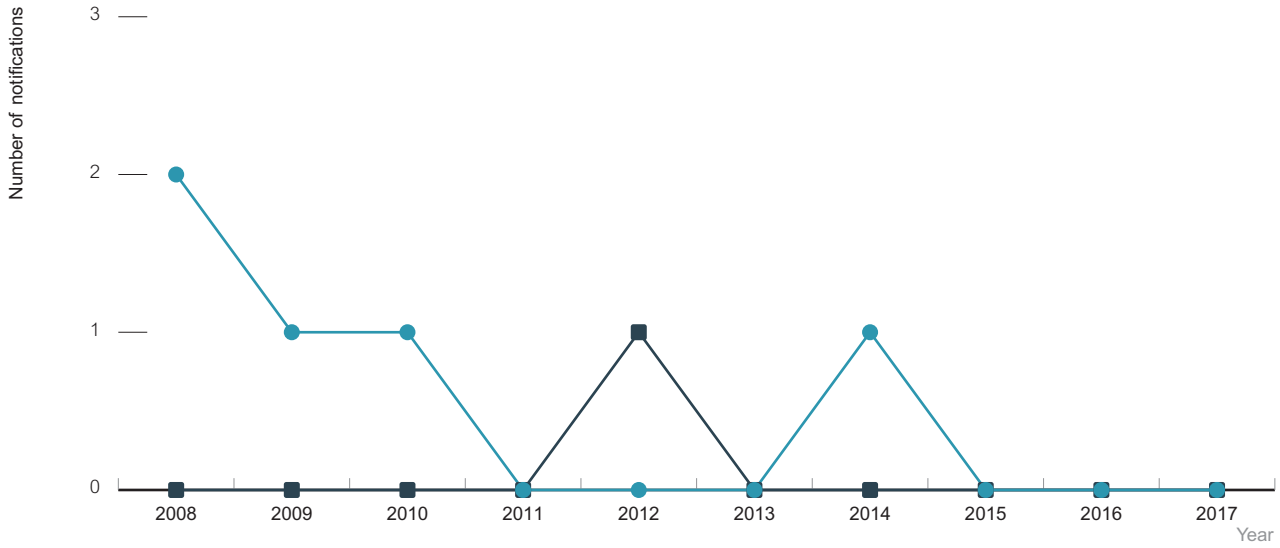
# 4.5 Donovanosis

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 2017 there have been only three notifications of donovanosis nationally, one in 2010, one in 2012 and one in 2014; two of these notifications were in Aboriginal and Torres Strait Islander people.

The decline in the annual number of notifications of donovanosis from two in 2008 to none in 2017 may be attributed to improved case ascertainment and treatment (Figure 4.5.1). 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 4.5.1 Number of notifications of donovanosis infections, 2008–2017, by Indigenous status




| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Aboriginal and Torres Strait Islander | 2 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Non-Indigenous[a] | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

a Includes notifications where Indigenous status was not reported.

Source: Australian National Notifiable Diseases Surveillance System

# 4.6 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 Indigenous status, but will be available in the future.

Following the introduction of vaccination against HPV in 2007, a decline has been seen in the number of diagnoses of genital warts at first visit at sexual health clinics (see the *HIV, viral hepatitis and sexually transmissible infections in Australia: annual surveillance report 2018* [1] for further detail). Information available from 44 sexual health clinics included in the Genital Warts Surveillance Network indicates a considerable reduction in the proportion of both Aboriginal and Torres Strait Islander males and females under 30 notified with genital warts at their first visit since 2007 (Figure 4.6.1 and Figure 4.6.2).

Between 2007 and 2017, Aboriginal and Torres Strait Islander men aged under 21 have shown an 82% reduction in genital warts diagnoses at their first sexual health clinic visit, where women have shown a 100% reduction. For Aboriginal and Torres Strait Islander women aged between 21 and 29 years there has also been a 100% reduction where in men there has been a 62% reduction. The greater reductions in genital warts diagnoses in Aboriginal and Torres Strait Islander women reflect the catch-up campaign in 2007–2009 for women aged up to 26 years.

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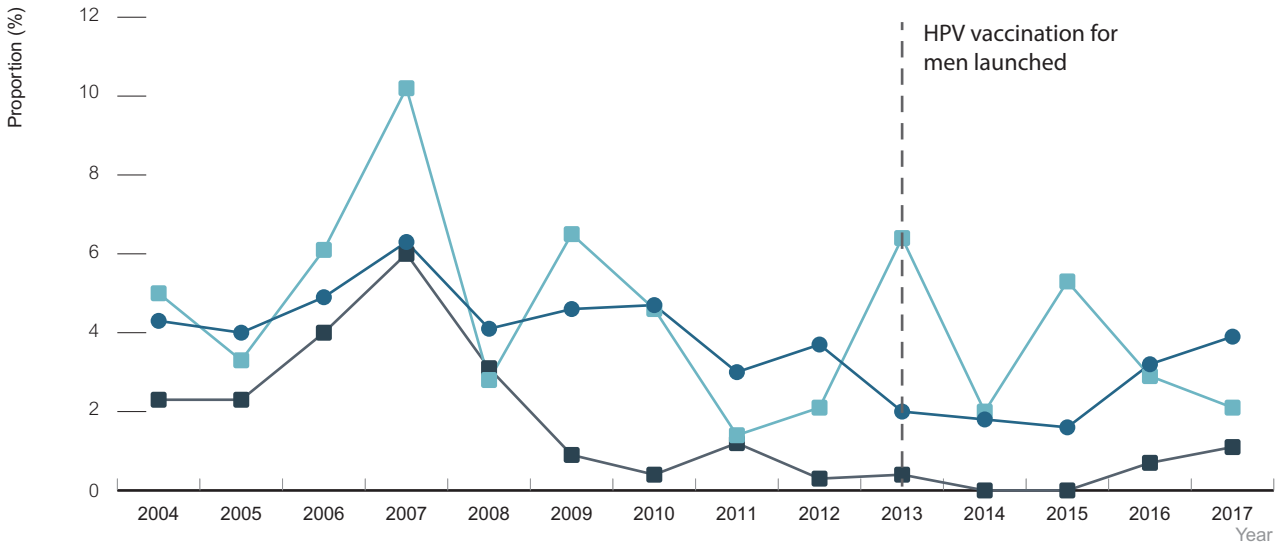
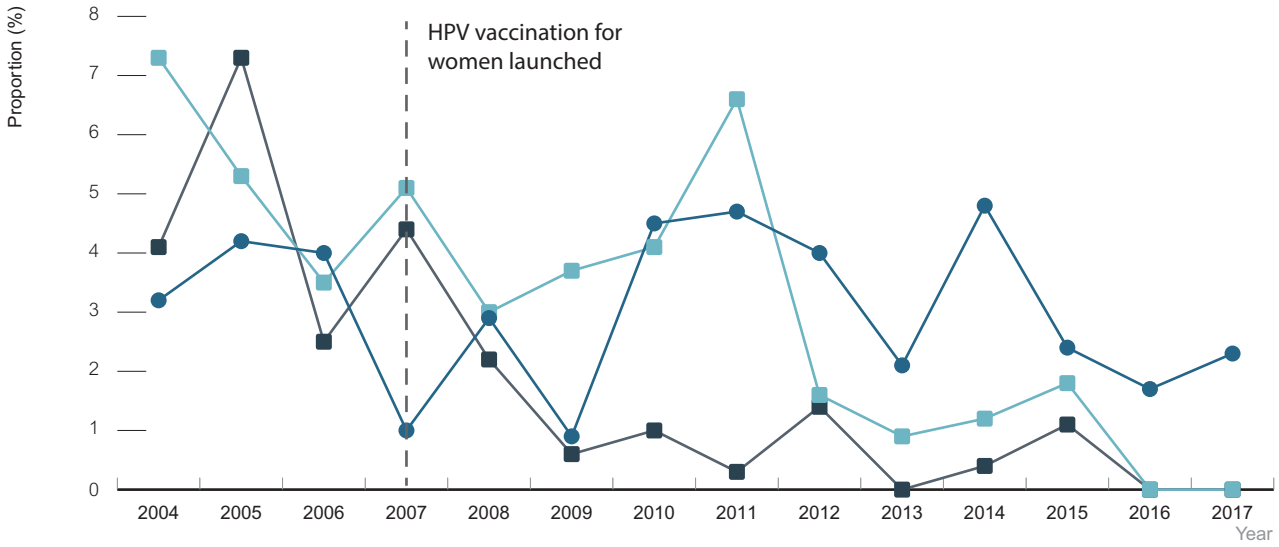
Figure 4.6.1 Proportion of Aboriginal and Torres Strait Islander males notified with genital warts at first visit at sexual health clinics, 2004–2017, by age group




| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| <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 | 1.1 |
| 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 | 2.1 |
| ≥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 | 3.9 |

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

Figure 4.6.2 Proportion of Aboriginal and Torres Strait Islander females notified with genital warts at first visit at sexual health clinics, 2004–2017, by age group




| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| <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 | 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 | 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 | 2.3 |

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

# Methodology

## HIV infection

### *National surveillance for newly notified HIV infection*

Newly notified HIV infection is a notifiable condition in each State/Territory health jurisdiction in Australia. Cases of notified HIV infection were notified through State/Territory health authorities to the national HIV surveillance centre on the first occasion of diagnosis in Australia. Information sought at notification of HIV infection included State/Territory of diagnosis, 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, Indigenous status, date of HIV diagnosis, CD4+ cell count at diagnosis, source of exposure to HIV and evidence of newly acquired HIV infection.

Information on country of birth has been reported by all health jurisdictions for cases of HIV notified in Australia from 1 January 2002. Information on language spoken at home has been reported by health jurisdictions in New South Wales, Victoria and Queensland for cases of HIV infection notified from 1 January 2004 and by all jurisdictions from 2008. Reporting of a previous HIV diagnosis overseas was introduced for cases of HIV infection notified in Australia from 1 January 2007 (Table 1.1.3). Advanced HIV diagnosis was defined as newly notified HIV infection with a CD4+ cell count of less than 200 cells/μl, and late HIV diagnosis was defined as an HIV notification with a CD4+ cell count of less than 350 cells/μl.

In New South Wales, information on cases of notified HIV infection 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 infection was referred, and follow-up was carried out for cases for which the information sought at HIV notification was incomplete. These new procedures resulted in more complete information on HIV notifications and reassignment of cases found to have been notified in earlier years.

The surveillance systems for notified HIV infection are described in Guy et al (2007) and McDonald et al (1994). The National Serology Reference Laboratory, Australia, carried out monitoring of HIV antibody testing

### *Newly acquired HIV infection*

Information on the date of the last negative or indeterminate test or date of onset of primary HIV infection has been routinely sought through each State/Territory health jurisdiction for cases of HIV infection notified in Australia from 1 January 1991. Newly acquired HIV infection was defined as a notification with evidence of a negative or indeterminate HIV antibody test or a diagnosis of primary HIV infection within 12 months of HIV diagnosis. The surveillance system for newly acquired HIV infection is described in McDonald et al.

### *Notification rates*

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 [18]. Population denominators by country/region of birth were based on the standard Australian Classification of Countries (ABS series 1269.0)[19] 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 Islanders were obtained from ABS catalogue 32380 estimated and projected population[20]. 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)[21]. Remoteness area categories for these data were “major cities”, “inner and outer regional”, and “remote and very 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 Indigenous populations were compared to Australian born non-Indigenous populations unless otherwise stated.

### *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 sub-population, 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 (ANSPS)[11]. ANPSPS methodology has been described in detail elsewhere . Briefly, ANSPS is conducted annually over a 1-2 week in October at more than 50 Needle and Syringe programs (NSP) to provide serial point prevalence estimates of HIV and hepatitis C and to monitor injecting behaviour among people who inject drugs (PWID).

## Hepatitis C infection

Hepatitis B infection, 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 (NNDSS). Population rates of notification of viral hepatitis were calculated for each State/Territory using yearly population estimates, provided by the Australian Bureau of Statistics.

Hepatitis B infection and hepatitis C infection was classified as newly acquired if evidence was available of acquisition in the 24 months prior to diagnosis[9] (Communicable Diseases Network Australia 2004). Notifications of newly acquired hepatitis B infection was notifiable in all health jurisdictions with the exception of the Australian Capital Territory. Notifications of newly acquired hepatitis C infection were recorded in all health jurisdictions.

### *Hepatitis C notifications*

Notification procedures for notifications of HCV have been described above. Rates of notification for newly acquired HCV and all new HCV notifications were calculated using analogous procedures to those described above for HIV notifications (see HIV notifications methodology).

### *Hepatitis C prevalence*

Hepatitis C prevalence among prison entrants was estimated using the National Prison Entrants' Bloodborne Virus Survey (NPEBVS). NPEBBVS methodology has been described in detail elsewhere. Briefly, the study is a consecutive cross-sectional sample of prison entrants over a two week period.

## Hepatitis B infection

### *Hepatitis B notifications*

Notification procedures for of hepatitis B notifications 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 HIV notifications methodology).

### *Hepatitis B prevalence*

HBV prevalence among prison entrants was estimated using the NPEBVS described above.

Prevalence estimates for Aboriginal women giving birth are from two published studies. The New South Wales study linked data from two statutory registers – the NSW Perinatal Data Collection (which records all births in NSW of babies at least 400 grams birth weight 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 of resident in NSW, of reproductive 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 linked data from the Northern Territory Perinatal Register (which records all births in the Northern Territory of babies at least 400 grams birth weight or 20 weeks gestation) and the Northern Territory Notifiable Diseases System (which contains a record of every diagnosis of HBV in the Northern Territory). The study was limited to all women giving birth in as public patients in the Northern Territory between September 2005 and 31 December 2010. Women born overseas or not usually resident in the Norther Territory were excluded.

# 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 (NNDSS), 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, notifications 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

| Notified Illness | 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 |
| Infectious Syphilis | Doctor Laboratory Hospital | Doctor Laboratory Hospital | Doctor Laboratory | Doctor Laboratory Hospital | Doctor Laboratory | Doctor Laboratory Hospital | Doctor Laboratory | Doctor |
| Chlamydia | Doctor Laboratory Hospital | Laboratory | Doctor Laboratory | Doctor Laboratory Hospital | Doctor Laboratory | Laboratory | Doctor Laboratory | Doctor |
| Donovanosis | Not notifiable | Laboratory | Doctor Laboratory | Doctor Laboratory Hospital | Doctor Laboratory | Laboratory | Doctor Laboratory | Doctor Laboratory |

## *STI notifications*

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

Number of notifications of Donovanosis was obtained from the NNDSS (described above).

An expanded national infectious syphilis case definition was implemented in July 2015 [22] which 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.

## *Prevention and risk behaviours*

Proportions of people reporting inconsistent condom use, recent injecting drug use, receptive needle sharing among people who inject drugs, recent HIV antibody testing, recent hepatitis HCV antibody testing, and use of HCV antiviral therapy was estimated calculated from the Australian Needle and Syringe Program Survey (ANSPS). The ANSPS is conducted annually at more than 50 needle and syringe program (NSP) services over a one to two week period in October each year. The project is conducted in all states and territories and recruits between 2000 – 2500 NSP 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.

## *Immunisation*

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

# 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:** A condition (disease or physical abnormality) present from birth. Congenital conditions may be inherited; or acquired during foetal development or at birth.

**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.

**deoxyribonucleic acid (DNA):** is an acid in the chromosomes in the centre of the cells of living things. DNA determines the particular structure and functions of every cell and is responsible for characteristics being passed on from parents to their children.

**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.

**endemic:** A disease is endemic if it is common in a region or local area, or in a group of people

**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 and from mother to child at birth. 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. Some people get rid of the virus, but the majority develop ongoing 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):** HIV is transmissible by sexual and blood contact as well as from mother to child. If untreated, HIV can progress to AIDS.

**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.

**incidence:** The rate at which a condition occurs in a population, usually expressed as the number of diagnoses (or pregnancies, injuries etc.) over a period of time during which people are exposed to risk (see person-years). Incidence is an important indicator of new transmissions, reflecting the impact of current prevention programs, whereas prevalence reflects the burden of disease

**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.

**newly acquired HIV:** This means the person has become infected within the past year.

**newly diagnosed HIV:** This means that a person previously not known to have the virus has been tested and now found to have the virus.

**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'.

**prevalence:** The number of cases of a condition at a single time, usually expressed as a proportion (percentage, or per 100 00 000 people) of the population. Prevalence decreases if people with the condition die or are cured, and increases as new cases occur.

**primary HIV infection (or seroconversion illness):** A flu-like illness that occurs soon after infection with HIV.

**ribonucleic acid:** is a polymeric molecule essential in various biological roles in coding, decoding, regulation, and expression of genes.

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

**syphilis:** 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 detected. 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*.[23]

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## The National Bloodborne Virus and Sexually Transmissible Infections (NBBVSTI) Surveillance Subcommittee 2018

- 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 Carolien 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
- 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
- Ms Shellee Williams, 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 James Ward, South Australian Health and Medical Research Institute, Adelaide, SA
- Professor Rebecca Guy, Dr Muhammad Shahid Jamil, Professor John Kaldor, Dr Skye McGregor, Mr Jonathan King, Ms Jane Costello, Ms Morgan Stewart, The Kirby Institute, UNSW Sydney, Sydney, NSW

## Annual Surveillance Report 2018 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
- Dr Jeanne Ellard, 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
- Professor Rebecca Guy (Chair), Professor Basil Donovan, Professor Lisa Maher, Professor John Kaldor, Dr Jennifer Iversen, Dr Benjamin Bavinton, Dr Skye McGregor, Dr Hamish McManus, Dr Praveena Gunaratnam, Ms Jane Costello, The Kirby Institute, UNSW Sydney, Sydney, NSW

## ACCESS (Australian Collaboration for Coordinated Enhanced Sentinel Surveillance)

- Canberra Sexual Health Centre, Canberra; Interchange General Practice, 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; Mt Druitt Sexual Health Clinic (formerly Luxford Road Sexual Health Clinic), Mt 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; Bungendore Medical Centre, Bungendore; East Sydney Doctors, Darlinghurst; Fountain Street General Practice, Alexandria; Macleay Street Medical, Potts Point; UNSW Health Service, Kensington; Taylor Square Private Clinic, Surry Hills; Dr Doong Practice, Burwood; Kildare Road Medical Centre, Blacktown; Waterloo Medical Centre, Waterloo; Holdsworth House Medical Practice, Darlinghurst; Family Planning NSW; Westmead Hospital, Westmead; Immunology B Ambulatory Care, St Vincent's Hospital, Darlinghurst; NSW
- Clinic 34 Darwin and Clinic 34 Alice Springs, Sexual Health and Blood Borne Virus Unit, Centre for Disease Control, Department of Health, 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, Mount Isa; Palm Island Sexual Health Clinic, Palm Island; QLD
- Clinic 275 Sexual Health, Adelaide; O'Brien Street General Practice, Adelaide; Rapido Testing Service, Shine SA, 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 (BRASH) Clinic, Geelong; Centre Clinic, St Kilda; Frankston Health, Frankston; Cohealth (formerly known as North Yarra Community Health), Collingwood; North Richmond Community Health, Richmond; Bendigo Community Health Clinic, Bendigo; EACH Social and Community Health, Melbourne; Dandenong Superclinic, Dandenong; Prahran Market Clinic, Prahran; Northside Clinic, North Fitzroy; Family Planning Victoria, Melbourne; Clarinda Medical Centre, Clarinda; The Alfred Hospital, Melbourne; VIC
- Fremantle Hospital Sexual Health Clinic, Fremantle; M Clinic, Perth; GP on Beaufort, Mount Lawley; WA

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- 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
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- 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

- Rachel Crane, Communicable Disease Control Section, Health Protection Service, ACT Government, Canberra, ACT
- Vicki Bowden, Kwendy Cavanagh, Communicable Diseases Branch, Health Protection NSW, NSW Health, NSW Government, North Sydney, NSW
- Rebecca Payne, Sexual Health and Blood Borne Virus Unit, Centre for Disease Control, Northern Territory Department of Health, Northern Territory Government, Darwin, NT
- Carolyn Lang, Damin Si, Communicable Diseases Branch, Queensland Department of Health, Queensland Government, Brisbane, QLD
- Ingrid Tribe, Communicable Disease Control Branch, SA Health, Government of South Australia, Adelaide SA
- Kerryn Lodo, Cameron Sault, Department of Health and Human Services, Tasmanian Government, Hobart, TAS
- Nasra Higgins, Communicable Disease Epidemiology and Surveillance, Health Protection Branch, Department of Health and Human Services Victoria, State Government of Victoria, Melbourne, VIC
- Carolien Giele, Byron Minas, Communicable Disease Control Directorate, WA Department of Health, Government of Western Australia, Perth, WA

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