



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

## Annual Surveillance Report 2016



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

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# Preface

This report provides information on the occurrence of blood borne viruses (BBVS) and sexually transmissible infections (STIs) 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* and is overseen by the National Aboriginal Community Controlled Health Organisation (NACCHO) and the Annual Surveillance Report Advisory Committee.

The report is produced in a format that is intended to be accessible to 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 and at <http://www.kirby.unsw.edu.au>. Data tables are also available online at <http://www.kirby.unsw.edu.au>.

Unless specifically stated otherwise, all data provided in this report are to the end of 2015, as reported by 31 March 2016. 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 from page 2 onwards, is gratefully acknowledged.



# Acknowledgements

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

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## Collaboration of Australian Needle and Syringe Programs

- Directions ACT, Canberra; ACT
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- Northern Territory AIDS and Hepatitis C Council, Alice Springs, Darwin and Palmerston; NT
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- Barwon Health Drug and Alcohol Services, Geelong; Health Information Exchange, St Kilda; Health Works, Footscray and Braybrook; Inner Space, Collingwood; North Richmond NSP, North Richmond; Southern Hepatitis/HIV/AIDS Resource and Prevention Service (SHARPS), Melbourne; VIC.
- WA AIDS Council Mobile Exchange, Perth; Western Australia Substance Users Association (WASUA), Perth and South Coast; WA.
- St Vincent's Centre for Applied Medical Research (AMR) 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

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- Justice Health and Forensic Mental Health Network, Matraville; Cessnock Correctional Centre, Cessnock; Metropolitan Remand and Reception Centre, Silverwater; Parklea Correctional Centre, Parklea; Silverwater Women's Correctional Centre, Silverwater; South Coast Correctional Centre, Nowra; Tamworth Correctional Centre, Tamworth; NSW
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# Medical and epidemiological terms

**Chlamydia:** A sexually transmissible infection caused by the bacterium *Chlamydia trachomatis*. The infection is asymptomatic in about 80% of cases. In those with symptoms, the infection causes inflammation of the urethra, causing some pain and penile discharge, and in females the main symptoms are intermenstrual bleeding and dysuria. Complications of infection are particularly serious for females and can include pelvic inflammatory disease, ectopic pregnancy and infertility. Chlamydia is fully curable by a single dose of antibiotics.

**Donovanosis:** A sexually transmissible infection caused by a bacterium (*Klebsiella granulomatis*). The most common symptom is the presence of one or more painless ulcer/lesion in the genital, or anal regions. The ulcer/lesions can progress and become complicated by other bacterial infections if untreated, ultimately resulting in erosion to the affected part of the body. Donovanosis is fully curable by 3 to 4 doses of antibiotics over a month. Donovanosis occurs in central and northern Australia, and is now very rare.

**Gonorrhoea:** A sexually transmissible infection caused by a bacterium (*Neisseria gonorrhoea*). The infection is asymptomatic in about 80% of women, and 50% of men. Symptoms are similar to those of chlamydia, as are the complications. Most males with urethral gonorrhoea will eventually develop symptoms. Gonorrhoea can be effectively treated with antibiotics.

**HBV (hepatitis B virus) infection:** An infection caused by the hepatitis B virus which is transmissible by blood and sexual contact, as well as from mother to child at birth. 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.

**HCV (hepatitis C virus) infection:** An infection caused by the hepatitis C virus that is transmissible by blood contact. 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.

**HIV (human immunodeficiency virus) infection:** An infection caused by the HIV virus that is transmissible by sexual and blood contact, as well as from mother to child. If untreated, HIV infection can progress to Acquired Immune Deficiency Syndrome (AIDS). Newly diagnosed HIV infection means that a person previously not known to have the infection has been tested and now found to have the infection. Newly acquired HIV infection means the person has become infected within the past year.

**Infectious syphilis:** A sexually transmissible infection caused by a bacterium (*Treponema pallidum*). Infectious syphilis is infection of less than two years duration. The main symptoms include a painless lesion/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, the central nervous system and cardiovascular system. Infectious syphilis is fully curable with a single injection of long acting penicillin.

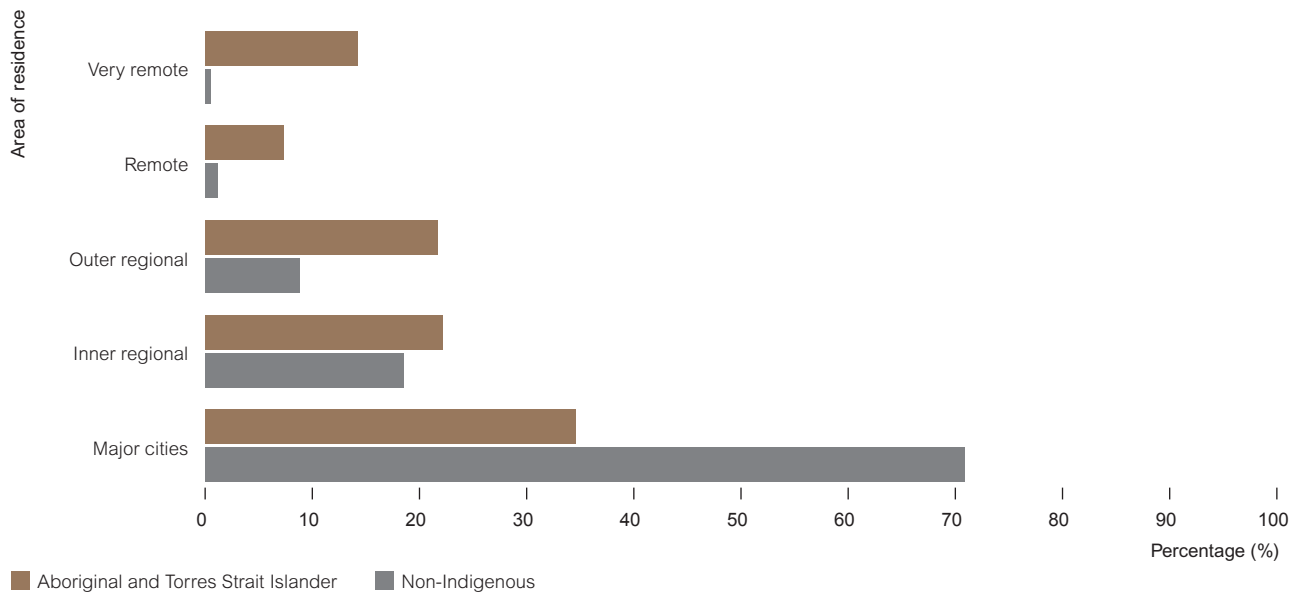
For more information on these infections, see the National Management Guidelines for Sexually Transmitted Infections 7th Edition.

**Age standardised rate of infection:** The proportion of notifications in a particular population who have the infection, adjusted by a mathematical technique to account for the age structure so that comparisons can be made across populations.

**Area of residence:** Area of residence, indicated by postcode, is classified into one of five areas: major cities, inner regional, outer regional, remote and very remote. According to the latest census, 21.5% of the Aboriginal and Torres Strait Islander population lived in remote and very remote areas, 43.9% in inner and outer regional areas and 34.6% in major cities (Figure 1); compared with 1.8%, 27.4% and 70.9% of the non-Indigenous population respectively (Figure 1) (See Methodological Notes for further information).



**Figure 1** Area of residence, 2011, by Aboriginal and Torres Strait Islander status



Source: Australian Bureau of Statistics 2011

#### Completeness of data on Aboriginal and Torres Strait Islander status

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

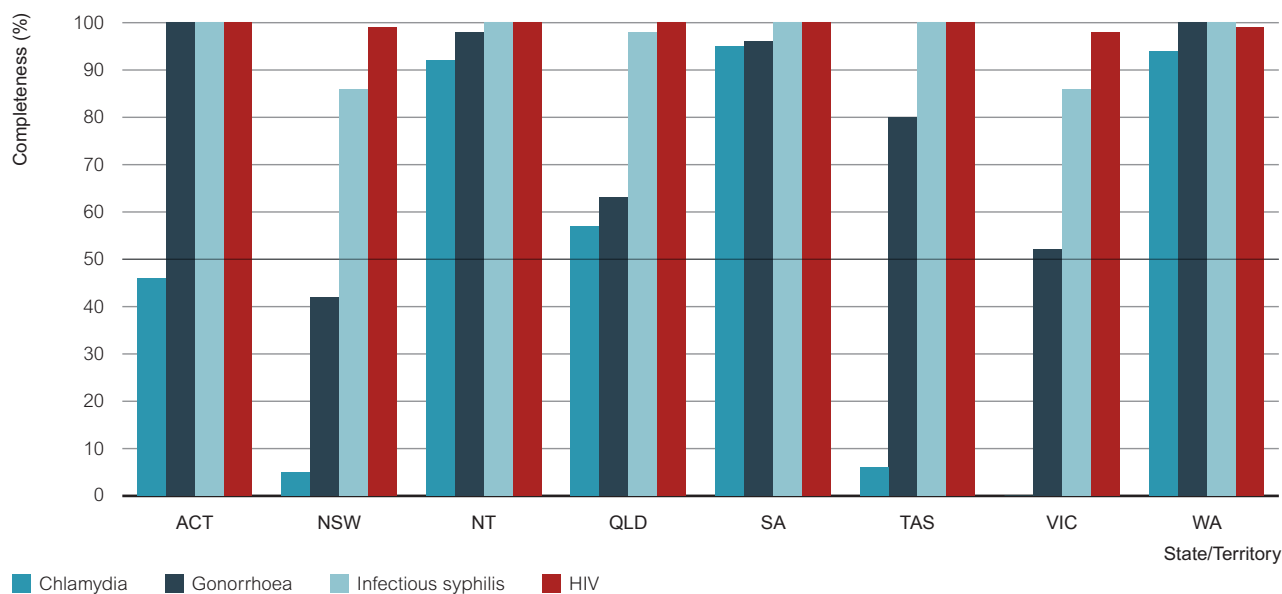
In 2015, all jurisdictions reported Aboriginal and Torres Strait Islander status for greater than 50% of diagnoses of HIV, infectious syphilis, and newly acquired hepatitis B. However, Aboriginal and Torres Strait Islander status was reported for less than 50% of diagnoses in the following jurisdictions (Figures 2 and 3):

- **Chlamydia:** Australian Capital Territory, New South Wales, Tasmania and Victoria
- **Newly diagnosed (all) hepatitis B:** New South Wales, Victoria and Queensland
- **Newly diagnosed (all) hepatitis C:** New South Wales, Victoria and Queensland.
- **Newly acquired hepatitis C:** Queensland<sup>1</sup>
- **Gonorrhoea:** New South Wales

Time trends in diagnoses of specific infections by jurisdiction were included in this report if information on Aboriginal and Torres Strait Islander status was available for at least 50% of diagnoses of the infection in every one of the past five years. Therefore there may be jurisdictions who met the 50% threshold in 2015 (Figure 2) but not in other years, and thus their data were not included in this report.

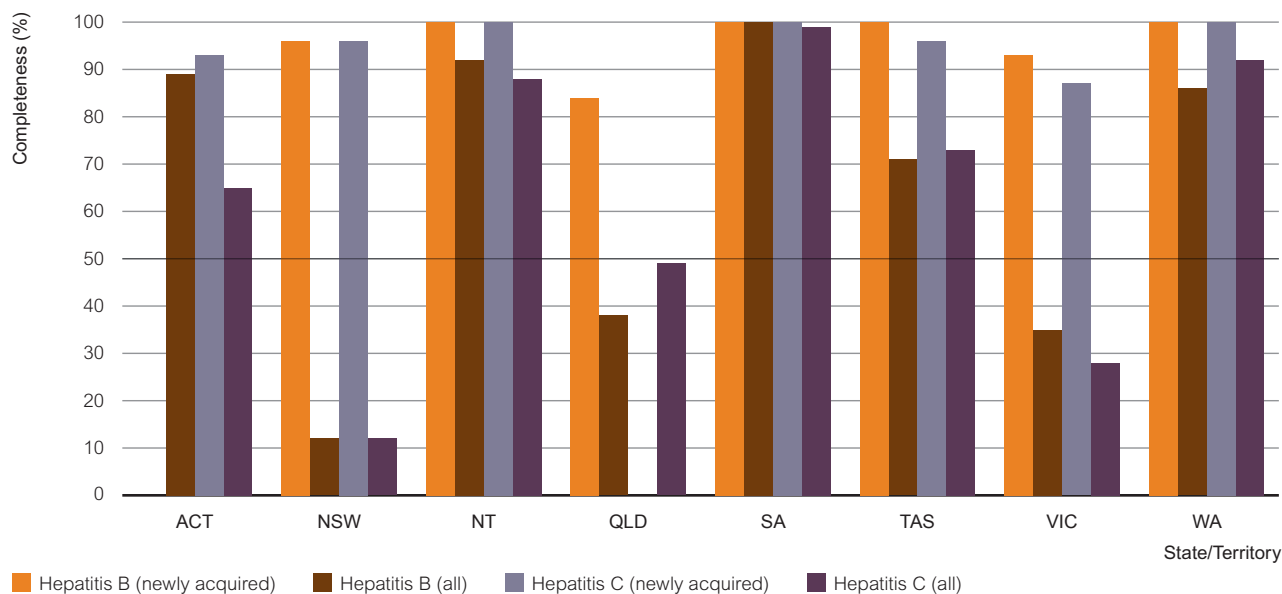
<sup>1</sup> Queensland does not undertake enhanced hepatitis C surveillance and reports all hepatitis C cases as unspecified

**Figure 2** Reporting of Aboriginal and Torres Strait Islander status at notification, for selected sexually transmissible infections, 2015, by State/Territory



Source: National Notifiable Diseases Surveillance System

**Figure 3** Reporting of Aboriginal and Torres Strait Islander status at notification of viral hepatitis diagnosis, 2015, by State/Territory



Note: There were no Aboriginal and Torres Strait Islander notifications of newly acquired hepatitis B in the Australian Capital Territory in 2015; Queensland do not report on newly acquired hepatitis C

Source: National Notifiable Diseases Surveillance System



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# Summary

## HIV infection

- A total of 1 025 notifications of newly diagnosed HIV were reported in 2015 including 38 (4%) which were identified as Aboriginal and Torres Strait Islander.
- All jurisdictions have high completeness rates (>95%) for Aboriginal and Torres Strait Islander status in HIV notifications for each of the last ten years and thus data from all jurisdictions are included.
- The rate of newly diagnosed HIV in the Aboriginal and Torres Strait Islander population in 2015 was 6.8 per 100 000, more than two times higher than the 3.1 per 100 000 in the Australian-born non-Indigenous population.
- HIV notification rates were highest in Aboriginal and Torres Strait Islander people aged ≥35 years of age at 9.8 per 100 000, nearly three times higher than the 3.3 per 100 000 in the Australian-born non-Indigenous population of the same age group.
- Between 2006 – 2010 HIV notification rates in Aboriginal and Torres Strait Islander males were stable, and from 2011 – 2015 there was a 2-fold increase (from 6.2 per 100 000 in 2011 to 12.4 per 100 000 in 2015), whereas rates in the non-Indigenous Australian-born male population decreased by 12% (from 6.6 per 100 000 in 2011 to 5.8 per 100 000 in 2015).
- In the last five years, a higher proportion of notifications of newly diagnosed HIV among the Aboriginal and Torres Strait Islander population were attributed to injecting drug use (16% vs. 3%) and heterosexual contact (21% vs. 14%), as compared with the non-Indigenous Australian-born population.
- Based on tests for immune function, just under a third (30%) of the new HIV diagnoses among the Aboriginal and Torres Strait Islander population in 2015 were determined to be late, in that they were in people who were likely to have had their infection for at least four years without being tested.

## Hepatitis C infection

- A total of 10 790 cases of newly diagnosed hepatitis C infection were reported in Australia in 2015; 929 (9%) were among the Aboriginal and Torres Strait Islander population, 3 442 (32%) were among the non-Indigenous population and there were a further 6 419 (59%) cases where Indigenous status was not reported.
- Notification rates are based on data from four jurisdictions (the Northern Territory, Tasmania, Western Australia and South Australia), where Aboriginal and Torres Strait Islander status was ≥50% complete for hepatitis C notifications for every year of the past five years 2011 – 2015.
- The rate of newly diagnosed hepatitis C infection in the Aboriginal and Torres Strait Islander population in 2015 was 167 per 100 000, nearly five times higher than the 36 per 100 000 in the non-Indigenous population.
- The rate of newly acquired hepatitis C infection (newly diagnosed hepatitis C infection with evidence of acquisition in the 24 months prior to diagnosis) in the Aboriginal and Torres Strait Islander population in 2015 was 13 times that of the non-Indigenous population (26 vs. 2 per 100 000 respectively).
- In the last five years, there was a 43% increase in the notification rate of newly diagnosed hepatitis C infection in the Aboriginal and Torres Strait Islander population (from 117 per 100 000 in 2011 to 167 per 100 000 in 2015), whereas the rate in the non-Indigenous population decreased by 10% (from 40 per 100 000 in 2011 to 36 per 100 000 in 2015).
- In 2015 receptive syringe sharing, a key risk factor for hepatitis C transmission, was higher among Aboriginal and Torres Strait Islander respondents (24%) than among non-Indigenous respondents (14%).

## Hepatitis B infection

- There were a total of 6 502 notifications of newly diagnosed hepatitis B infection in Australia in 2015, of these 221 (3%) were among the Aboriginal and Torres Strait Islander population, 2 211 (34%) were among the non-Indigenous population, and there were a further 4 070 (63%) notifications for which Indigenous status was not reported.
- Notification rates are based on data from five jurisdictions (Australian Capital Territory, the Northern Territory, South Australia, Tasmania, and Western Australia), where Aboriginal and Torres Strait Islander status was  $\geq 50\%$  complete for hepatitis B notifications for each year of the five years 2011 – 2015.
- In 2015, the notification rate of newly diagnosed hepatitis B infection for the Aboriginal and Torres Strait Islander population was 3 times higher than the non-Indigenous population (66 per 100 000 vs. 22 per 100 000) with higher rates of hepatitis B notification in Aboriginal and Torres Strait Islander people in all age groups.
- In the five-year period 2011 – 2015, there was a 22% decline in the notification rate of newly diagnosed hepatitis B infection in the Aboriginal and Torres Strait Islander population (from 85 per 100 000 in 2011 to 66 per 100 000 in 2015), compared to a plateau in rates in the non-Indigenous population.

## Sexually transmissible infections

### Chlamydia

- Chlamydia was the second most frequently reported notifiable condition in Australia in 2015. There were a total of 66 033 notifications, 6 532 (9%) were among the Aboriginal and Torres Strait Islander population, 25 508 (39%) were among the non-Indigenous population, and Indigenous status was not reported for 33 993 (51%) notifications. Data for 2015 for Victoria were unavailable at the time of reporting.
- Notification rates are based on data from four jurisdictions (the Northern Territory, Queensland, South Australia, and Western Australia), where Aboriginal and Torres Strait Islander status was  $\geq 50\%$  complete for chlamydia notifications for each year of the five years 2011 – 2015.
- The chlamydia notification rate for the Aboriginal and Torres Strait Islander population of 1 325 per 100 000 in 2015 was more than three times that of the non-Indigenous notification rate of 391 per 100 000 population.
- In 2015, 82% of notifications were in 15 – 29 year olds in the Aboriginal and Torres Strait Islander population and 78% of notifications were in 15 – 29 year olds in the non-Indigenous population.
- The chlamydia notification rate in Australia in both the Aboriginal and Torres Strait Islander population and non-Indigenous population has remained relatively stable since 2011, with variation by jurisdiction.
- In 2015, the chlamydia notification rate in major cities in the Aboriginal and Torres Strait Islander population was 2 times higher than that among the non-Indigenous population, increasing to 8 times higher in remote areas.

### Gonorrhoea

- There were a total of 18 588 gonorrhoea notifications in Australia in 2015; 3 518 (19%) were among the Aboriginal and Torres Strait Islander population, 8 315 (45%) were in the non-Indigenous population, and there were a further 6 755 (36%) for which Aboriginal and Torres Strait Islander status was not reported.
- Notification rates are based on data from seven jurisdictions (the Australian Capital Territory, the Northern Territory, South Australia, Tasmania, Victoria, Queensland and Western Australia), where Aboriginal and Torres Strait Islander status was  $\geq 50\%$  complete for gonorrhoea notifications for each year of the five years 2011 – 2015.
- In 2015, the gonorrhoea rate in the Aboriginal and Torres Strait Islander population was 10 times that of the non-Indigenous population (626 vs. 62 per 100 000 population), increasing to 72 times higher in remote areas.
- In 2015, 72% of cases among Aboriginal and Torres Strait Islander population were diagnosed among people in the age group 15–29 years compared with 53% in the non-Indigenous population.
- In the period 2011 – 2015, the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population declined by 35% in the 15–19 year old age group and 27% in the 20 – 29 year old age group.
- In Aboriginal and Torres Strait Islander people, there were nearly an equal number of gonorrhoea notifications among males and females in 2015, indicating predominantly heterosexual transmission, and most resided in remote areas.
- In contrast, gonorrhoea notifications in non-Indigenous people in 2015 were predominantly in men, in urban settings, suggesting that transmission is primarily related to sex between men.

## Infectious syphilis

- There were a total of 2 736 infectious syphilis notifications nationally in 2015, with 433 (16%) among the Aboriginal and Torres Strait Islander population, 2 043 (75%) among the non-Indigenous population, and a further 206 (8%) notifications for which Indigenous status was not reported.
- An expanded national infectious syphilis case definition was implemented in July 2015, to include a 'probable' category, with 233 probable cases notified in 2015, 100 of which were notified as Aboriginal and Torres Strait Islander, 93 as non-Indigenous and 40 for which Indigenous status was not reported.
- Infectious syphilis notification rates include all jurisdictions, as Aboriginal and Torres Strait Islander status was  $\geq 50\%$  complete for infectious syphilis notifications for each year of the ten year reporting period 2006 – 2015.
- In 2015, the infectious syphilis notification rate in the Aboriginal and Torres Strait Islander population was 6 times higher than the non-Indigenous population (61 vs. 10 per 100 000 population) increasing to 134 times higher in remote areas.
- In 2015, 67% of infectious syphilis cases among the Aboriginal and Torres Strait Islander population were diagnosed among people in the age group 15–29 years compared with 31% in the non-Indigenous population.
- The notification rate of infectious syphilis among the Aboriginal and Torres Strait Islander population declined by 46% between 2006 and 2009, and then increased by 177% between 2010 and 2015 from 22 per 100 000 in 2010 to 61 per 100 000 in 2015, largely driven by an outbreak in Northern Australia (including regions of Queensland, the Northern Territory and Western Australia). Between 2010 and 2015, the greatest increase was in 15 – 19 year olds from 34 per 100 000 to 146 per 100 000.
- In Aboriginal and Torres Strait Islander peoples, the number of infectious syphilis notifications among males and females was nearly equal in 2015, indicating predominantly heterosexual transmission.
- In contrast, diagnoses in non-Indigenous peoples are predominantly in men, in urban settings, suggesting that transmission is primarily related to sex between men.
- There were 22 congenital syphilis cases over the period 2011 – 2015, 64% (14) of which were in the Aboriginal and Torres Strait Islander population.

## Donovanosis

- Donovanosis, once a regularly diagnosed sexually transmissible infection among remote Aboriginal and Torres Strait Islander populations, is now close to elimination.
- Since 2009 there have been fewer than 3 notifications of donovanosis per year nationally, with zero in 2011, one in 2012, zero in 2013 and one in 2014 and none in 2015.

## Human papillomavirus

- The proportion of Aboriginal and Torres Strait Islander women aged  $< 21$  years diagnosed with genital warts has declined by 91%, since introduction of the national vaccination program in 2007.

## Interpretation:

The higher and increasing rate of both HIV and hepatitis C notifications in Aboriginal and Torres Strait Islander peoples in the past five years is in contrast to stable rates in the non-Indigenous population. The divergence in HIV rates possibly relates to higher levels of condomless anal sex among Aboriginal and Torres Strait Islander gay men<sup>1</sup>. The higher rates of hepatitis C diagnosis (and newly acquired) may reflect differences in injecting practices and could also be accounted for by very high rates of incarceration and hepatitis C diagnosis in this setting, and higher case detection among Aboriginal and Torres Strait Islander peoples. These increases require a strengthened focus on prevention in this vulnerable population as outlined in the National Strategies.

The decline in hepatitis B diagnoses in young Aboriginal and Torres Strait Islander peoples suggest the immunisation programs for hepatitis B are starting to have a benefit. However there remain higher rates of hepatitis B notifications in Aboriginal and Torres Strait Islander people in all age groups 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 peoples.

There has been a decline in rates of gonorrhoea among the Aboriginal and Torres Strait Islander population in the past five years, but rates remain 72 fold higher in remote areas compared with the non-Indigenous population. There has also been a resurgence of infectious syphilis in remote communities after years of declining rates, which brings with it cases of congenital syphilis, emphasising the need for health promotion and strategies to detect infections early as outlined in the National Strategies.

# 2015 overview

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

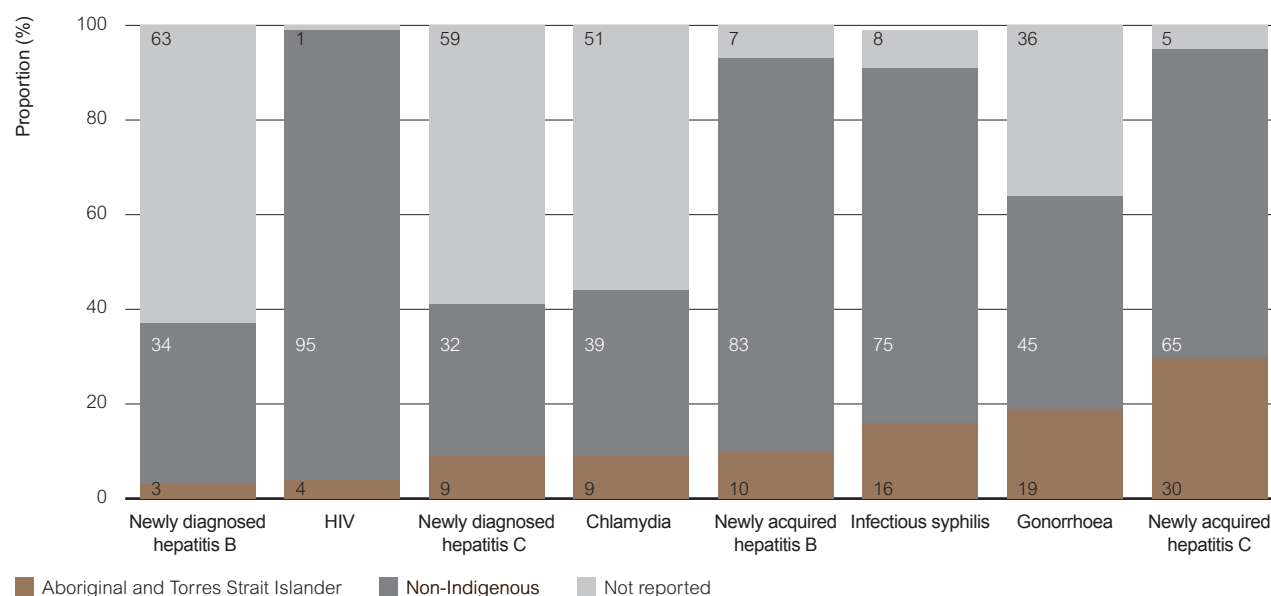
**Table 1** Aboriginal and Torres Strait Islander population in Australia, 2015, by State/Territory

State/Territory	Estimated resident Aboriginal and Torres Strait Islander population	Proportion of total Australian Aboriginal and Torres Strait Islander population
Australian Capital Territory	6 914	1%
New South Wales	225 731	31%
Northern Territory	73 478	10%
Queensland	208 369	29%
South Australia	40 707	6%
Tasmania	26 476	4%
Victoria	52 396	7%
Western Australia	95 848	13%
<b>Total</b>	<b>729 919</b>	<b>100%</b>

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

While Aboriginal and Torres Strait Islander peoples make up 3% of the total Australian population, they accounted for a disproportionate level (3 – 30%) of all sexually transmissible infections and bloodborne viruses diagnoses in 2015. (Figure 4). For many infections this proportion would be a lower limit, due to the incompleteness of reporting of Aboriginal and Torres Strait Islander status (see Figures 2 and 3).

**Figure 4** Proportion of all notifications by Aboriginal and Torres Strait Islander status, 2015



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

Source: Australian National Notifiable Diseases Surveillance System

In 2015, rates of notification of sexually transmissible infections and bloodborne viruses were between 2 and 15 times higher than the non-Indigenous population (Table 2, Figure 5).

**Table 2** Number and rate of notifications of sexually transmissible infections and blood borne viruses in Australia, 2015, by Aboriginal and Torres Strait Islander status

Notifications of sexually transmissible infections and viral hepatitis	Aboriginal and Torres Strait Islander		Non-Indigenous		Fold difference	Excluded jurisdictions <sup>4</sup>
	Number <sup>1</sup>	Rate <sup>2</sup>	Number <sup>3</sup>	Rate <sup>2</sup>		
Chlamydia	6 342	1 324.6	34 128	391.3	3.4	Australian Capital Territory, New South Wales, Tasmania, Victoria
Gonorrhoea	3 396	625.6	9 737	62.4	10.0	New South Wales
Infectious syphilis	433	60.5	2 303	10.2	5.9	None
HIV <sup>5</sup>	38	6.8	543	3.1	2.2	None
Newly acquired hepatitis B	14	2.2	125	0.6	3.7	None
Newly diagnosed hepatitis B	112	66.1	1 112	21.5	3.1	New South Wales, Queensland, Victoria
Newly acquired hepatitis C	131	26.1	310	1.7	15.4	Queensland <sup>6</sup>
Newly diagnosed hepatitis C	350	167.1	1 737	36.1	4.6	New South Wales, Queensland, Victoria

1 Jurisdictions in which Aboriginal and Torres Strait Islander status was reported for ≥50% of diagnoses in each of the past five years

2 Age standardised rate per 100 000 population

3 Includes diagnoses in cases whose Aboriginal and Torres Strait Islander status was not reported

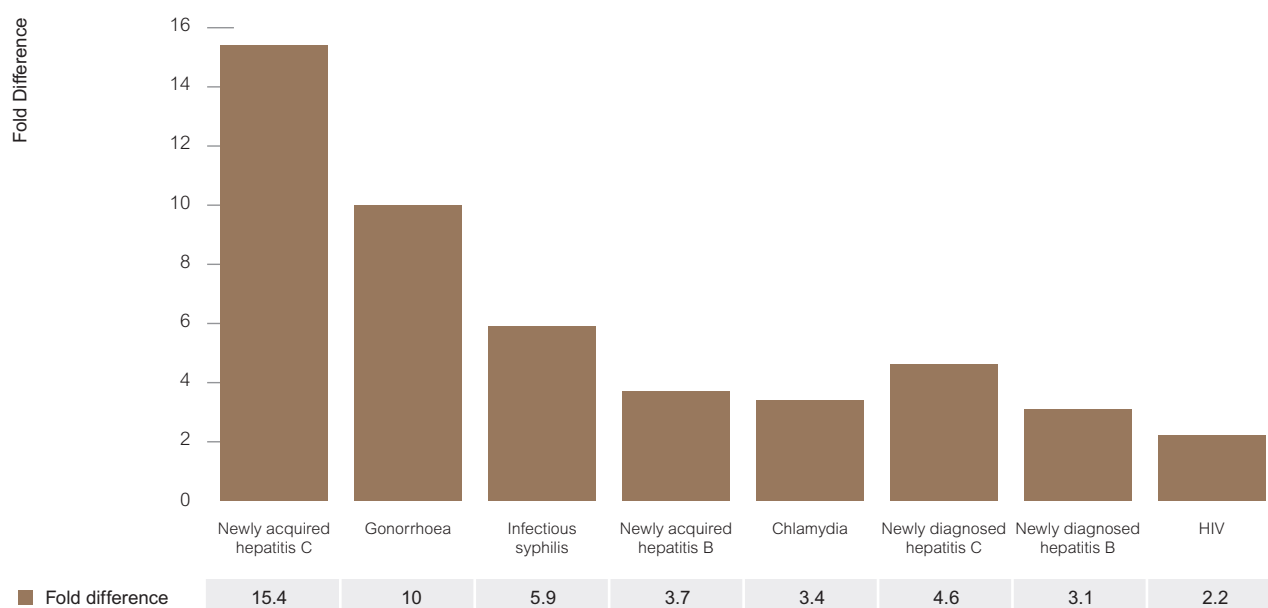
4 Jurisdictions which Aboriginal and Torres Strait Islander status was reported for less than 50% of diagnoses

5 Rates in the non-Indigenous Australian-born population

6 Queensland does not undertake enhanced hepatitis C surveillance and reports all notifications as unspecified

Source: National Notifiable Diseases Surveillance System

**Figure 5** The difference in Aboriginal and Torres Strait Islander and non-Indigenous notification rates, 2015, by sexually transmissible infection or bloodborne virus



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

Source: National Notifiable Diseases Surveillance System





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# Main Findings

## HIV infection

- A total of 1 025 notifications of newly diagnosed HIV were reported in 2015 including 38 (4%) which were identified as Aboriginal and Torres Strait Islander.
- All jurisdictions have high completeness rates (>95%) for Aboriginal and Torres Strait Islander status in HIV notifications for each of the last ten years and thus data from all jurisdictions are included.
- The rate of newly diagnosed HIV in the Aboriginal and Torres Strait Islander population in 2015 was 6.8 per 100 000, more than two times higher than the 3.1 per 100 000 in the Australian-born non-Indigenous population
- HIV notification rates were highest in Aboriginal and Torres Strait Islander people aged  $\geq 35$  years of age at 9.8 per 100 000, nearly three times higher than the 3.3 per 100 000 in the Australian-born non-Indigenous population of the same age group.
- Between 2006 – 2010 HIV notification rates in Aboriginal and Torres Strait Islander males were stable, and from 2011 – 2015 there was a 2-fold increase (from 6.2 per 100 000 in 2011 to 12.4 per 100 000 in 2015), whereas rates in the non-Indigenous Australian-born male population decreased by 12% (from 6.6 per 100 000 in 2011 to 5.8 per 100 000 in 2015).
- In the last five years, a higher proportion of notifications of newly diagnosed HIV among the Aboriginal and Torres Strait Islander population were attributed to injecting drug use (16% vs. 3%) and heterosexual contact (21% vs. 14%), as compared with the non-Indigenous Australian-born population.
- Based on tests for immune function, just under a third (30%) of the new HIV diagnoses among the Aboriginal and Torres Strait Islander population in 2015 were determined to be late, in that they were in people who were likely to have had their infection for at least four years without being tested.

## New diagnoses

All jurisdictions have high completeness rates (>95%) for Aboriginal and Torres Strait Islander status in HIV notifications for each year of the ten year reporting period 2006 – 2015 and thus data from all jurisdictions are included.

In 2015, of the 1 025 notifications of newly diagnosed HIV infections, 38 (4%) were identified in the Aboriginal and Torres Strait Islander population, and there were 11 (1%) for which Indigenous status was not reported.

Between 2006 and 2011, the number of notifications in the Aboriginal and Torres Strait Islander population remained relatively steady (range 19 – 24) (Table 3, Figure 6) but between 2011 and 2015 increased by 58%. There was an increase of 89% in the number of notifications in Aboriginal and Torres Strait Islander males in the last five years compared with relatively stable numbers over the same time period in females.

**Figure 6** Newly diagnosed HIV notifications in Aboriginal and Torres Strait Islander peoples, 2006 – 2015, by sex



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

The best indicator of how long a person has had HIV is the CD4+ cell count per microlitre, which is above 500 in most people without HIV, and declines on average by 50 – 100 per year in people with HIV<sup>2</sup>. The proportion of newly detected Aboriginal and Torres Strait Islander HIV cases with a late diagnosis, defined by a CD4+ cell count less than 350 cells/ $\mu$ l at diagnosis, was 34% over the past ten years (Table 3).

During the ten-year period 2006 – 2015, notifications of newly diagnosed HIV infection among the Aboriginal and Torres Strait Islander population were reported from Queensland (33%), New South Wales (30%), Victoria (12%) and Western Australia (12%), the Northern Territory (3%), Tasmania (3%) and South Australia (5%) (Table 3).

**Table 3** Characteristics of cases of newly diagnosed HIV infection in Aboriginal and Torres Strait Islander peoples, 2006 – 2015.

Characteristic	Year of HIV diagnosis										
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2006 – 2015 <sup>1</sup>
<b>Total cases<sup>2</sup></b>	23	19	19	24	22	24	33	26	33	38	261
<b>Sex</b>											
Male	17	16	15	20	15	18	27	22	25	34	209
Female	6	3	4	3	7	6	6	4	7	4	50
<b>Median age (years)</b>	31	33	36	37	35	32	27	36	34	38	34
<b>Newly acquired HIV infection n (%)<sup>3</sup></b>	7 (30.4)	5 (26.3)	6 (31.6)	7 (29.2)	5 (22.7)	5 (20.8)	10 (30.3)	9 (34.6)	8 (24.2)	11 (29.0)	73 (27.9)
<b>Late and advanced HIV infection status at HIV diagnosis (%)<sup>4</sup></b>											
Late HIV diagnosis	23.5	40.0	33.3	40.9	25.0	34.8	37.5	40.0	30.0	30.3	33.6
Advanced HIV diagnosis	11.8	13.3	20.0	31.8	10.0	30.4	29.2	25.0	20.0	15.2	21.4
<b>State/Territory, n</b>											
Australian Capital Territory	0	0	0	0	0	0	0	0	0	0	0
New South Wales	9	8	8	9	7	6	11	8	7	6	79
Northern Territory	0	0	1	0	1	2	2	1	1	1	9
Queensland	6	5	2	8	8	8	14	9	14	13	87
South Australia	0	1	4	2	1	1	1	2	0	2	14
Tasmania	0	0	0	1	0	1	2	2	2	2	8
Victoria	2	3	0	1	3	1	5	4	6	7	32
Western Australia	6	2	4	3	2	5	0	0	3	7	32
<b>HIV exposure category, %</b>											
Men who have sex with men	47.8	47.4	47.4	41.7	54.6	62.5	69.7	23.1	39.4	55.3	49.2
Men who have sex with men and injecting drug use	4.4	15.8	5.3	12.5	4.6	0.0	6.1	19.2	9.1	7.9	8.4
Injecting drug use <sup>5</sup>	21.7	15.8	36.8	8.3	18.2	4.2	6.1	23.1	27.3	15.8	17.2
Heterosexual sex	26.1	21.1	10.5	16.7	13.6	25.0	18.2	30.8	15.2	18.4	19.5
Mother with/at risk of HIV infection	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.4
Other/undetermined exposure	0.0	0.0	0.0	20.8	9.1	4.2	0.0	3.9	9.1	2.6	5.0

1 Not adjusted for multiple reporting

2 Newly acquired HIV infection was defined as newly diagnosed infection with a negative or indeterminate HIV antibody test result or a diagnosis of primary HIV infection within one year of HIV diagnosis.

3 Denominator is all those for which a CD4+ count was available

4 Late HIV diagnosis was defined as newly diagnosed HIV infection with a CD4+ cell count of less than 350 cells/ $\mu$ L, and advanced HIV infection as newly diagnosed infection with a CD4+ cell count of less than 200 cells/ $\mu$ L, newly acquired HIV diagnoses are included in the non-late category

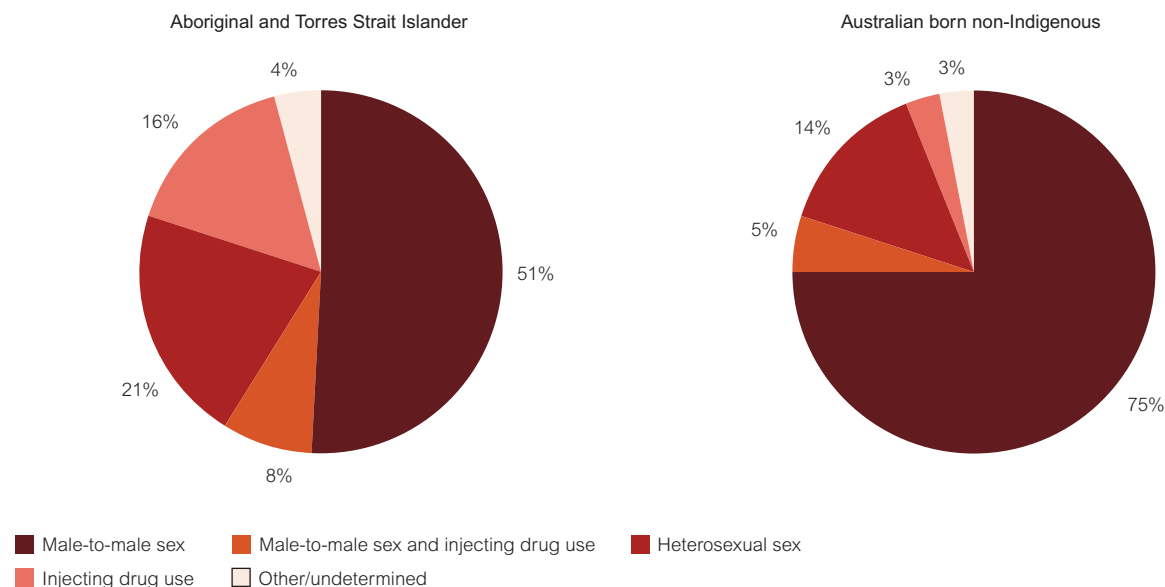
5 Excludes men who have sex with men

Source: State and Territory health authorities; includes all states and territories



In the five-year period 2011 – 2015, a higher proportion of notifications of newly diagnosed HIV infection among the Aboriginal and Torres Strait Islander population were attributed to injecting drug use (16% vs. 3% respectively) and heterosexual contact (21% vs. 14% respectively) (Figure 7).

**Figure 7** Newly diagnosed HIV infection and HIV exposure category, 2011 – 2015, by Aboriginal and Torres Strait Islander status

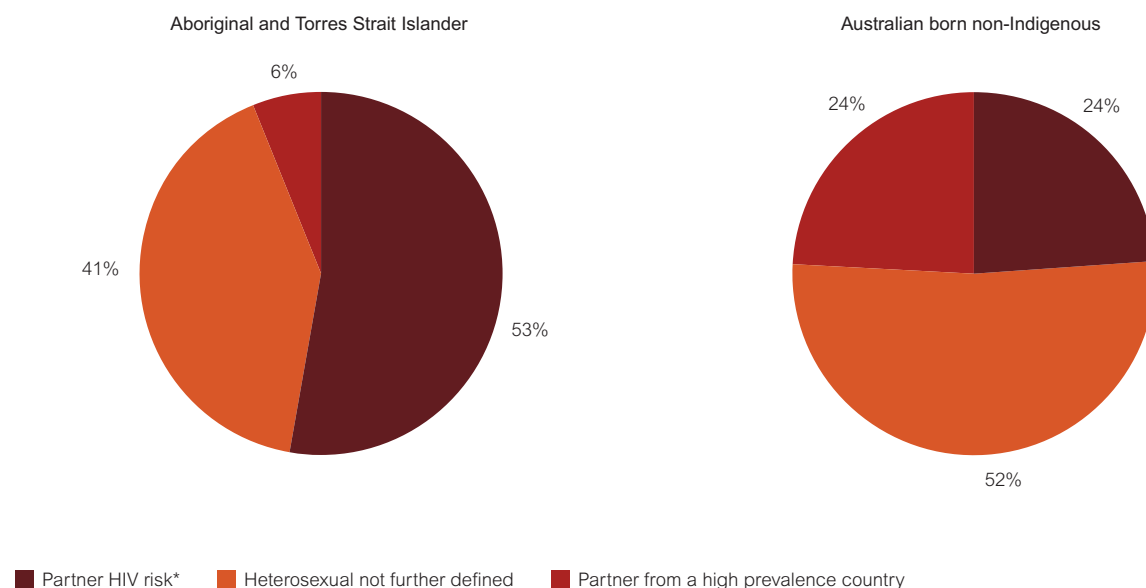


Source: State and Territory health authorities; includes all states and territories

Of the heterosexually acquired HIV cases in the five-year period 2011 – 2015, a higher proportion among the Aboriginal and Torres Strait Islander population were attributed to a partner of high HIV risk compared to the Australian-born non-Indigenous population (53% vs. 24%, respectively) and a lower proportion to a partner from a high HIV prevalence country (national prevalence above 1%) (6% vs. 24%) (Figure 8).



**Figure 8** Proportion of newly diagnosed HIV notifications by heterosexual exposure category, 2011 – 2015, by Aboriginal and Torres Strait Islander status



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

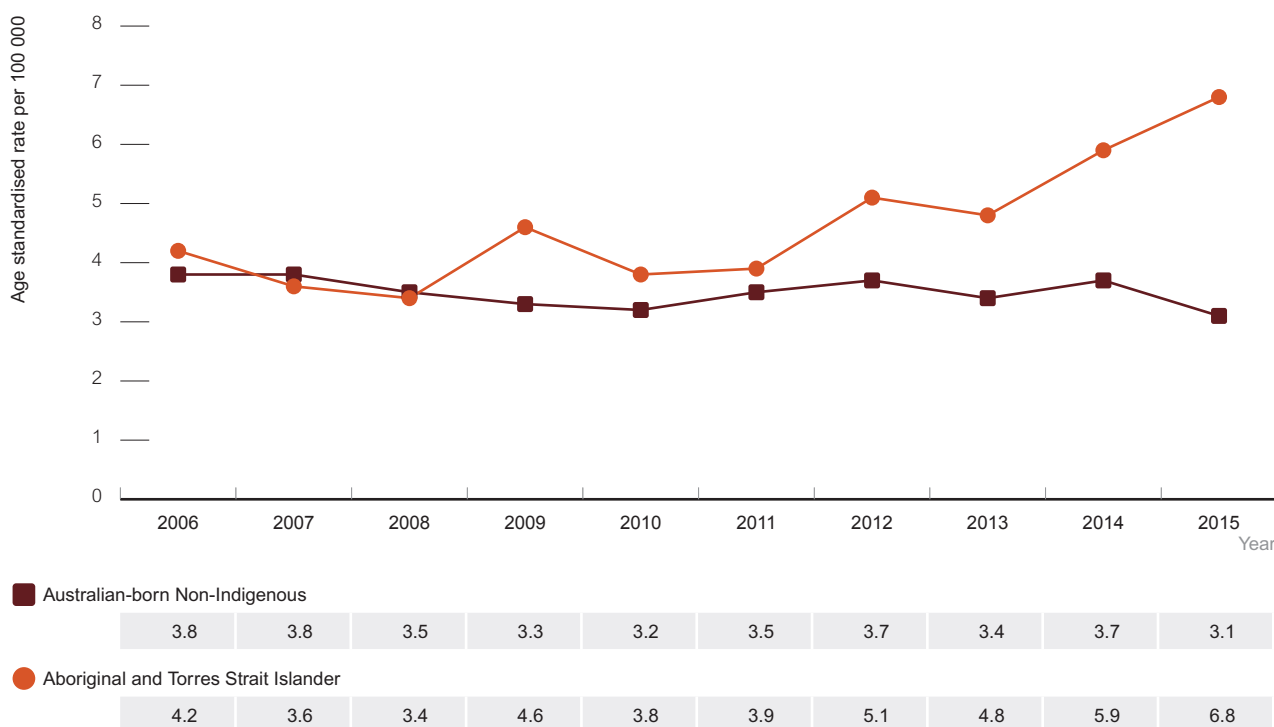
Source: State and Territory health authorities; includes all states and territories

For the purposes of a longer term trend analysis of HIV diagnosis in the Aboriginal and Torres Strait Islander population data have been analysed for the period 2006 – 2015 and been compared to data for the non-Indigenous Australian-born population to focus on HIV diagnoses endemic to Australia (Figure 9).

To enable more appropriate comparison between the Aboriginal and Torres Strait Islander and non-Indigenous populations, the rate of diagnosis per 100 000 people was calculated, taking into account the age structures of each population. The rate of newly diagnosed HIV infection in the Aboriginal and Torres Strait Islander population was 4.2 per 100 000 in 2006, remaining fairly stable until 2011, and increasing since then, to 6.8 per 100 000 in 2015. In the Australian-born non-Indigenous population, the rate remained relatively stable at 3.8 per 100 000 in 2006 and 3.1 per 100 000 in 2015 (Figure 9).

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

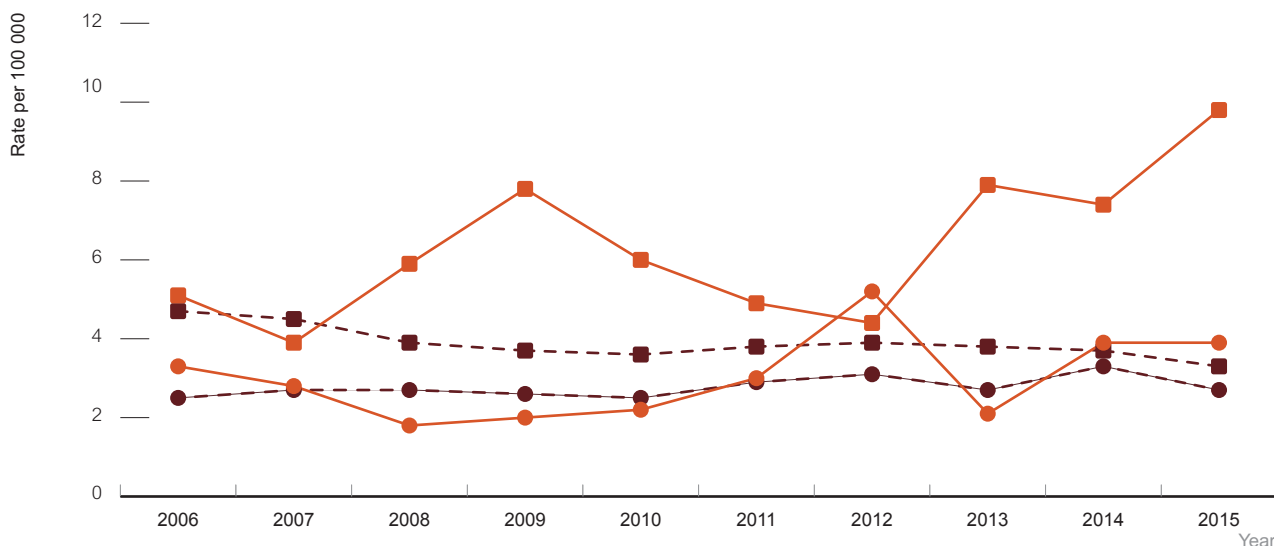
**Figure 9** Newly diagnosed HIV notification rate per 100 000 Australian-born population, 2006 – 2015, by Aboriginal and Torres Strait Islander status



Source: State and Territory health authorities; includes all states and territories

Between 2006 and 2015, notification rates among those aged <35 years have been similar in the Aboriginal and Torres Strait Islander population, compared to the non-Indigenous population (Figure 10). In comparison, notification rates among those aged ≥35 years have been higher in all years except 2007, with notification rates between 2 and 3 times higher in the last three years.

**Figure 10** Newly diagnosed HIV notification rate per 100 000 population, 2006 – 2015, by Aboriginal and Torres Strait Islander status and age group



● Aboriginal and Torres Strait Islander <35 years	3.3	2.8	1.8	2.0	2.2	3.0	5.2	2.1	3.9	3.9
● Non-Indigenous <35 years	2.5	2.7	2.7	2.6	2.5	2.9	3.1	2.7	3.3	2.7
■ Aboriginal and Torres Strait Islander ≥35 years	5.1	3.9	5.9	7.8	6.0	4.9	4.4	7.9	7.4	9.8
■ Non-Indigenous ≥35 years	4.7	4.5	3.9	3.7	3.6	3.8	3.9	3.8	3.7	3.3

Note: Includes Australian-born only for non-Indigenous notifications

Source: State and Territory health authorities; includes all states and territories



Similarly, between 2006 and 2011 notification rates of newly diagnosed HIV infection in the Aboriginal and Torres Strait Islander male population were similar to the non-Indigenous Australian-born male population, whereas in the last five years, there was a 2-fold increase in the notification rate of newly diagnosed HIV infection in the Aboriginal and Torres Strait Islander male population (from 6.2 per 100 000 in 2011 to 12.4 per 100 000 in 2015), compared with a 12% decrease in the non-Indigenous Australian-born male population (from 6.6 per 100 000 in 2011 to 5.8 per 100 000 in 2015) (Figure 11).

These trends suggests the divergence in HIV notifications rates between the two populations is associated with increased notifications in Aboriginal and Torres Strait Islander males aged  $\geq 35$  years of age.

The notification rates of newly diagnosed HIV infection among Aboriginal and Torres Strait Islander females was lower than Aboriginal and Torres Strait Islander males and fluctuated over time but were 3 – 10 fold higher than the non-Indigenous Australian-born female population each year (Figure 11).

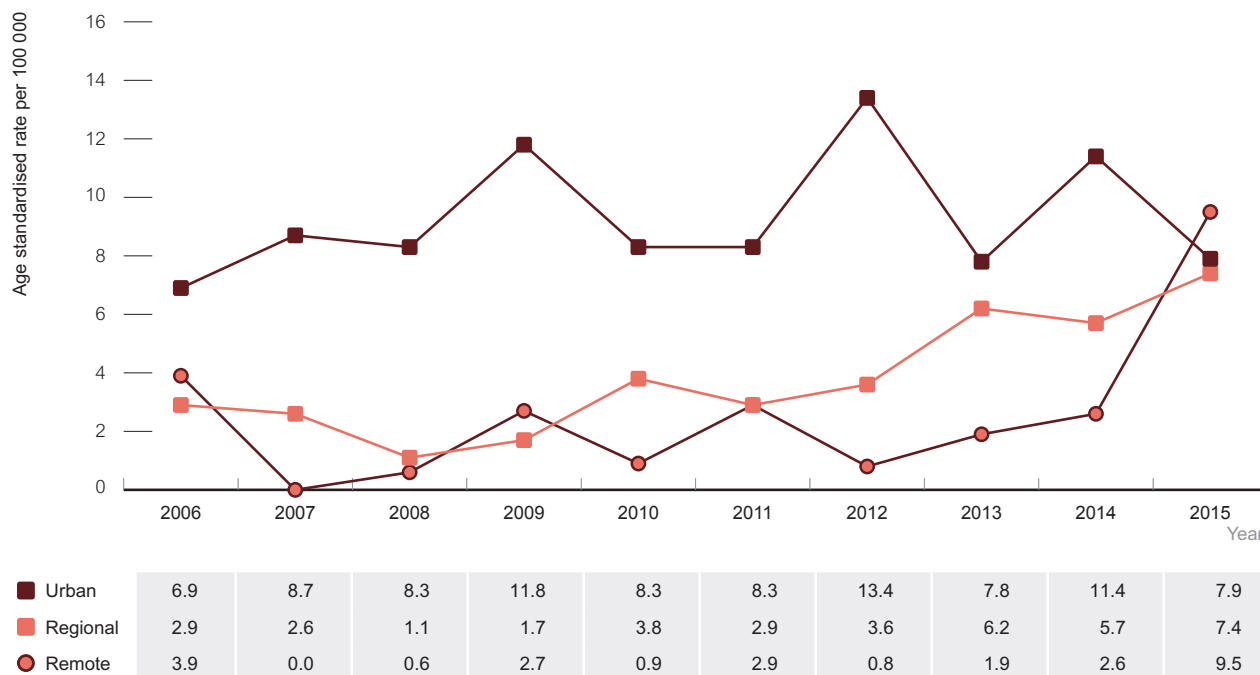
**Figure 11** Newly diagnosed HIV notification rate in the Australian-born population per 100 000, 2006 – 2015, by Aboriginal and Torres Strait Islander status and sex



Source: State and Territory health authorities; includes all states and territories

The notification rates of HIV in the Aboriginal and Torres Strait Islander population have fluctuated across all regions in the ten year period 2006 to 2015, but are all higher in 2015 than ten years ago (Figure 12). Notification rates have been highest in urban areas in all years except 2015, where the notification rate in remote settings was highest (9.5 per 100 000). In 2015, HIV notification rates in the Australian-born non-Indigenous population were 2.9 per 100 000 in urban areas, 1.8 per 100 000 in regional areas and 1.0 per 100 000 in remote areas. Caution should be taken in interpretation of these increases, as they represent a small number of notifications.

**Figure 12** Newly diagnosed HIV notification rate per 100 000 in Aboriginal and Torres Strait Islander peoples, 2006 – 2015, by area of residence

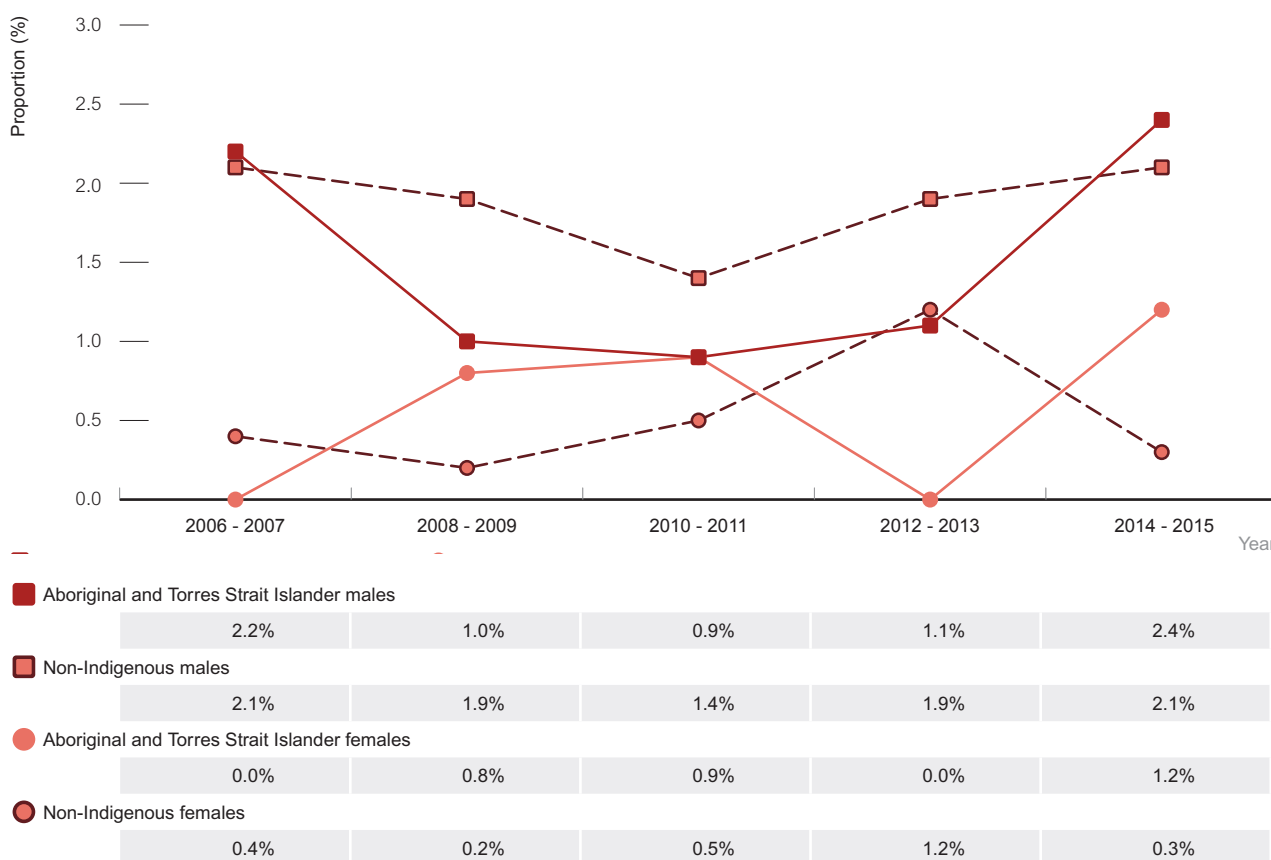


Source: State and Territory health authorities; includes all states and territories



Periodic surveys have measured the HIV prevalence among sub-populations of Aboriginal and Torres Strait Islander peoples. The National Prison Entrants' Bloodborne Virus Survey is a triennial survey of prison entrants conducted over a two week period<sup>3</sup>. The National Prison Entrants' Bloodborne Virus Survey found no cases of HIV in the most recent survey. Data routinely collected from the Australian Needle Syringe Program Survey provides an insight into the demographics, risk behaviour, and bloodborne virus prevalence among people who inject drugs who attend needle and syringe programs. In the period from 2006 – 2015, the proportion of participants in the Australian Needle and Syringe Program Survey identifying as Aboriginal and Torres Strait Islander increased from 10 to 15%. The Australian Needle and Syringe Program Survey of people who inject drugs attending needle and syringe program found each year the prevalence of HIV among Aboriginal and Torres Strait Islander respondents was  $\leq 2.5\%$  overall, but higher in males than females (Figure 13). Prevalence was higher among non-Indigenous males, compared to non-Indigenous males in all time periods except 2014 – 2015 and 2006 – 2007 (Figure 13).

**Figure 13** HIV prevalence in needle and syringe program participants, 2006 – 2015, by Aboriginal and Torres Strait Islander status and sex



Note: Data presented in two year groupings due to small numbers

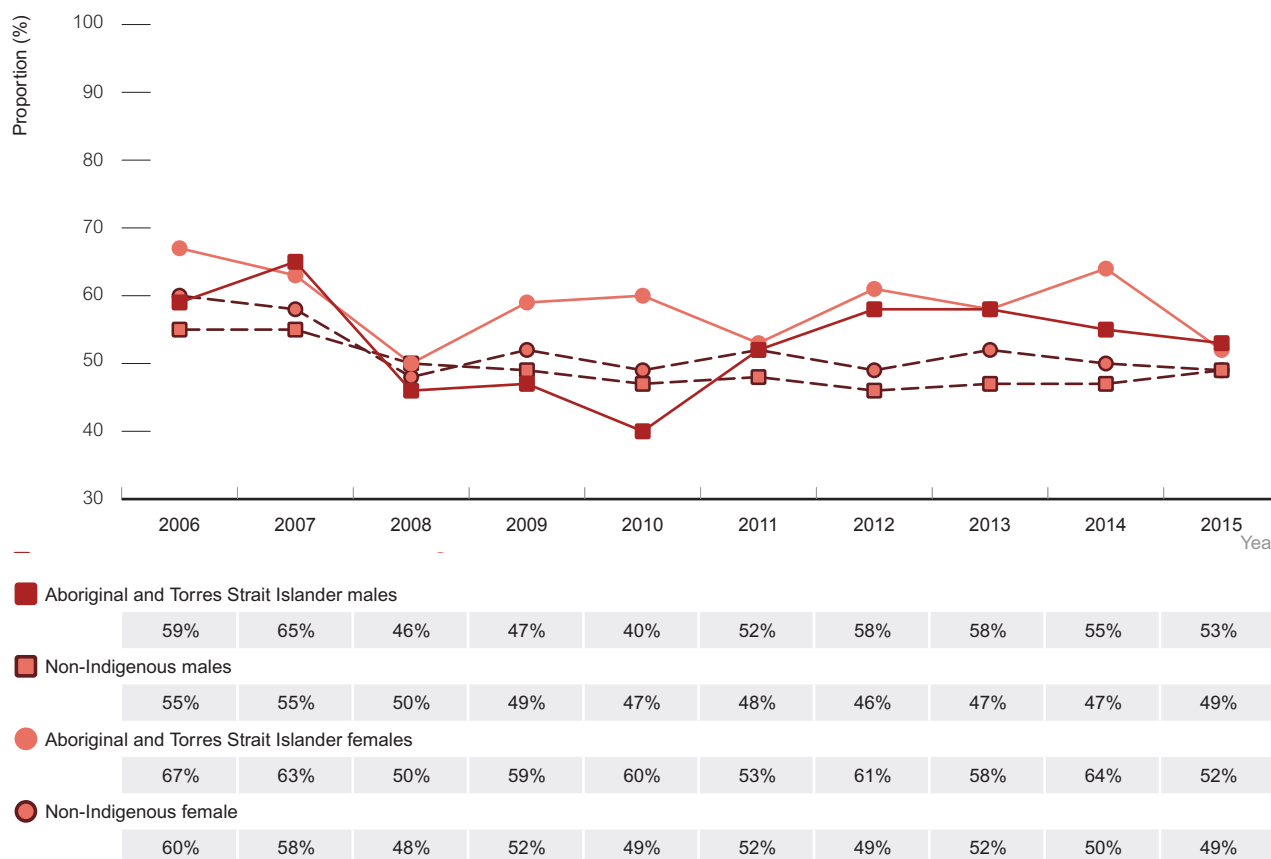
Source: Australian Needle and Syringe Program Survey

## Testing

National testing guidelines recommend HIV testing in a number of contexts, including exposure risk, during antenatal care, and for particular priority populations.<sup>4</sup> The Fourth National Aboriginal and Torres Strait Islander Blood Borne Viruses and Sexually Transmissible Infections Strategy 2014 – 2017<sup>5</sup> prioritises annual testing for STIs, including HIV.

The Australian Needle and Syringe Program Survey showed consistently each year a higher proportion of Aboriginal and Torres Strait Islander females attending needle syringe programs reported a HIV test in the past year, compared with non-Indigenous female participants (52% vs. 49% in 2015) and was higher among Aboriginal and Torres Strait Islander males than non-Indigenous males in the last five years (53% vs. 49% in 2015).

**Figure 14** Proportion of people who inject drugs seen at needle and syringe programs who reported an HIV antibody test in the past 12 months, 2006 – 2015, by Aboriginal and Torres Strait Islander status and sex



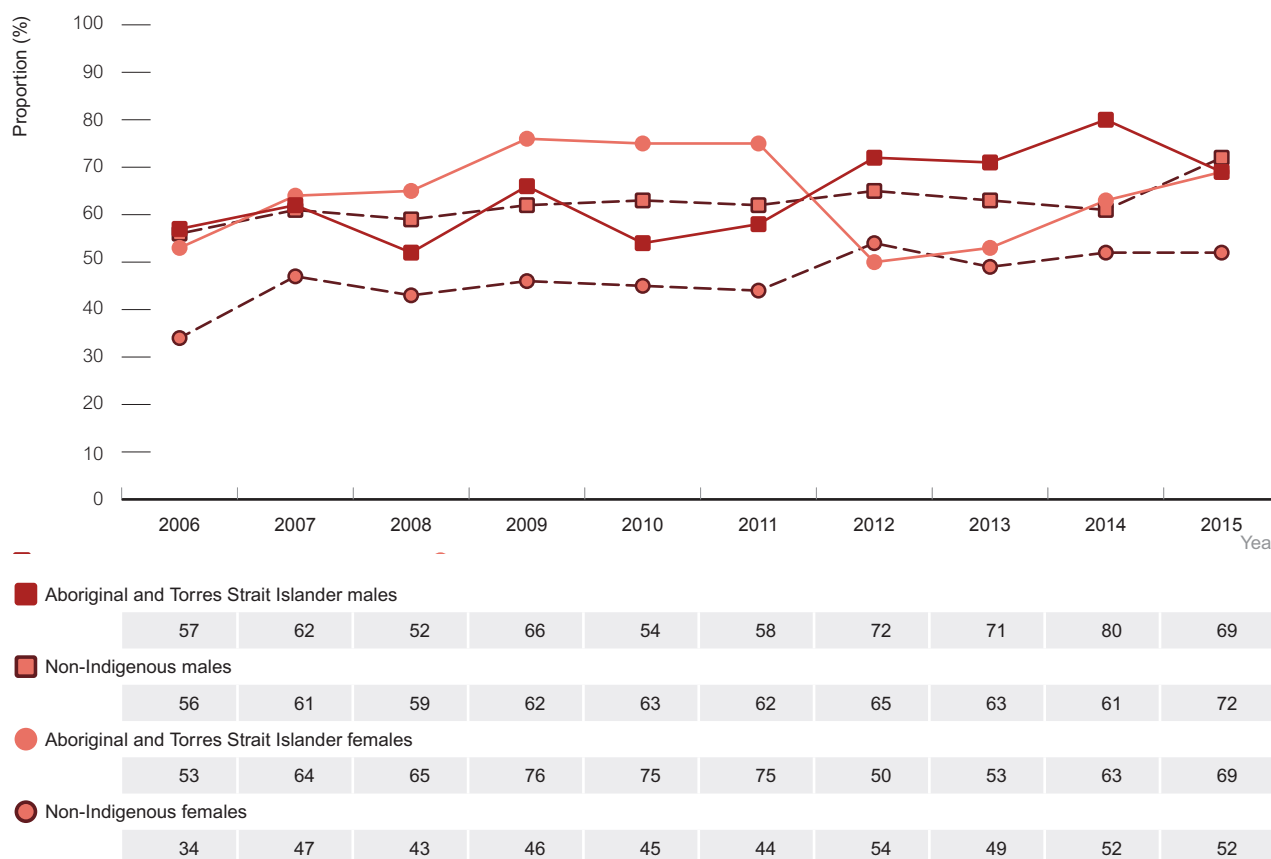
Source: Australian Needle and Syringe Program Survey



## Condom use

According to the Australian Needle and Syringe Program Survey, in all years between 2006 and 2015 except 2012, a higher proportion of Aboriginal and Torres Strait Islander female participants (50 – 76%) reported inconsistent condom use with casual partners in the last month compared with non-Indigenous female participants (34 – 54%) (Figure 15). The proportions of inconsistent condom use in male participants attending needle syringe programs were similar between Aboriginal and Torres Strait Islander and non-Indigenous males, except for 2012 – 2014 when rates of inconsistent condom use were higher in Aboriginal and Torres Strait Islander males compared to non-Indigenous males (Figure 15).

**Figure 15** Prevalence of inconsistent condom use with casual partners<sup>1</sup> among people who inject drugs attending needle and syringe programs, 2006 – 2015, by Aboriginal and Torres Strait Islander status and sex



<sup>1</sup> Denominator includes those who had sex with casual partner in the last month

Source: Australian Needle and Syringe Program Survey





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# Main Findings

## Hepatitis C Infection

- A total of 10 790 cases of newly diagnosed hepatitis C infection were reported in Australia in 2015; 929 (9%) were among the Aboriginal and Torres Strait Islander population, 3 442 (32%) were among the non-Indigenous population and there were a further 6 419 (59%) cases where Indigenous status was not reported.
- Notification rates are based on data from four jurisdictions (the Northern Territory, Tasmania, Western Australia and South Australia), where Aboriginal and Torres Strait Islander status was  $\geq 50\%$  complete for hepatitis C notifications for every year of the past five years 2011 – 2015.
- The rate of newly diagnosed hepatitis C infection in the Aboriginal and Torres Strait Islander population in 2015 was 167 per 100 000, nearly five times higher than the 36 per 100 000 in the non-Indigenous population.
- The rate of newly acquired hepatitis C infection (newly diagnosed hepatitis C infection with evidence of acquisition in the 24 months prior to diagnosis) in the Aboriginal and Torres Strait Islander population in 2015 was 13 times that of the non-Indigenous population (26 vs. 2 per 100 000 respectively)
- In the last five years, there was a 43% increase in the notification rate of newly diagnosed hepatitis C infection in the Aboriginal and Torres Strait Islander population (from 117 per 100 000 in 2011 to 167 per 100 000 in 2015), whereas the rate in the non-Indigenous population decreased by 10% (from 40 per 100 000 in 2011 to 36 per 100 000 in 2015).
- In 2015 receptive syringe sharing, a key risk factor for hepatitis C transmission, was higher among Aboriginal and Torres Strait Islander respondents (24%) than among non-Indigenous respondents (14%).

## Newly diagnosed hepatitis C infections

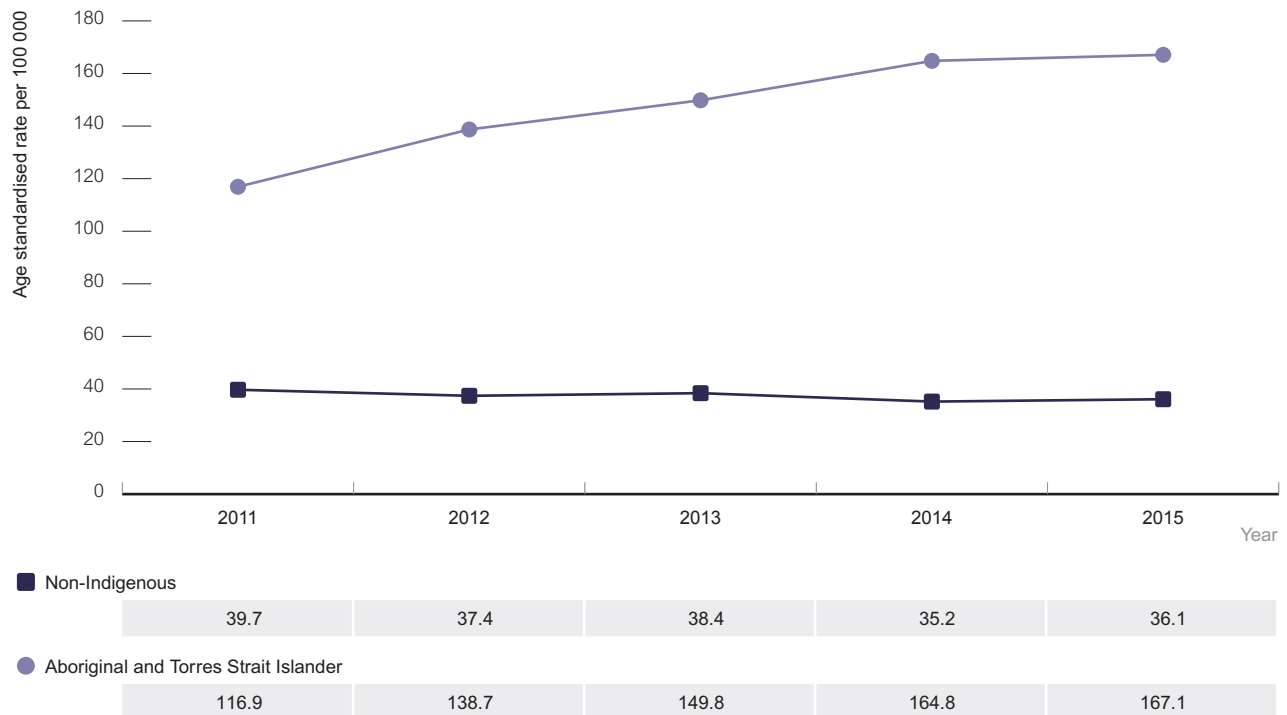
This section focuses on newly diagnosed hepatitis C infection, which means that a person previously not known to have the infection has been tested and now found to have the infection.

A total of 10 790 cases of newly diagnosed hepatitis C infection were reported in Australia in 2015; 929 (9%) occurred among the Aboriginal and Torres Strait Islander population, 3 442 (32%) were among the non-Indigenous population, and there were a further 6 419 (59%) notifications for which Indigenous status was not reported.

In the five-year period 2011 – 2015, Aboriginal and Torres Strait Islander status was reported  $\geq 50\%$  of notifications per year in the Northern Territory, South Australia, Tasmania, and Western Australia. Incomplete information on Aboriginal and Torres Strait Islander status can underestimate the true extent of diagnoses of these infections in the Aboriginal and Torres Strait Islander population and may not reflect national trends.

In the five-year period 2011 – 2015, the age-standardised notification rate of newly diagnosed hepatitis C infection in the Aboriginal and Torres Strait Islander population increased by 43% from 117 per 100 000 in 2011 to 167 per 100 000 in 2015; whereas the rate in the non-Indigenous population decreased by 10% from 40 per 100 000 in 2011 to 36 per 100 000 in 2015 (Figure 16).

Figure 16 Newly diagnosed hepatitis C notification rate per 100 000 population, 2011 – 2015, by Aboriginal and Torres Strait Islander status

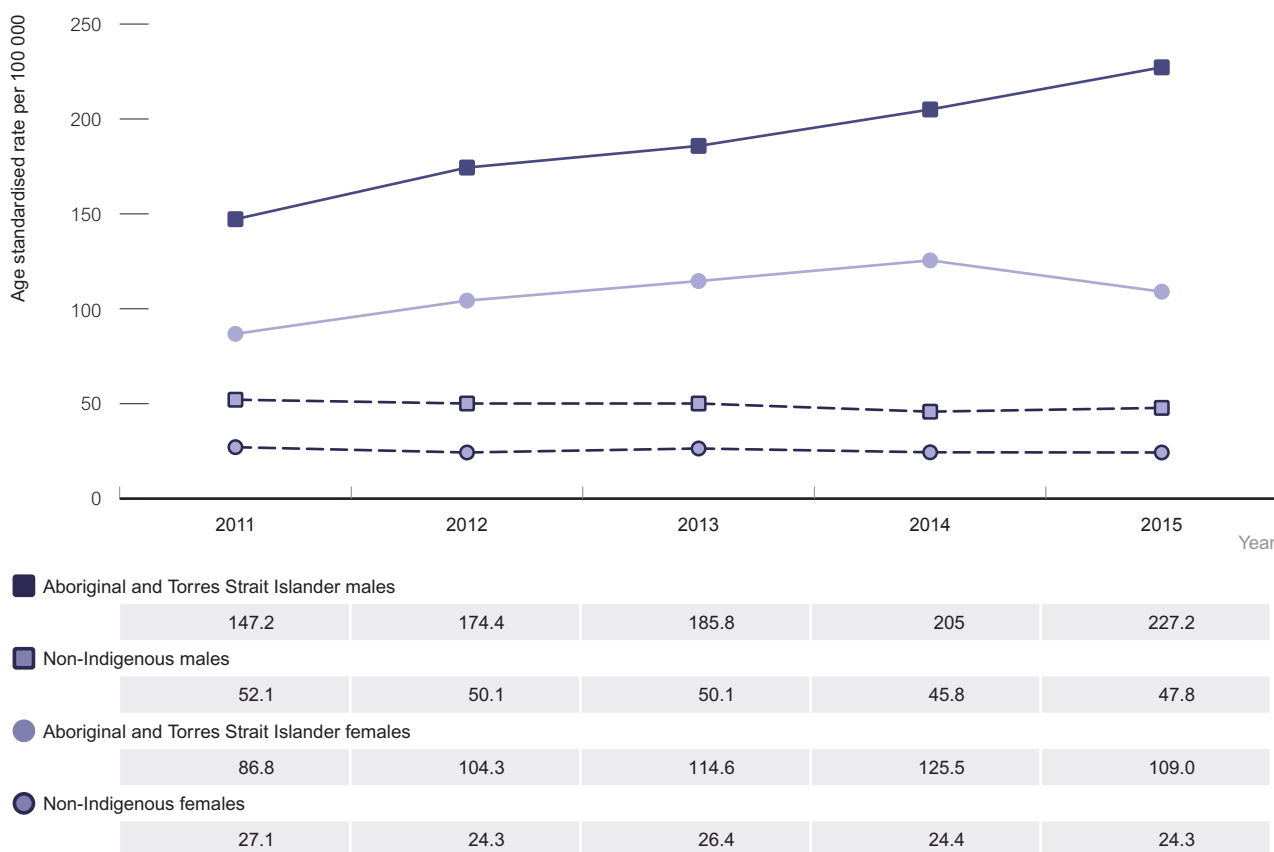


Source Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2011 – 2015.

In the period 2011 – 2015, the hepatitis C notification rate was higher in both Aboriginal and Torres Strait Islander males and females, compared to the non-Indigenous population in all years (Figure 17). In Aboriginal and Torres Strait Islander males, the hepatitis C notification rate increased by 54% from 147 in 2011 to 227 per 100 000 in 2015, and females increased by 25% from 87 in 2011 to 109 per 100 000 in 2015); whereas the rate in non-Indigenous males and females both declined by 8% and 11% respectively.



Figure 17 Newly diagnosed hepatitis C notification rate per 100 000 population, 2011 – 2015, by Aboriginal and Torres Strait Islander status and sex

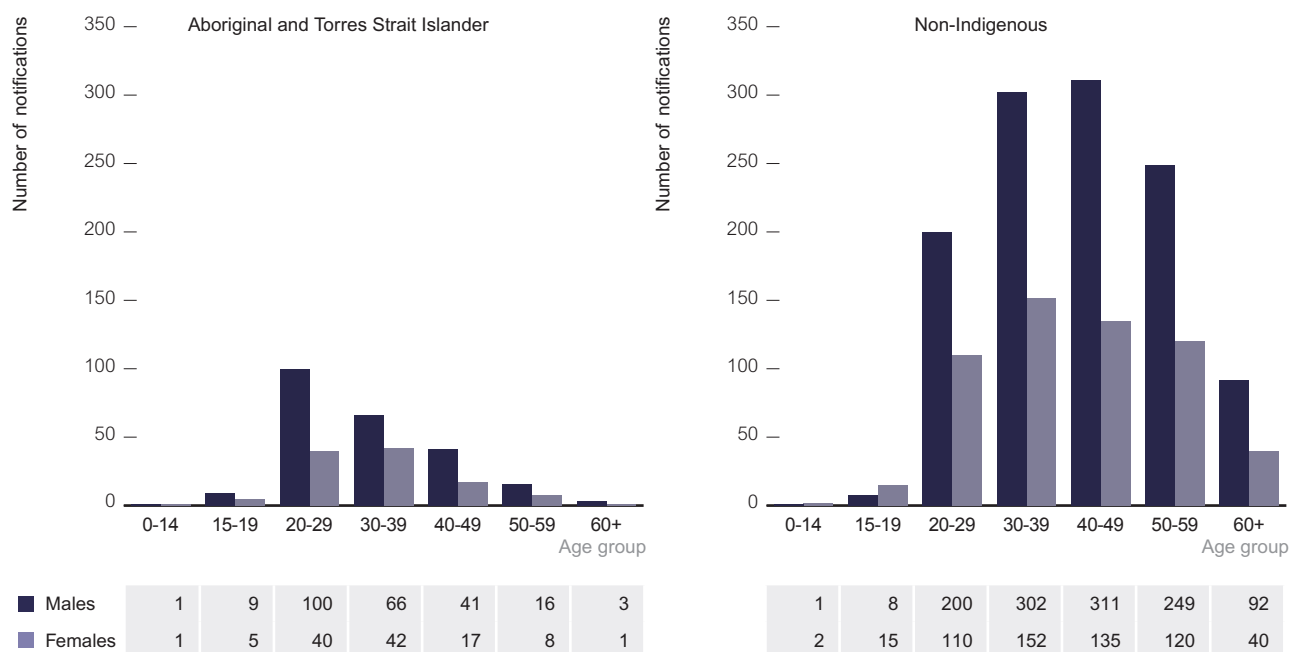


Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2011 – 2015.

In 2015, the majority (over 95%) of notifications of newly diagnosed hepatitis C infection in both the Aboriginal and Torres Strait Islander and the non-Indigenous population occurred in people aged over 20 years (Figure 18).

In 2015, of notifications of newly diagnosed hepatitis C infection in the Aboriginal and Torres Strait Islander population, 67% were in males and 33% in females, and similarly in the non-Indigenous population, 67% of newly diagnosed hepatitis C infections were in males and 33% in females (Figure 18).

**Figure 18** Number of notifications of newly diagnosed hepatitis C infection, 2015, by Aboriginal and Torres Strait Islander status and sex

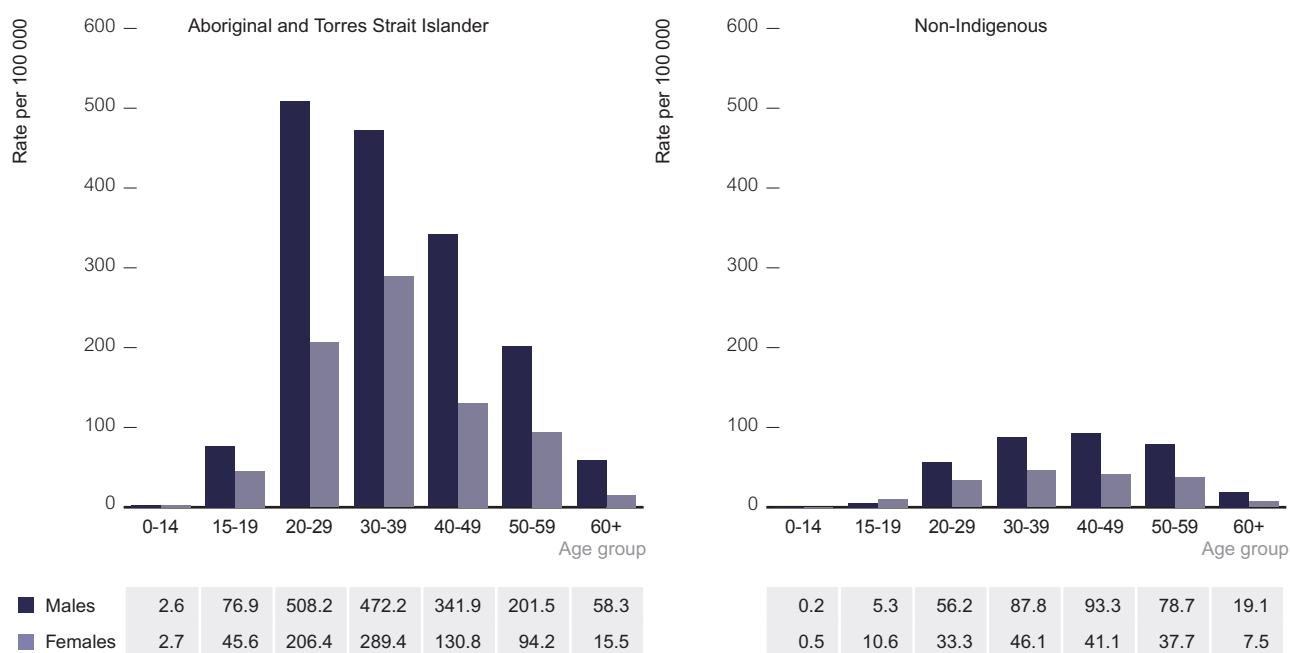


Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2011 – 2015.

The greatest difference between notification rates of newly diagnosed hepatitis C infection between the Aboriginal and Torres Strait Islander population and non-Indigenous population was observed in the younger age groups. The notification rates of newly diagnosed hepatitis C infection in the Aboriginal and Torres Strait Islander male population aged 15 – 19 and 20 – 29 years in 2015 were 14 and 9 times higher than the rates in the non-Indigenous population in the same age groups, and in the 30–39 and 40–49 age groups 5 and 4 times higher (Figure 19).

Similar findings were observed in females; notifications rates in the Aboriginal and Torres Strait Islander female population aged 15 – 19 and 20 – 29 were 4 and 6 times higher than the non-Indigenous population and 6 and 3 times higher in 30–39 and 40–49 age groups, respectively (Figure 19).

**Figure 19** Newly diagnosed hepatitis C notification rate per 100 000, 2015, by Aboriginal and Torres Strait Islander status, sex and age group

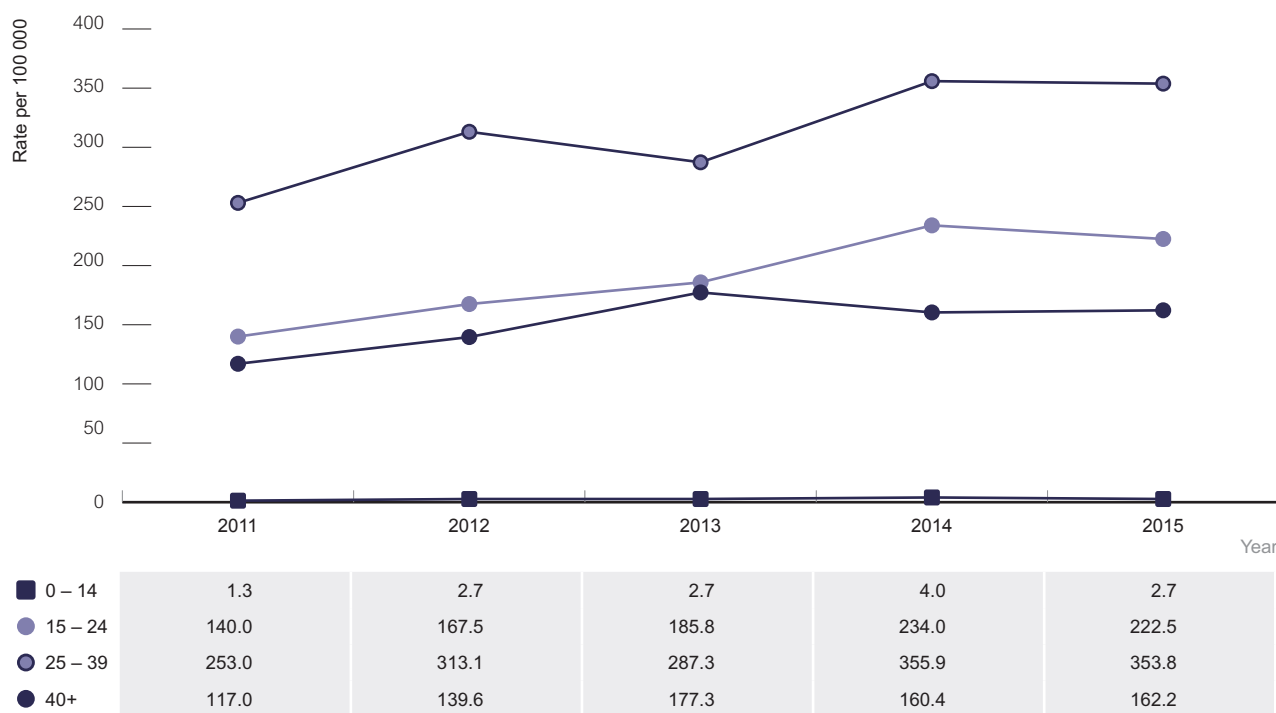


Source: Australian National Notifiable Diseases Surveillance System ; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2011 – 2015.



As the primary route of transmission of hepatitis C is injecting drug use, a practice that typically starts in late adolescence or early adulthood, trends in the rate of diagnoses in those under 25 years can be a proxy for the incidence of hepatitis C infection.<sup>6</sup> In the five-year period 2011 – 2015, the hepatitis C notification rate increased the most in the Aboriginal and Torres Strait Islander population in the 15 – 24 year age group by 59% from 140 per 100 000 in 2011 to 223 per 100 000 in 2015. Hepatitis C notification rates increased in the 25 – 39 year age group by 40% and 40+ year age group by 38% (Figure 20).

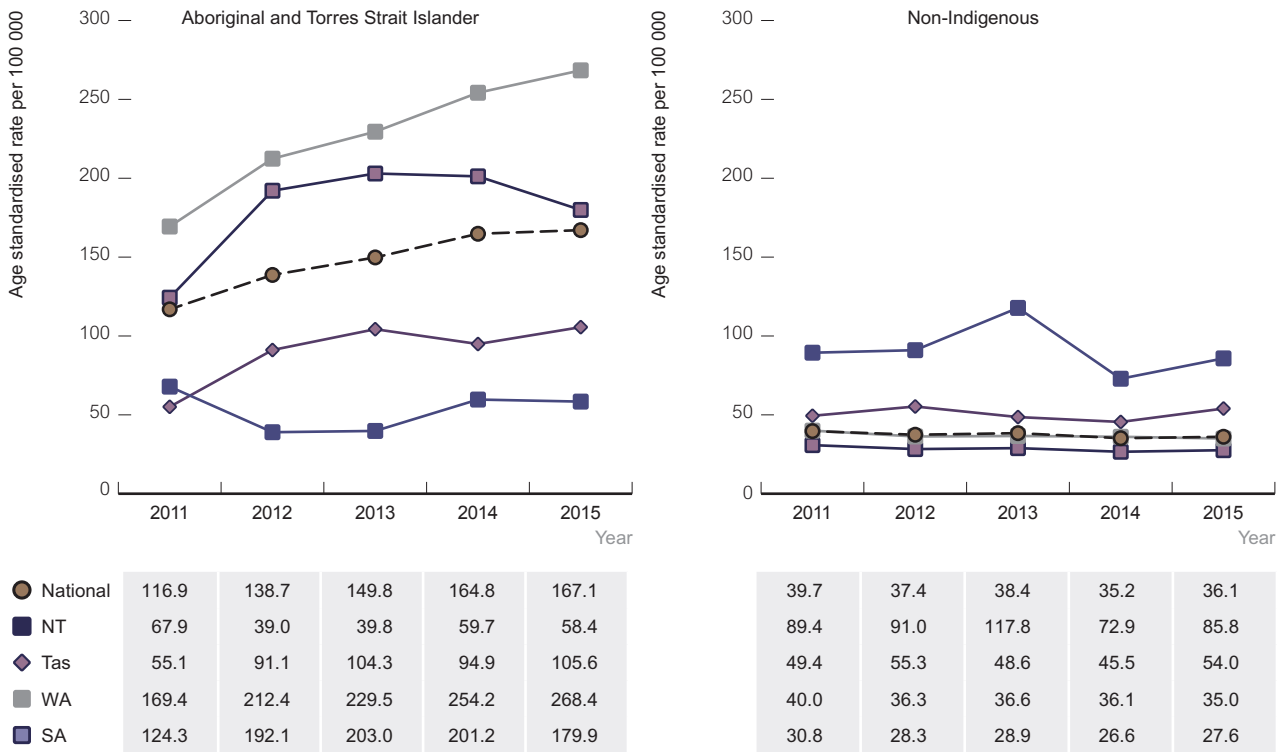
**Figure 20** Newly diagnosed hepatitis C notification rate per 100 000, 2011 – 2015, in Aboriginal and Torres Strait Islander peoples, by age group



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

In Tasmania and Western Australia, the rate of hepatitis C notification was 2 – 7 times greater in the Aboriginal and Torres Strait Islander population than in the non-Indigenous population in 2015 and since 2011 has increased in both jurisdictions (Figure 21). In South Australia, the hepatitis C notification rate in the Aboriginal and Torres Strait Islander population was 6 times higher than the non-Indigenous population, but in the Aboriginal and Torres Strait Islander population has decreased by 11% since 2013. In the Northern Territory, the rate of hepatitis C notification was lower in the Aboriginal and Torres Strait Islander population than the non-Indigenous population in 2015 (58 vs. 86 per 100 000).

Figure 21 Newly diagnosed hepatitis C notification rate per 100 000, 2011 – 2015, by Aboriginal and Torres Strait Islander status and State/Territory

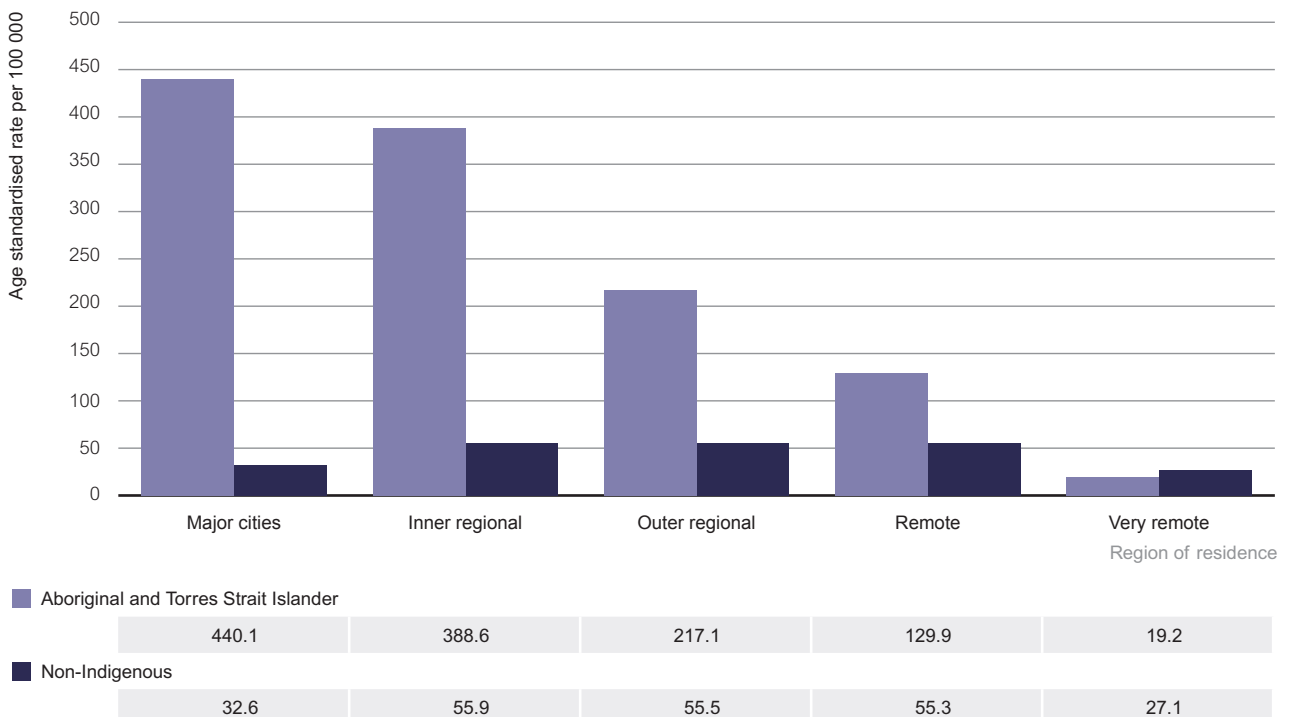


Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Northern Territory, South Australia, Tasmania and Western Australia) for each of the five years 2011 – 2015.

In 2015, the notification rate of newly diagnosed hepatitis C infection among the Aboriginal and Torres Strait Islander population in major cities, inner regional, outer regional, and remote areas was 14, 7, 4 and 2 times higher respectively than the rate of diagnosis in the non-Indigenous population resident in the same areas (Figure 22).



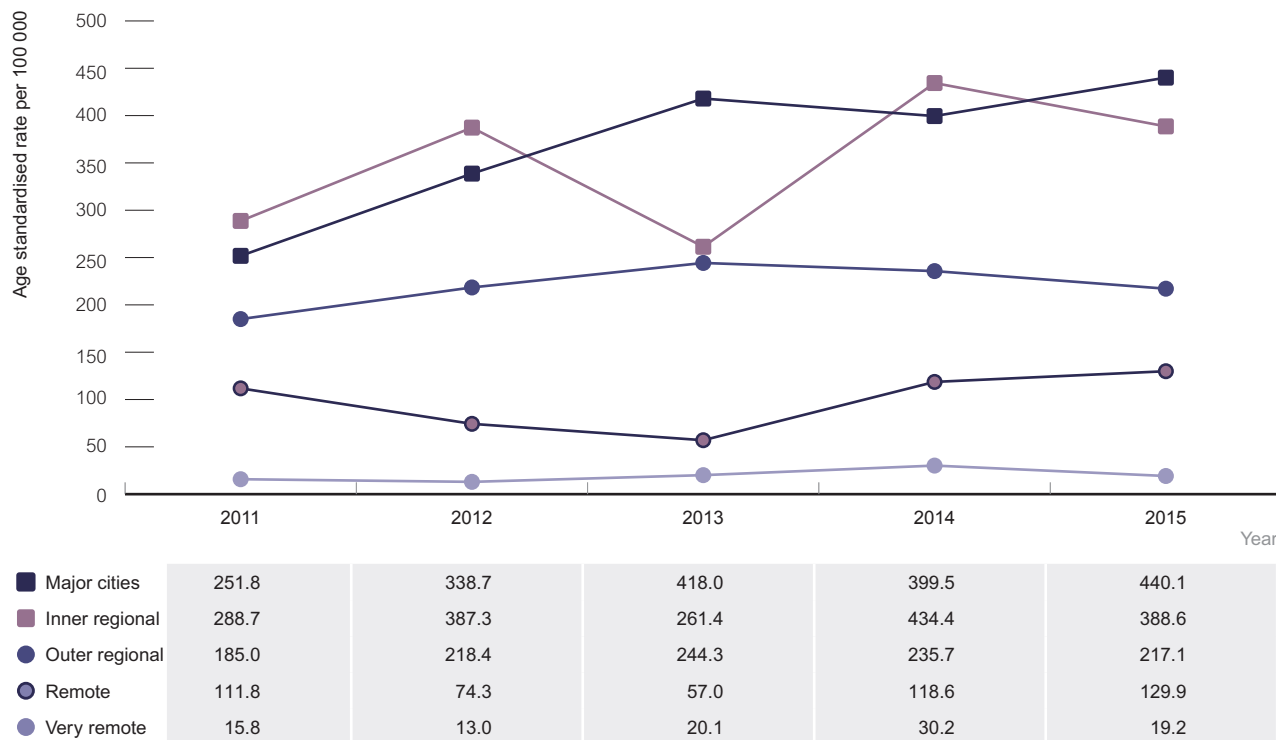
Figure 22 Hepatitis C notification rate per 100 000, 2015, by Aboriginal and Torres Strait Islander status and area of residence



Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  in 2015 (Northern Territory, South Australia, Tasmania and Western Australia).

Between 2011 and 2015 the notification rate of newly diagnosed hepatitis C infection in Aboriginal and Torres Strait Islander peoples increased in major cities by 75%, from 252 per 100 000 in 2011 to 440 per 100 000 in 2015, and by 35% in inner regional areas, from 289 per 100 000 in 2011 to 389 per 100 000 in 2015 (Figure 23).

**Figure 23** Newly diagnosed hepatitis C notification rate per 100 000 population in Aboriginal and Torres Strait Islander peoples, 2011 – 2015, by area of residence



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

## Newly acquired hepatitis C infection

This section focuses on newly acquired hepatitis C infection which means that a person previously known not to have the infection within the last two years has been tested and now found to have the infection. These data on newly acquired infections should be interpreted with caution as they are likely to under-estimate 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 will therefore remain undetected. Also, even if testing is conducted, it may be difficult to distinguish a newly diagnosed case as newly acquired unless there is a history of a recent negative test prior to the positive diagnosis or clinical evidence of newly acquired hepatitis C.

Information on Aboriginal and Torres Strait Islander status was reported for more than 50% of notifications of newly acquired hepatitis C infection in all jurisdictions except Queensland. Analyses of notifications data below exclude Queensland, as enhanced hepatitis C surveillance is not conducted in Queensland and all notifications are reported as unspecified.

In 2015, of the 441 newly acquired hepatitis C infections notified, 131 (30%) were notified in the Aboriginal and Torres Strait Islander population and 288 (65%) in the non-Indigenous population, Indigenous status was not reported for 22 (5%) of notifications.

In 2015, the age-standardised notification rate of newly acquired hepatitis C infection in the Aboriginal and Torres Strait Islander population was 13 times that of the non-Indigenous population (26 vs. 2 per 100 000 respectively) (Figure 24). In the five-year period 2011 – 2015, the notification rate of newly acquired hepatitis C infection in the Aboriginal and Torres Strait Islander population increased from 12 in 2011 to 26 per 100 000 in 2015 (Figure 24). Over the same period, the notification rates of newly acquired hepatitis C were relatively stable in the non-Indigenous population.



**Figure 24** Newly acquired hepatitis C notification rate per 100 000, 2011 – 2015, by Aboriginal and Torres Strait Islander status

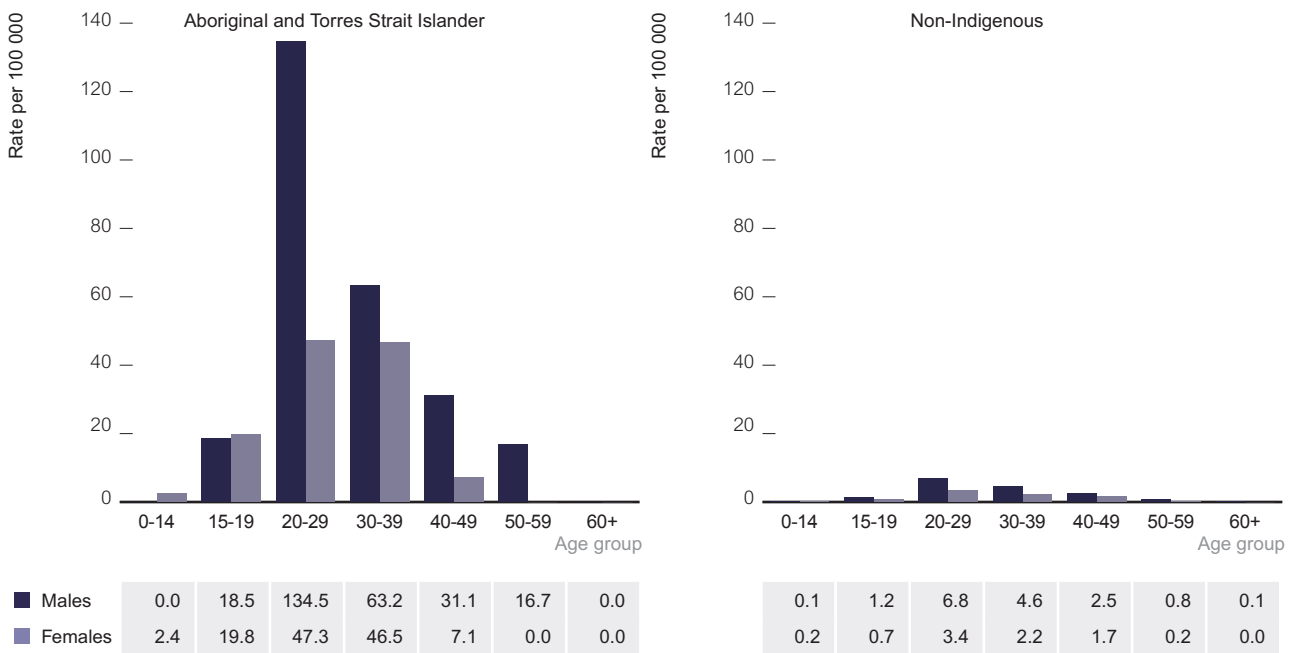


Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Australian Capital Territory, New South Wales, Northern Territory, South Australia, Tasmania, Victoria and Western Australia) for each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

In 2015 the rate of newly acquired hepatitis C notifications were highest in the 20 – 29 year age group, and was 19 times higher among Aboriginal and Torres Strait Islander males than non-Indigenous males (135 vs. 7 per 100 000). Similarly, rates were higher among Aboriginal and Torres Strait Islander females compared to non-Indigenous females aged 20 – 29 years old (47 vs. 3 per 100 000) (Figure 25).



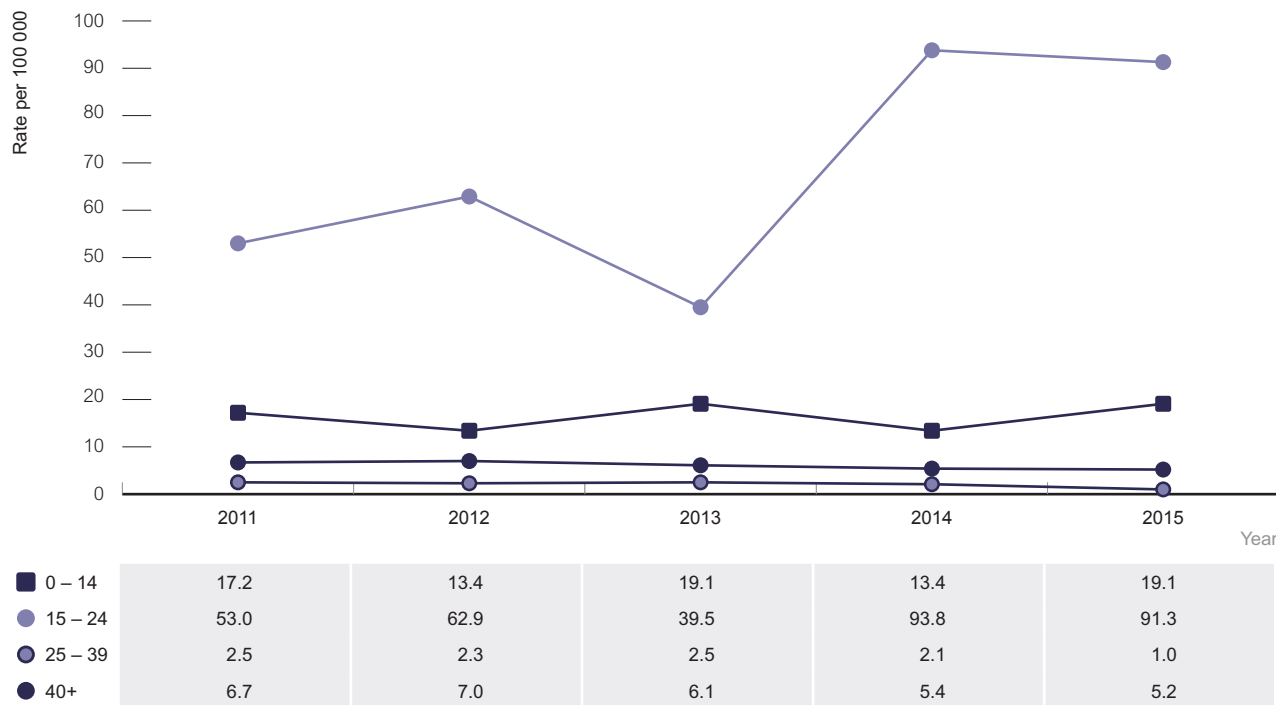
**Figure 25** Newly acquired hepatitis C notification rate per 100 000, 2015, by Aboriginal and Torres Strait Islander status and age group



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

Between 2011 and 2015 in the Aboriginal and Torres Strait Islander population, the notification rate of newly acquired hepatitis C highest in the 15 – 24 year age group increased by 72% from 53 per 100 000 in 2011 to 91 per 100 000 in 2015 (Figure 26). Notification rates of newly acquired hepatitis C were relatively stable in all other age groups (Figure 26).

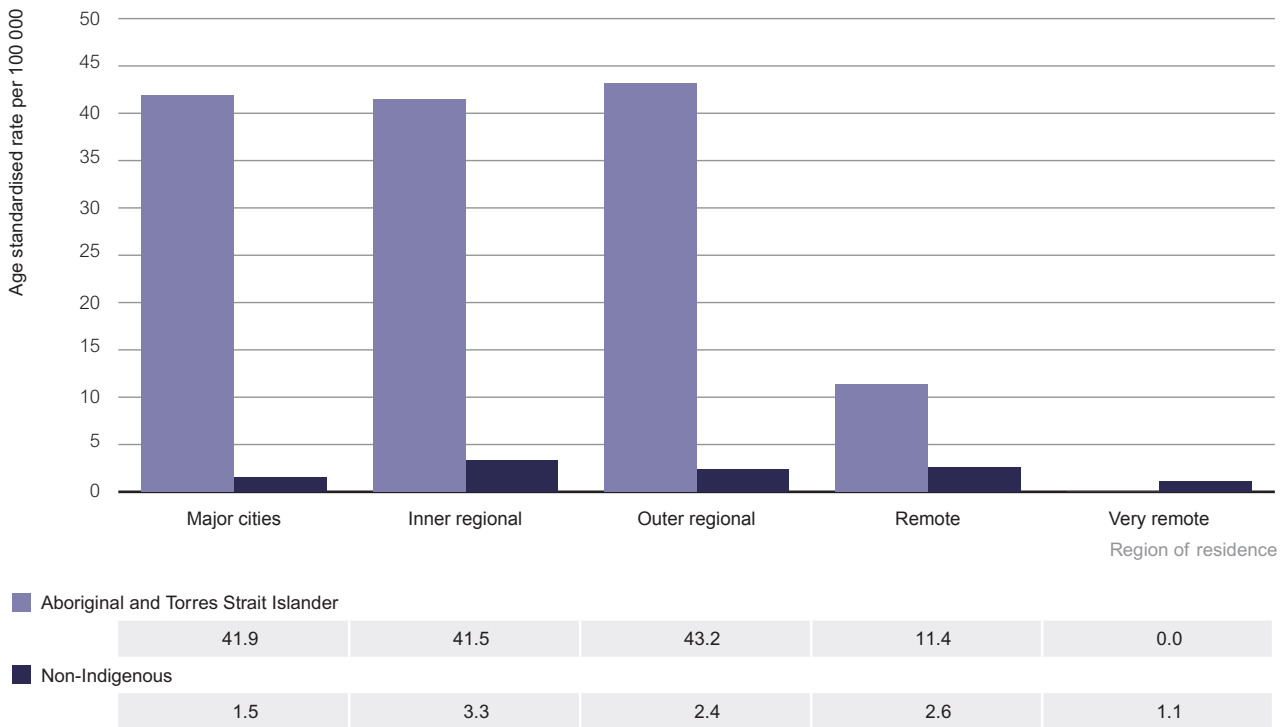
**Figure 26** Newly acquired hepatitis C notification rate per 100 000, 2011 – 2015, by Aboriginal and Torres Strait Islander status and select age group



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

In 2015 rates of newly acquired hepatitis C in the Aboriginal and Torres Strait Islander population were 21, 14, 22, and 4 times higher than the non-Indigenous in major cities, inner regional, outer regional and remote settings (Figure 27).

**Figure 27** Newly acquired hepatitis C notification rate per 100 000 population, 2015, by Aboriginal and Torres Strait Islander status and area of residence

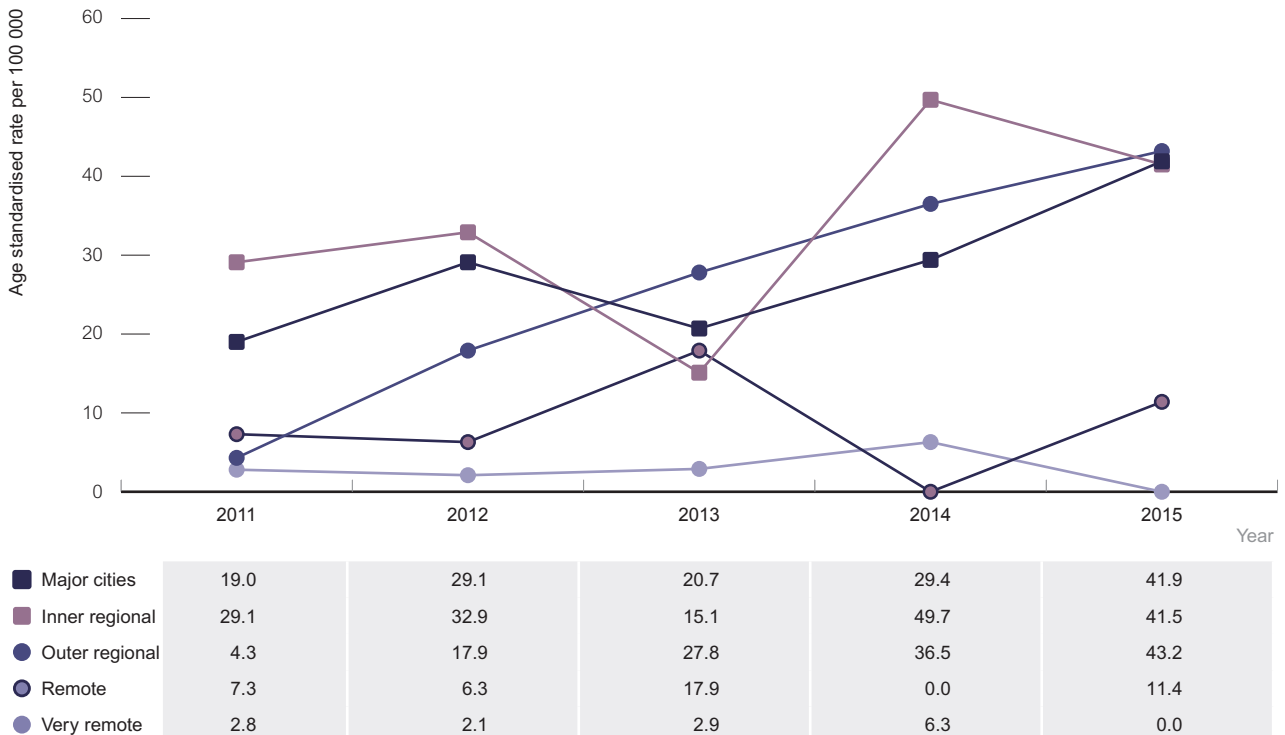


Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Australian Capital Territory, New South Wales, Northern Territory, South Australia, Tasmania, Victoria and Western Australia).

From 2011 – 2015, notification rates of newly acquired hepatitis C in the Aboriginal and Torres Strait Islander population increased the most in outer regional areas of residence (from 4.3 to 43.2 per 100 000) and major cities (from 19.0 to 41.9 per 100 000) (Figure 28).



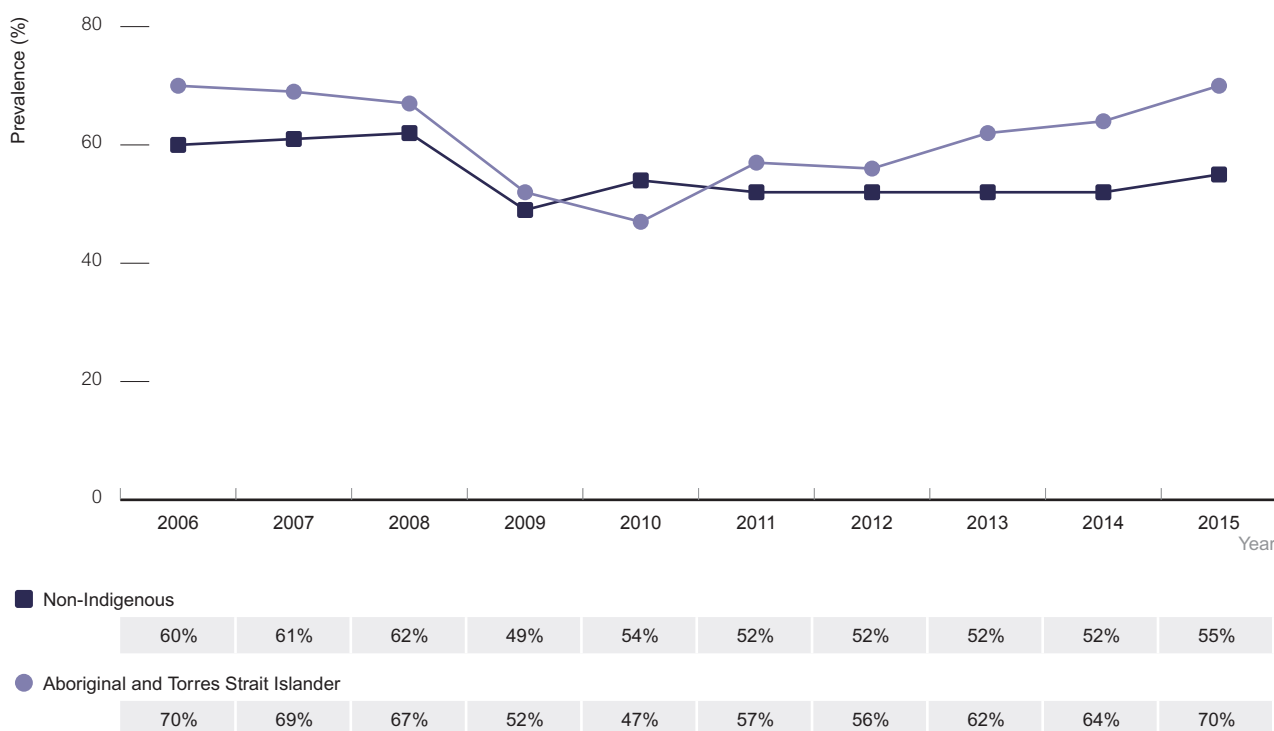
**Figure 28** Newly acquired hepatitis C notification rate per 100 000 population, 2011 – 2015 in Aboriginal and Torres Strait Islander peoples, by area of residence



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

Data from the Australian Needle and Syringe Program Survey show that hepatitis C antibody prevalence was higher among Aboriginal and Torres Strait Islander survey respondents compared to non-Indigenous participants in all years, except for 2010 (Figure 29). The prevalence of hepatitis C antibody among Aboriginal and Torres Strait Islander participants increased from 57% in 2011 to 70% in 2015, compared with a stable prevalence in non-Indigenous respondents at 52 to 55% over the same period (Figure 29).

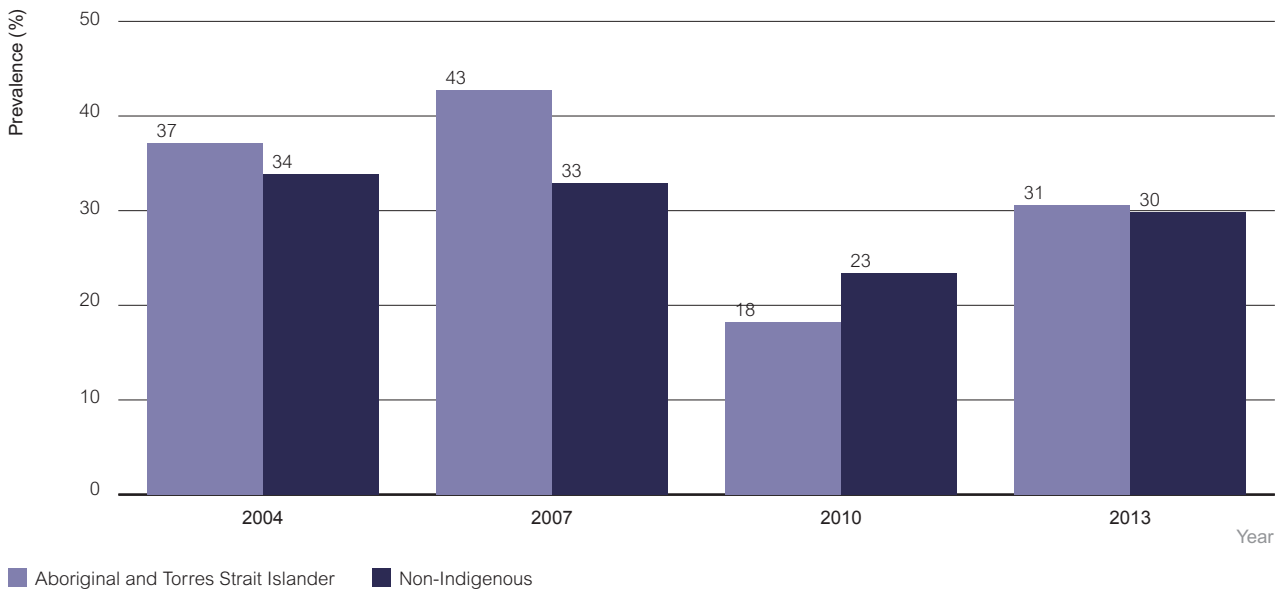
**Figure 29** Hepatitis C antibody prevalence in needle and syringe program participants, 2006 – 2015, by Aboriginal and Torres Strait Islander status



Source: Australian Needle and Syringe Program Survey

Aboriginal and Torres Strait Islander people have higher rates of risk factors for hepatitis C acquisition, including through receptive sharing of syringes, and incarceration. In 2015, imprisonment rates for the Aboriginal and Torres Strait Islander population were reported to be 15 times higher than the non-Indigenous population<sup>7</sup>. Data from the National Prison Entrants' Bloodborne Virus Survey show that hepatitis C prevalence was higher among Aboriginal and Torres Strait Islander prisoners in each year of the survey except 2010. The relative difference in prevalence was greatest in 2010 with a similar prevalence reported in 2013, the most recent year of the survey (Figure 30).

**Figure 30** Hepatitis C antibody prevalence among a sample of incoming Australian prisoners, by year of survey, and Aboriginal and Torres Strait Islander status



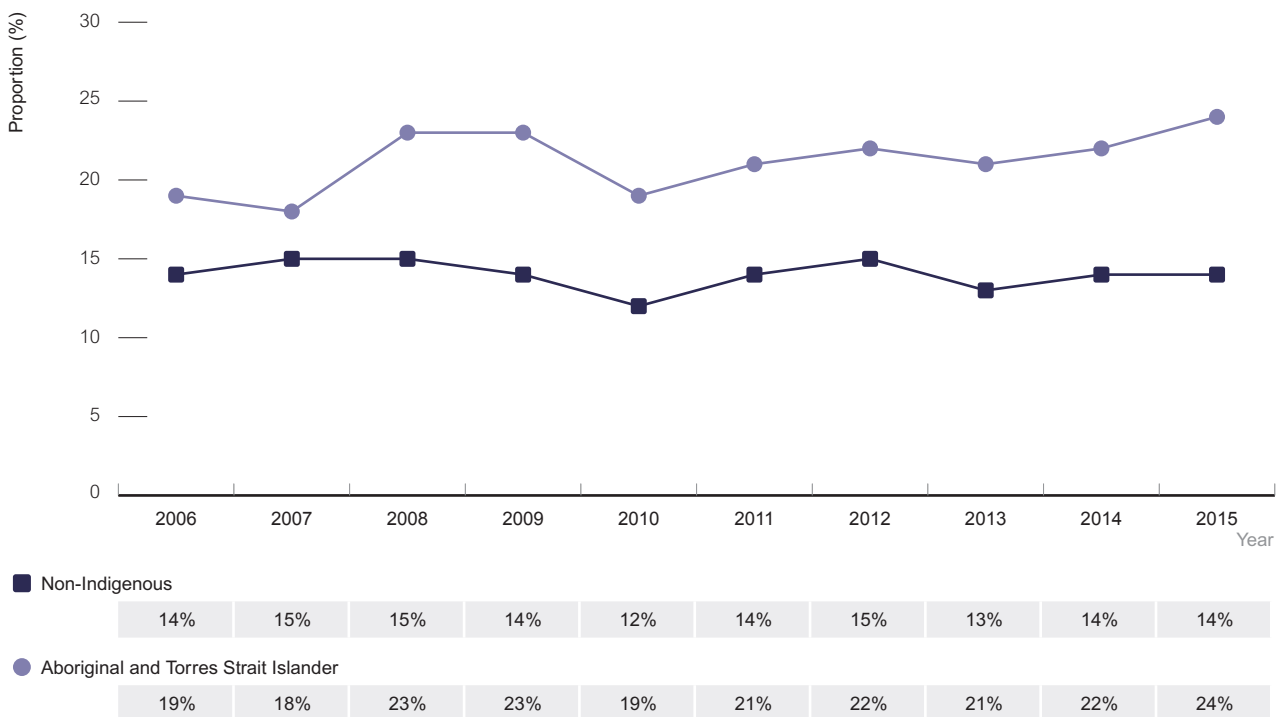
Source: National Prison Entrants' Bloodborne Virus Survey, 2004, 2007, 2010, and 2013

## Injecting drug use

A higher proportion of Aboriginal and Torres Strait Islander peoples attending needle and syringe programs reported receptive syringe sharing, compared to non-Indigenous participants (24% versus 14% in 2015) (Figure 31). 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 31** Prevalence of receptive syringe sharing (RSS)<sup>1</sup> by needle and syringe program participants, 2006 – 2015, by Aboriginal and Torres Strait Islander status



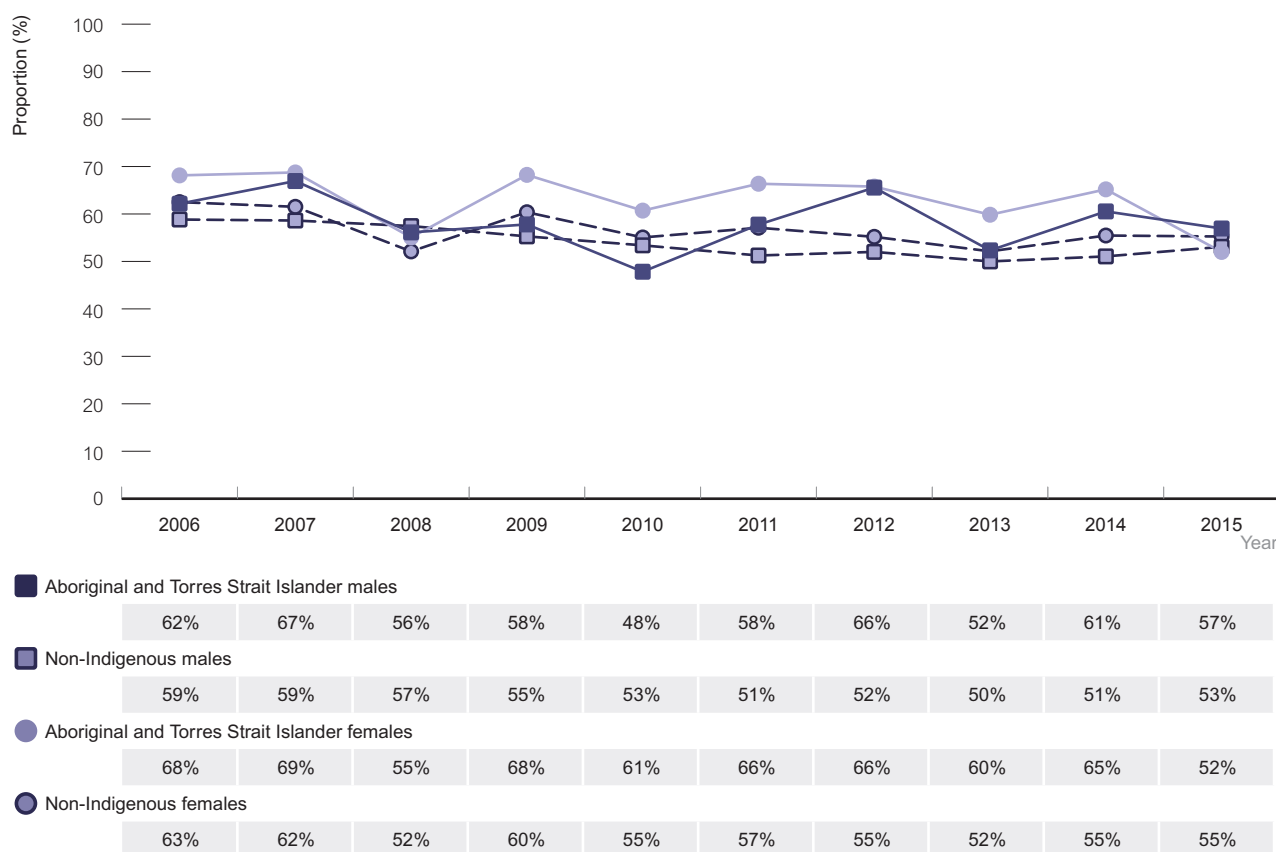
<sup>1</sup> Denominator includes only those who injected in the last month

Source: Australian Needle and Syringe Program Survey

## Testing

Among respondents of the Australian Needle and Syringe Program Survey, the proportion of female Aboriginal and Torres Strait Islander people reporting a hepatitis C antibody test in the past twelve months has been higher than the non-Indigenous female population in all years, except 2015 (Figure 32). The proportion of male Aboriginal and Torres Strait Islander respondents reporting a hepatitis C antibody testing the past twelve months has been higher than the non-Indigenous male population in all years, except 2008 and 2010 (Figure 32).

**Figure 32** Proportion of people who inject drugs seen at needle and syringe programs who reported a hepatitis C antibody test in the past twelve months, 2006 – 2015, by Aboriginal and Torres Strait Islander status and sex



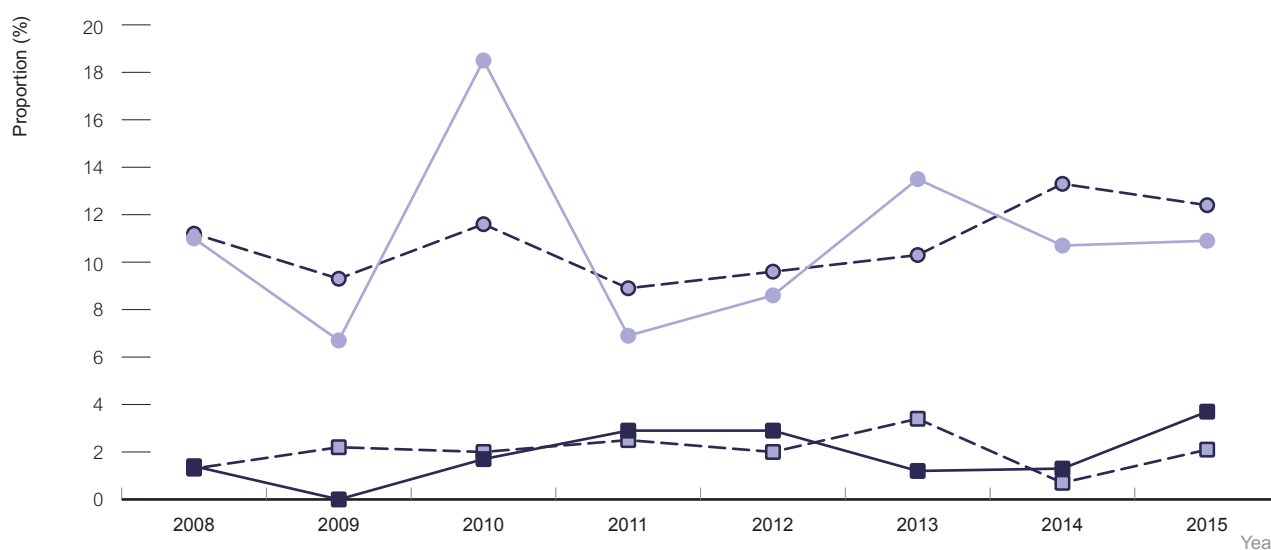
Source: Australian Needle and Syringe Program Survey

## Treatment

According to the Australian Needle Syringe Program Survey, among Aboriginal and Torres Strait Islander participants in 2015 10.9% reported a lifetime history of treatment, and 3.7% reported treatment in the last 12 months, similar to the 11.0% and 1.4%, respectively, in 2008 (Figure 33). These proportions were similar among Aboriginal and Torres Strait Islander and non-Indigenous participants.

Interferon-free direct acting antiviral regimens became available in Australia in March 2016, and treatment data from the Pharmaceutical Benefits Scheme (PBS) from March-July 2016 are reported in the 'Hepatitis B and C in Australia: Annual Surveillance Report Supplement 2016'. PBS data do not record Aboriginal and Torres Strait Islander status, so other data sources will be used to monitor treatment uptake in Aboriginal and Torres Strait Islander people.

**Figure 33** Hepatitis C antiviral therapy in the past 12 months and ever for hepatitis C antibody positive needle and syringe program participants, 2006 – 2015, by Aboriginal and Torres Strait Islander status



● Lifetime history of treatment – Aboriginal and Torres Strait Islander<sup>1</sup>

11.0%	6.7%	18.5%	6.9%	8.6%	13.5%	10.7%	10.9%
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■ Treatment in the last 12 months – Aboriginal and Torres Strait Islander<sup>1,2</sup>

1.4%	0.0%	1.7%	2.9%	2.9%	1.2%	1.3%	3.7%
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● Lifetime history of treatment – non-Indigenous<sup>1</sup>

11.2%	9.3%	11.6%	8.9%	9.6%	10.3%	13.3%	12.4%
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■ Treatment in the last 12 months – non-Indigenous<sup>1,2</sup>

1.3%	2.2%	2.0%	2.5%	2.0%	3.4%	0.7%	2.1%
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1. Denominator for lifetime history of treatment is restricted to people with hepatitis C antibody positive serology and excludes people who self-reported spontaneous clearance; Denominator for treatment in the last twelve months is restricted to people with hepatitis C antibody positive serology and excludes people who self-reported spontaneous or treatment induced viral clearance

2. Prior to 2012 commenced treatment in the last twelve months was 'current treatment'

Source: Australian Needle and Syringe Program Survey



# Main Findings

## Hepatitis B

- There were a total of 6 502 notifications of newly diagnosed hepatitis B infection in Australia in 2015, of these 221 (3%) were among the Aboriginal and Torres Strait Islander population, 2 211 (34%) were among the non-Indigenous population, and there were a further 4 070 (63%) notifications for which Indigenous status was not reported.
- Notification rates are based on data from five jurisdictions (Australian Capital Territory, the Northern Territory, South Australia, Tasmania, and Western Australia), where Aboriginal and Torres Strait Islander status was  $\geq 50\%$  complete for hepatitis B notifications for each year of the five years 2011 – 2015.
- In 2015, the notification rate of newly diagnosed hepatitis B infection for the Aboriginal and Torres Strait Islander population was 3 times higher than the non-Indigenous population (66 per 100 000 vs. 22 per 100 000) with higher rates of hepatitis B notification in Aboriginal and Torres Strait Islander people in all age groups.
- In the five-year period 2011 – 2015, there was a 22% decline in the notification rate of newly diagnosed hepatitis B infection in the Aboriginal and Torres Strait Islander population (from 85 per 100 000 in 2011 to 66 per 100 000 in 2015), compared to a plateau in rates in the non-Indigenous population.



## Newly diagnosed hepatitis B infections

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

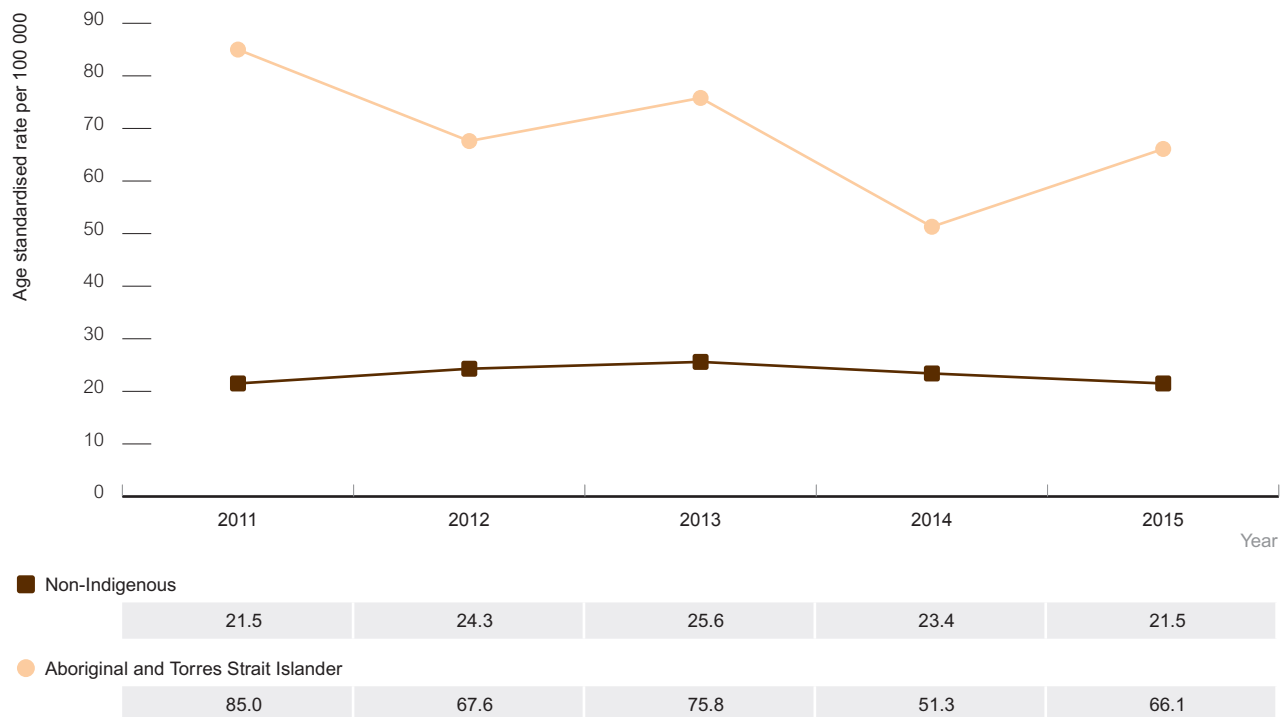
There were a total of 6 502 notifications of newly diagnosed hepatitis B infection in Australia in 2015, of these 221 (3%) were among the Aboriginal and Torres Strait Islander population, 2 211 (34%) were among the non-Indigenous population, and there were a further 4 070 (63%) notifications for which Indigenous status was not reported.

In the five-year period 2011 – 2015, Aboriginal and Torres Strait Islander status was in  $\geq 50\%$  of notifications per year in the Australian Capital Territory, the Northern Territory, South Australia, Tasmania, and Western Australia.

In 2015, the age-standardised notification rate of newly diagnosed hepatitis B infection for the Aboriginal and Torres Strait Islander population was 3 times higher than the non-Indigenous population (66 per 100 000 versus 22 per 100 000) (Figure 34).

In the five-year period 2011 – 2015, there was a decline in the notification rates of newly diagnosed hepatitis B infection in the Aboriginal and Torres Strait Islander population (from 85 per 100 000 in 2011 to 66 per 100 000 in 2015), with rates remaining steady in the non-Indigenous population (Figure 34).

**Figure 34** Newly diagnosed hepatitis B notification rate per 100 000, 2011 – 2015, by Aboriginal and Torres Strait Islander status

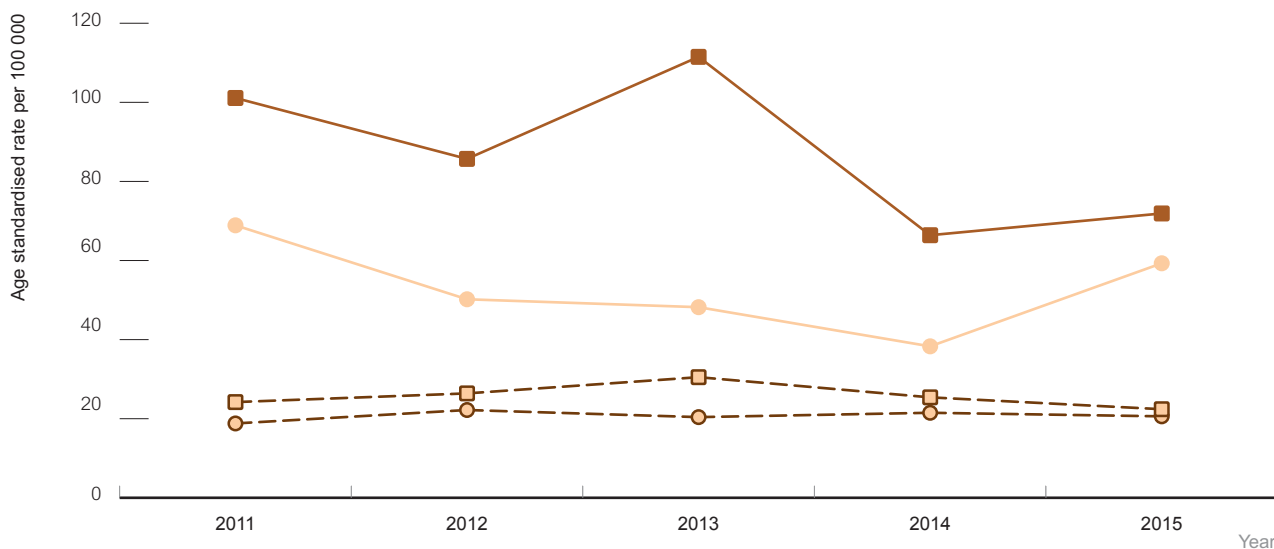


Source: Australian National Notifiable Disease System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Australian Capital Territory, Northern Territory, South Australia, Tasmania, and Western Australia) for each of the five years 2011 – 2015.



Notification rates of newly diagnosed hepatitis B infection have been consistently higher in Aboriginal and Torres Strait Islander males compared to Aboriginal and Torres Strait Islander females but have been decreasing over time (from 101 per 100 000 in 2011 to 72 per 100 000 in 2015) (Figure 35).

**Figure 35** Newly diagnosed hepatitis B notification rate per 100 000, 2011 – 2015, by Aboriginal and Torres Strait Islander status and sex

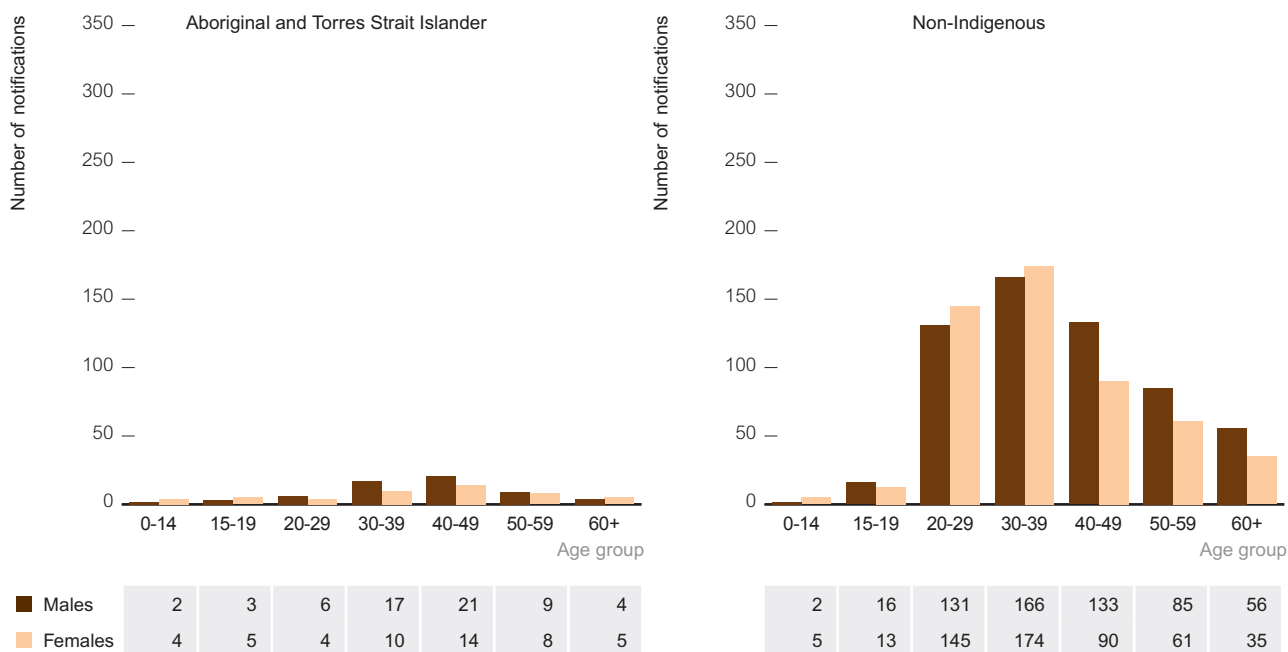


■ Aboriginal and Torres Strait Islander males	101.1	85.7	111.5	66.4	71.9
□ Non-Indigenous males	24.2	26.4	30.5	25.4	22.4
● Aboriginal and Torres Strait Islander females	68.9	50.2	48.2	38.3	59.3
○ Non-Indigenous females	18.8	22.2	20.4	21.5	20.6

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

In 2015, 88% and 97% of notifications of newly diagnosed hepatitis B infection in the Aboriginal and Torres Strait Islander and non-Indigenous populations, respectively, were in those aged 20 years of age and over (Figure 36).

**Figure 36** Number of cases of newly diagnosed hepatitis B, 2015, by Aboriginal and Torres Strait Islander status and age group

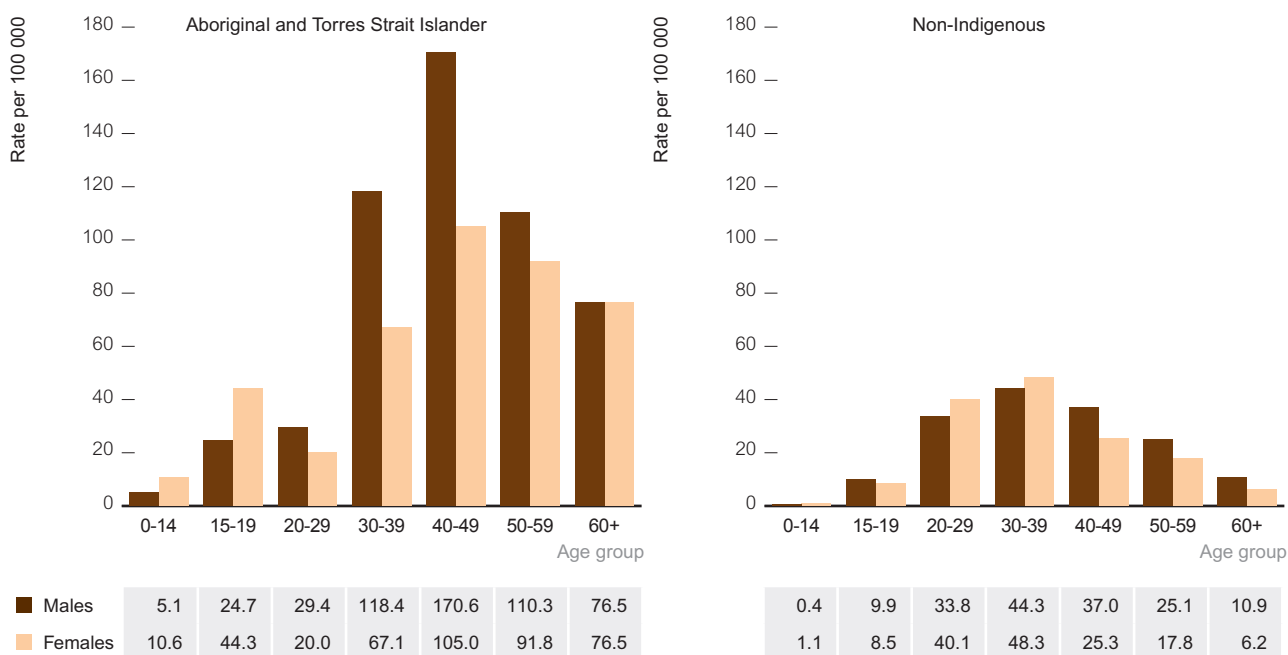


Source: Australian National Notifiable Disease System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Australian Capital Territory, Northern Territory, South Australia, Tasmania, and Western Australia) for each of the five years 2011 – 2015.

In 2015, Aboriginal and Torres Strait Islander peoples experienced substantially higher rates of newly diagnosed hepatitis B infection than non-Indigenous people particularly among males aged 40 years and over (Figure 37).



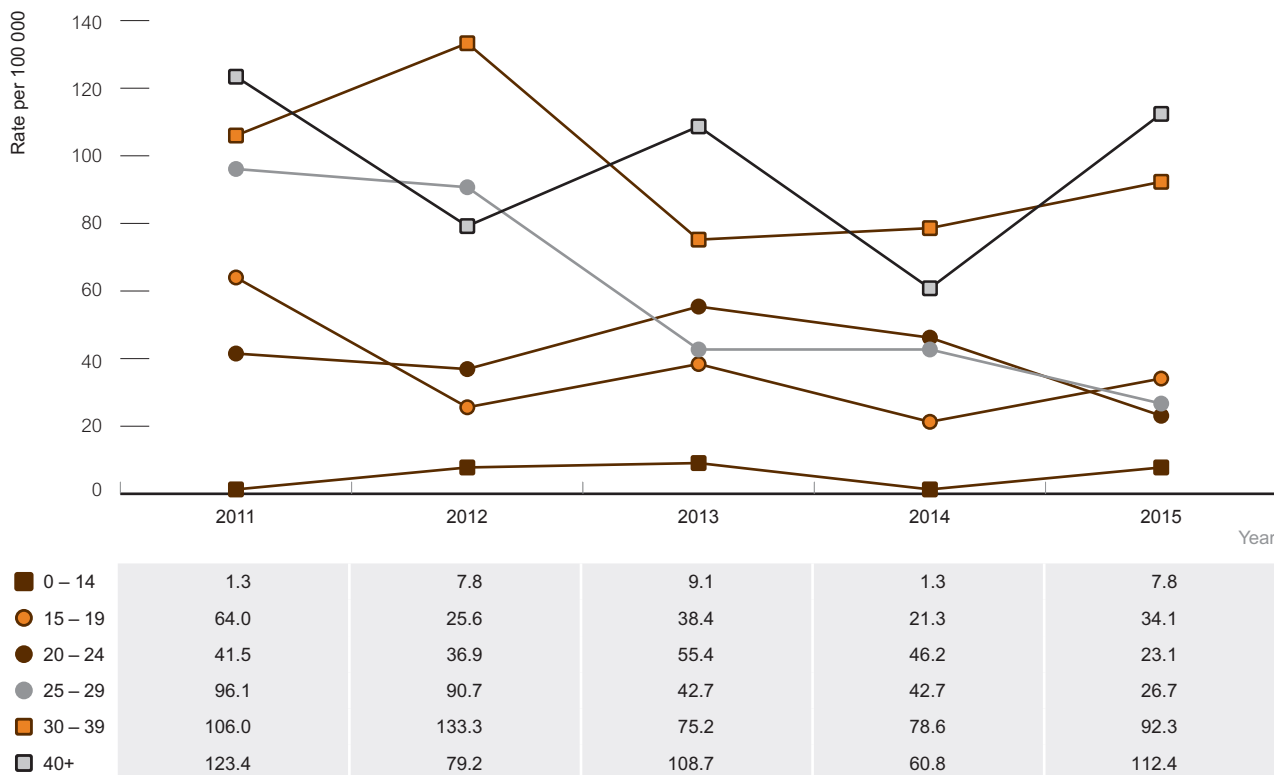
**Figure 37** Newly diagnosed hepatitis B notification rate per 100 000, 2015, by Aboriginal and Torres Strait Islander status, age group and sex



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

The rate of newly diagnosed hepatitis B has declined in Aboriginal and Torres Strait Islander peoples in all age groups; with fluctuations in some years (Figure 38).

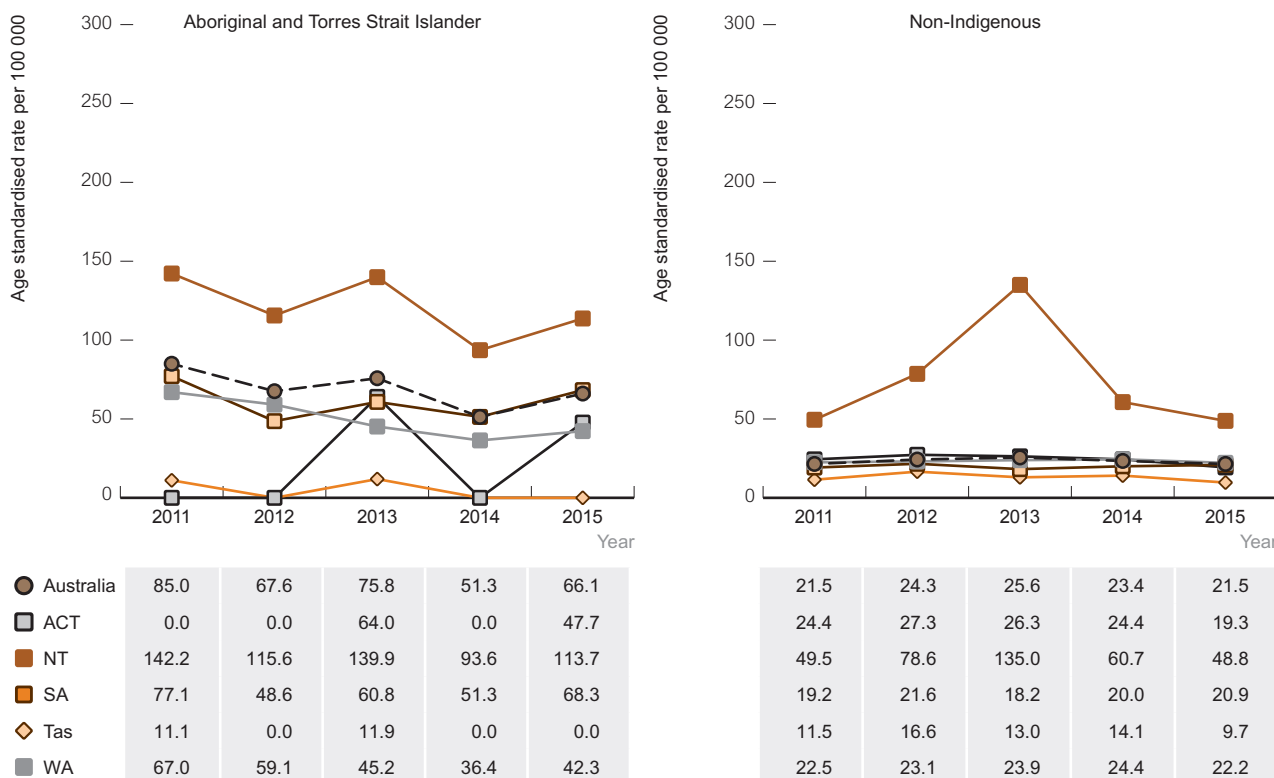
**Figure 38** Newly diagnosed hepatitis B notification rate per 100 000, 2011 – 2015, in Aboriginal and Torres Strait Islander peoples, by age group



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

In the five-year period 2011 – 2015, the age standardised rates of newly diagnosed hepatitis B infection were highest in the Northern Territory among both Aboriginal and Torres Strait Islander and non-Indigenous people (Figure 39). The spike in notifications in the Northern Territory in 2013 can be attributed to hepatitis B testing in irregular maritime arrivals in Darwin<sup>8</sup>. Rates of newly diagnosed hepatitis B infection among the Aboriginal and Torres Strait Islander population declined in the Northern Territory (from 142 per 100 000 in 2011 to 114 per 100 000 in 2015) and Western Australia (from 67 in 2011 to 42 in 2015) (Figure 39).

**Figure 39** Newly diagnosed hepatitis B notification rate per 100 000, 2011 – 2015, by Aboriginal and Torres Strait Islander status and State/Territory

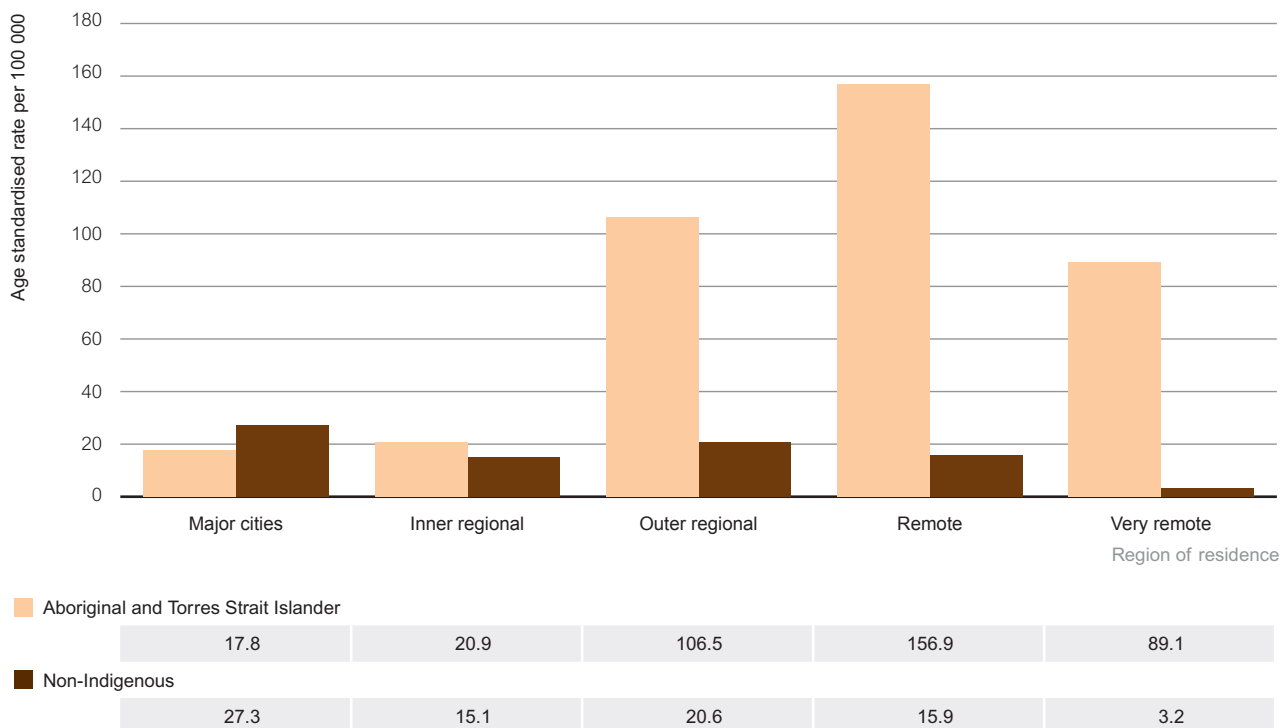


Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Australian Capital Territory, Northern Territory, South Australia, Tasmania, and Western Australia) for each of the five years 2011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



In 2015, rates of newly diagnosed hepatitis B infection in the Aboriginal and Torres Strait Islander population were similar to or lower than rates in the non-Indigenous population in major cities and inner regional areas of residence. In outer regional, remote and very remote areas of residence rates newly diagnosed hepatitis B infection in the Aboriginal and Torres Strait Islander population were 5, 10, and 28 times higher than the non-Indigenous population, respectively (Figure 40).

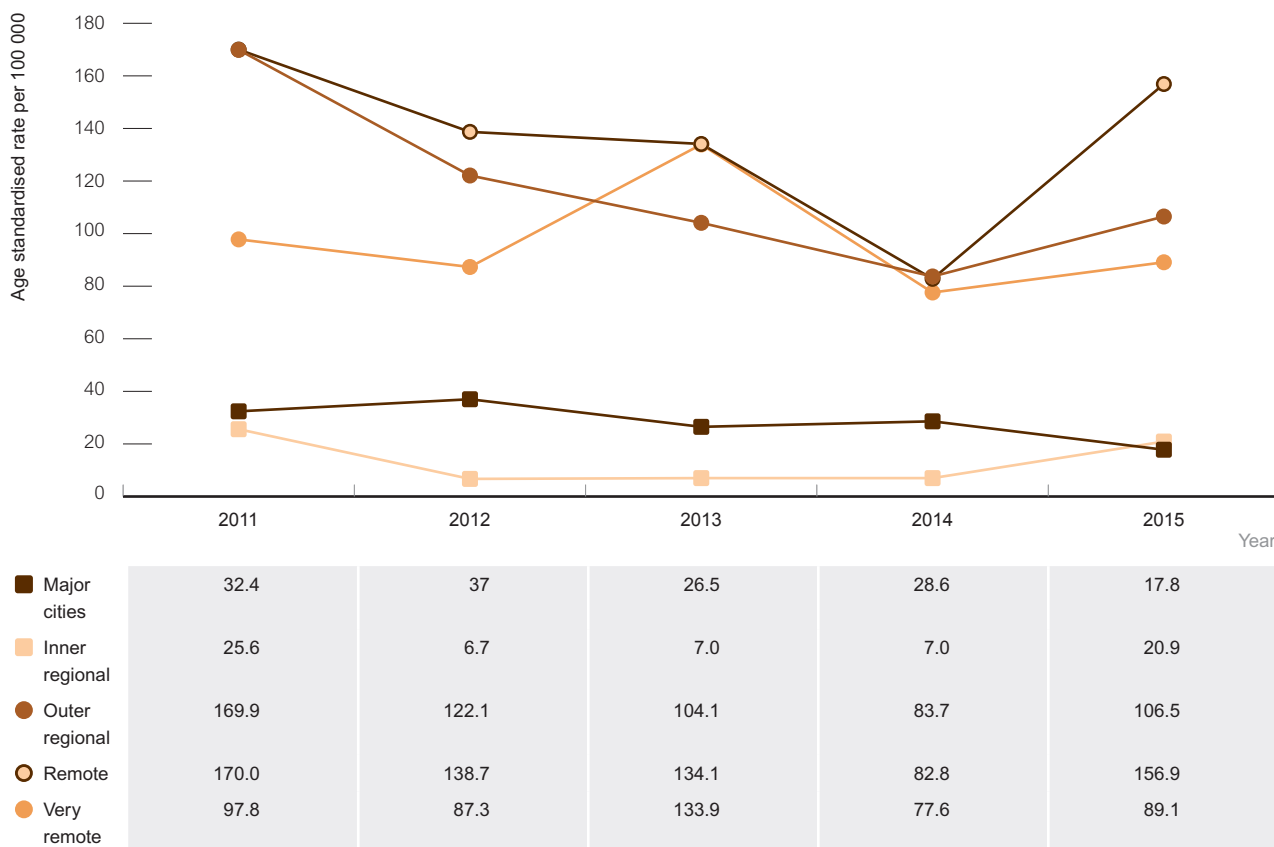
**Figure 40** Newly diagnosed hepatitis B notification rate per 100 000, 2015, by Aboriginal and Torres Strait Islander status and area of residence



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

Rates of hepatitis B notification among Aboriginal and Torres Strait Islander peoples are highest in remote, very remote, and outer regional areas of residence. Notification rates decreased in these three regions between 2011 and 2014, but all increased again in 2015 and were 107 per 100 000 in outer regional areas, 157 per 100 000 in remote areas, and 89 per 100 000 in very remote areas (Figure 41).

**Figure 41** Newly diagnosed hepatitis B notification rate per 100 000, 2011 – 2015, in Aboriginal and Torres Strait Islander peoples, by area of residence



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



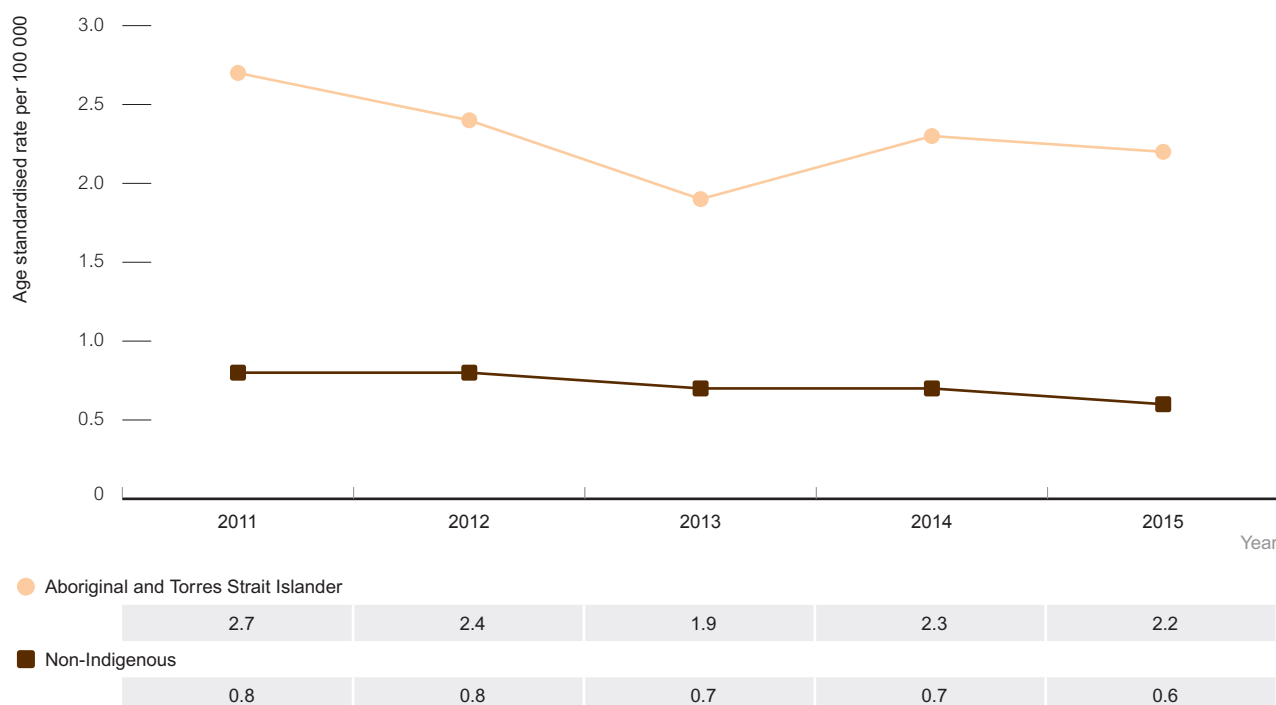
## Newly acquired hepatitis B infection

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

For each of the five years 2011 – 2015, information on Aboriginal and Torres Strait Islander status was reported for  $\geq 50\%$  of notifications of newly acquired hepatitis B infection in all jurisdictions except the Australian Capital Territory. Of the 139 notifications of newly acquired hepatitis B infection in 2015, 14 (10%) were notified in the Aboriginal and Torres Strait Islander population and 115 (83%) in the non-Indigenous population, a further 10 (7%) had incomplete Aboriginal and Torres Strait Islander status.

In the five-year period 2011 – 2015 the age-standardised notification rate of newly acquired hepatitis B infection in the Aboriginal and Torres Strait Islander population fluctuated between 1.9 and 2.7 per 100 000 and was stable at around 0.6 - 0.8 per 100 000 in the non-Indigenous population over the same time period (Figure 42).

**Figure 42** Newly acquired hepatitis B notification rate per 100 000, 2011 – 2015, by Aboriginal and Torres Strait Islander status

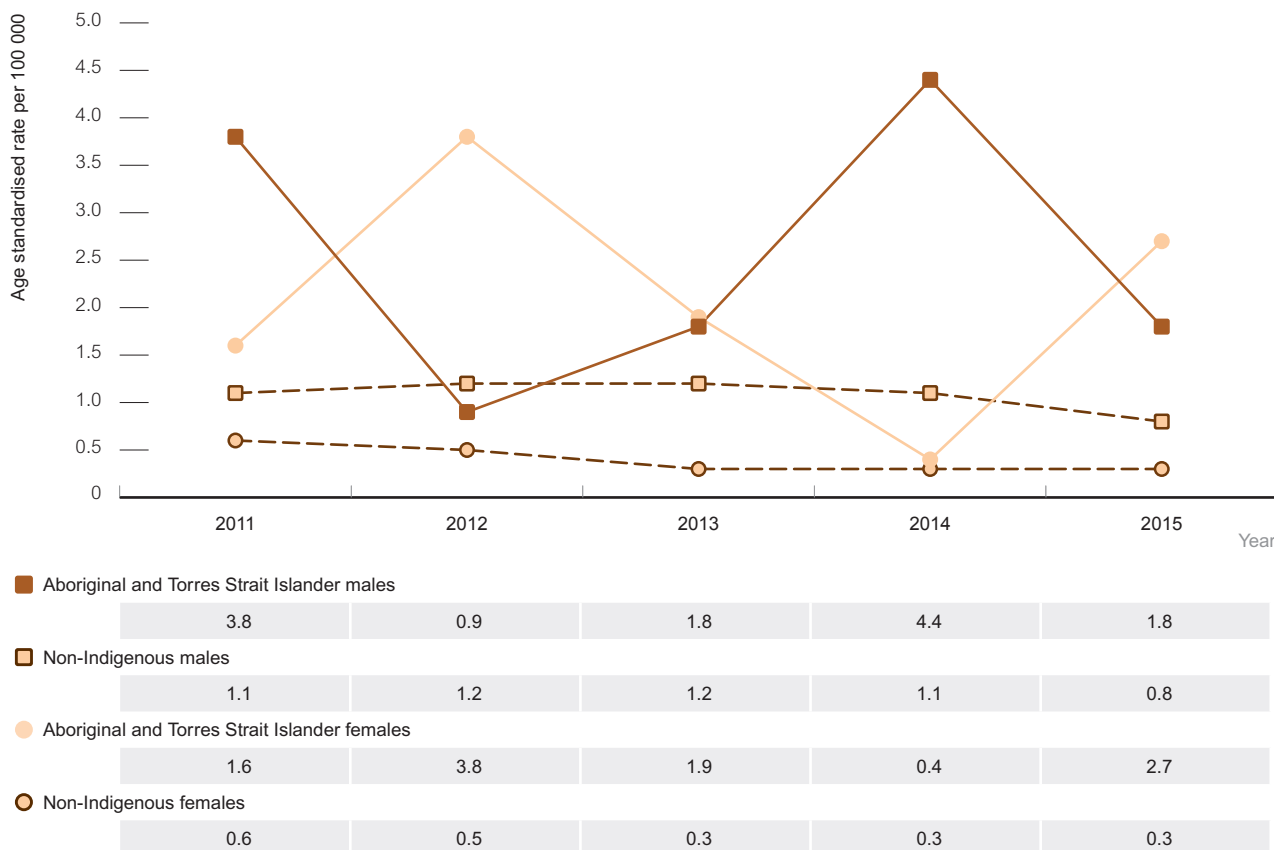


Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions (New South Wales, Northern Territory, Queensland, South Australia, Tasmania, Victoria, and Western Australia) with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  for each of the five years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



The rate of newly acquired hepatitis B infection in males and females in the Aboriginal and Torres Strait Islander population was higher than the non-Indigenous population, (Figure 43)

**Figure 43** Newly acquired hepatitis B notification rate per 100 000, 2011 – 2015, by Aboriginal and Torres Strait Islander status and sex

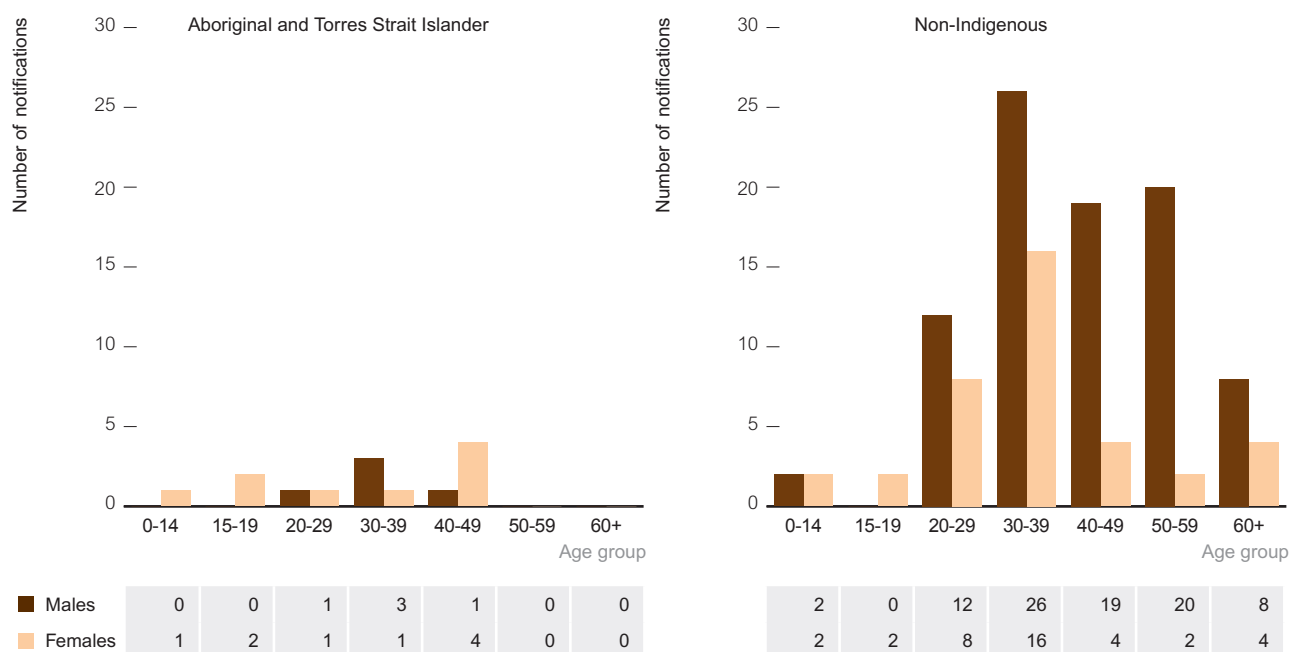


Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions (New South Wales, Northern Territory, Queensland, South Australia, Tasmania, Victoria, and Western Australia) with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  for each of the five years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



In 2015, the male to female ratio of newly acquired hepatitis B infection in the Aboriginal and Torres Strait islander population was 0.6:1 compared with 2:1 in the non-Indigenous population (Figure 44).

**Figure 44** Number of newly acquired hepatitis B notifications, 2015, by Aboriginal and Torres Strait Islander status

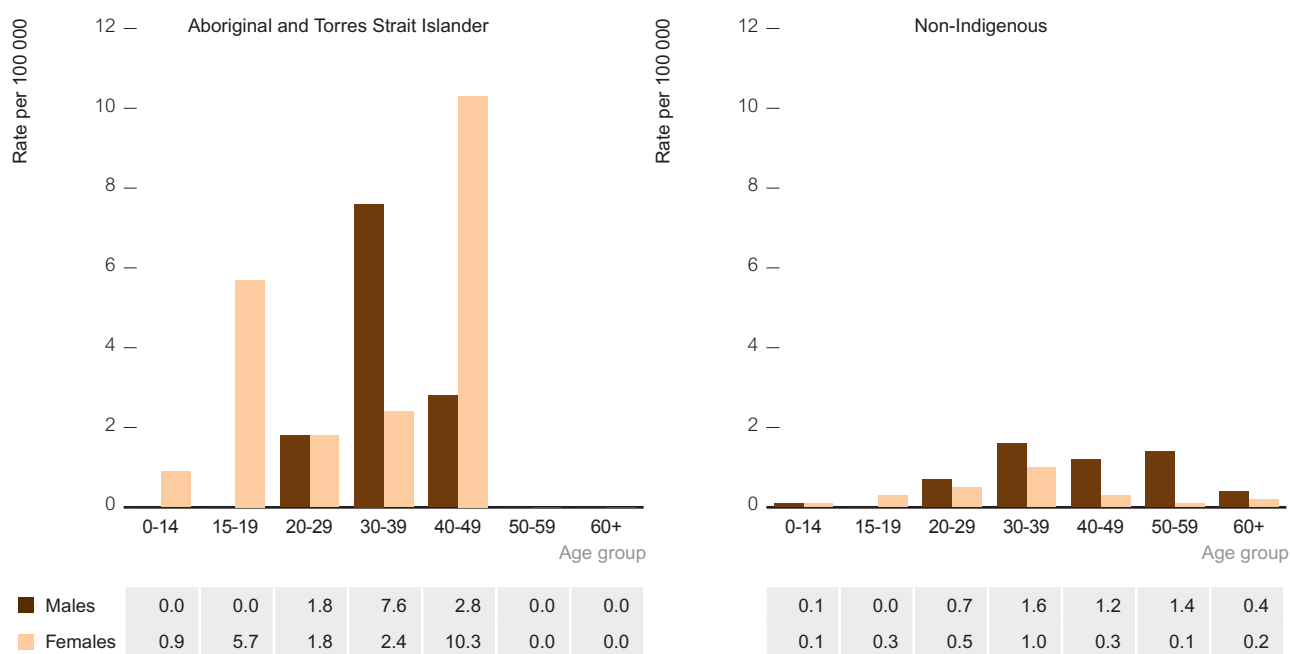


Note: Non-Indigenous include not-reported

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

In 2015, the notification rate of newly acquired hepatitis B infection in the Aboriginal and Torres Strait Islander male population was higher in nearly all age groups (20 – 29, 30 – 39, 40 – 49, 50 – 59 and 60+) than the corresponding rate in the non-Indigenous population (Figure 45). Across both populations, notification rates of newly acquired hepatitis B were highest in Aboriginal and Torres Strait Islander females aged 40 – 49 years.

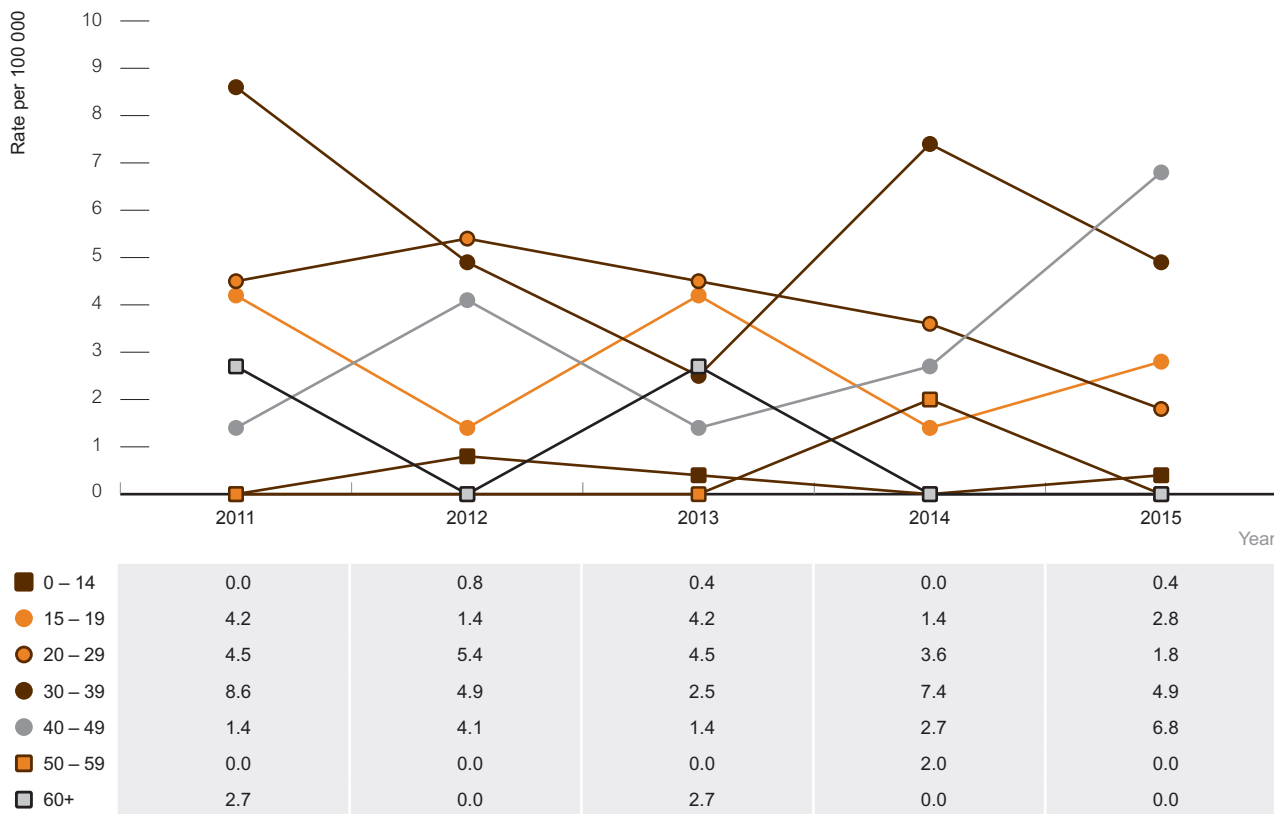
**Figure 45** Newly acquired hepatitis B notification rate per 100 000, 2015, by Aboriginal and Torres Strait Islander status, sex, and age group



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

Between 2011 and 2015, the notification rate of newly acquired hepatitis B infection in the Aboriginal and Torres Strait Islander population fluctuated according to age groups (Figure 46). The rate was highest in 40 – 49 year olds in 2015, at 6.8 per 100 000.

**Figure 46** Newly acquired hepatitis B notification rate per 100 000, 2010 – 2014, in Aboriginal and Torres Strait Islander peoples, by age group



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

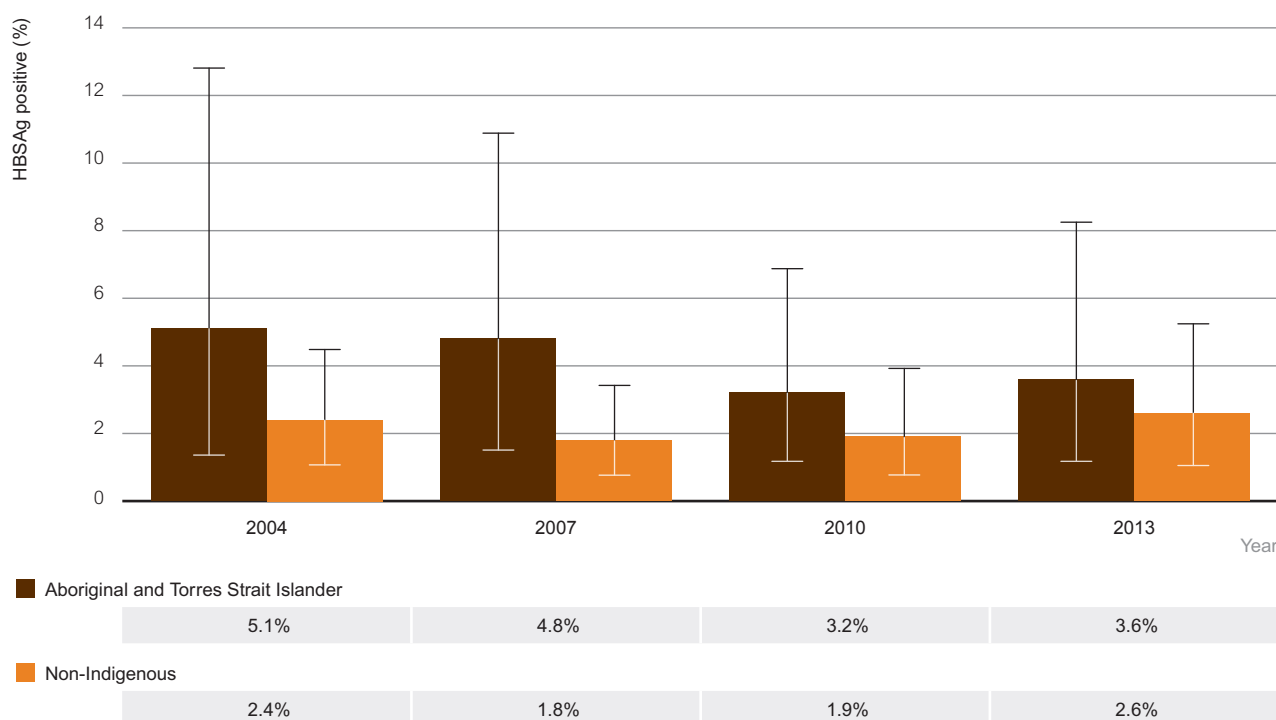


## Hepatitis B prevalence

Australia has a concentrated hepatitis B epidemic among key populations; migrants from high prevalence countries, particularly from Asia and the Pacific, and Aboriginal and Torres Strait Islander peoples. At the end of 2015 there were an estimated 21 632 Aboriginal and Torres Strait Islander people living with chronic hepatitis B infection, 9% of the total number of people living with chronic hepatitis B (232 600). Hepatitis B prevalence in the Aboriginal and Torres Strait Islander population was estimated to be 3.9% in 2015.<sup>9</sup>

In a survey conducted every three years in a sample of incoming prisoners, hepatitis B prevalence was higher in Aboriginal and Torres Strait Islander peoples than in non-Indigenous people in each round of the survey (Figure 47). In 2013 (most recent year of the survey), the prevalence of hepatitis B was 3.6% in Aboriginal and Torres Strait Islander people and 2.6% in non-Indigenous people.

**Figure 47** Hepatitis B surface antigen prevalence among a sample of incoming Australian prisoners, by year of survey, and Aboriginal and Torres Strait Islander status



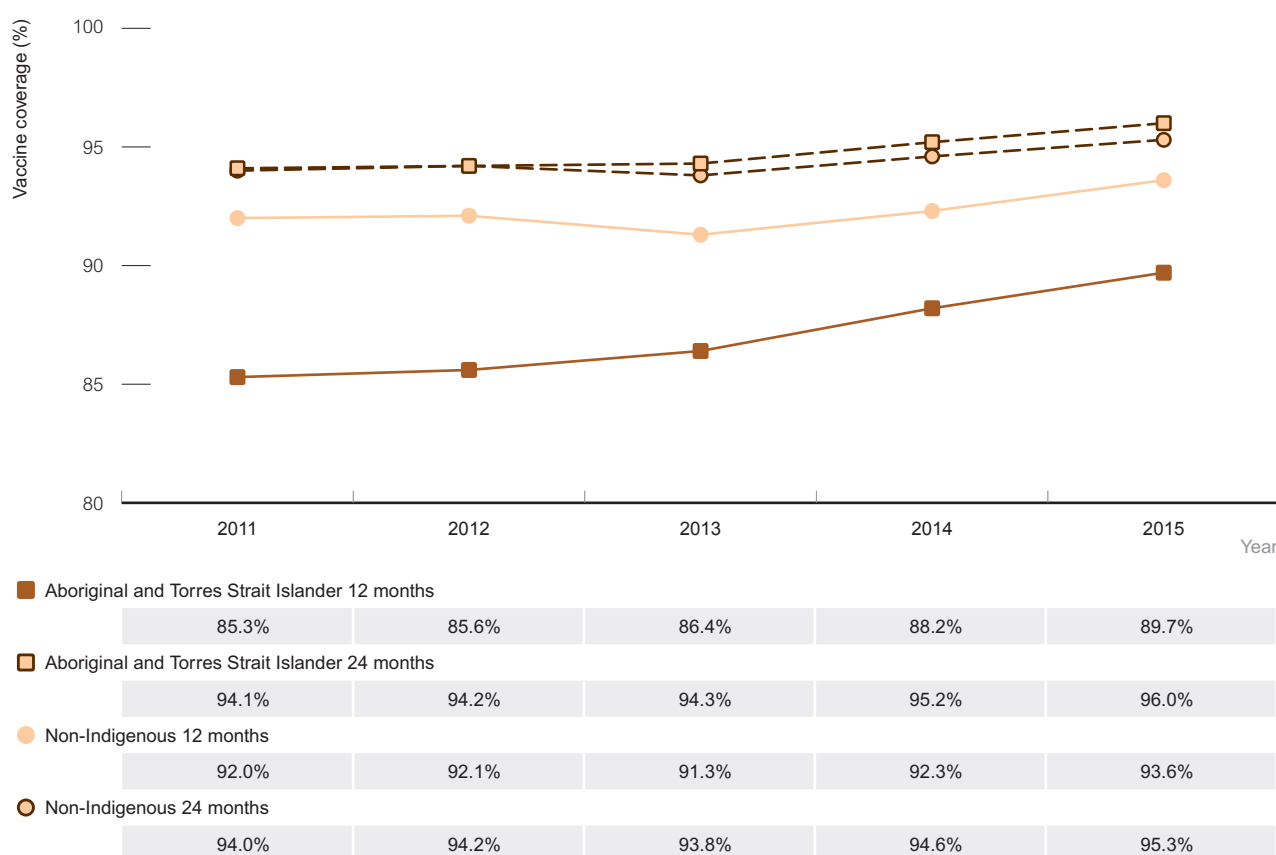
Source: National Prison Entrants' Bloodborne Virus Survey, 2004, 2007, 2010, and 2013

## Vaccination

In the Northern Territory in 1985, hepatitis B screening was introduced for all pregnant women and vaccination to infants born to mothers living with chronic infection; in 1990, universal infant vaccination was implemented, and in 1998 a catch-up program targeting 6 – 16 year olds was introduced. In other states and territories of Australia, hepatitis B vaccination of all infants commenced in 2000 and the introduction of a universal adolescent (teenagers aged 12 – 15 years) school based hepatitis B vaccination catch-up program commenced in 1998, with variation in year of implementation by jurisdiction.

Over the period 2011 – 2015, hepatitis B vaccination coverage rates for children were high overall, at around 95%. For Aboriginal and Torres Strait Islander children coverage was lower than for non-Indigenous children for the 12 months age group, but there was no difference at 24 months of age, with vaccination coverage of 96% in Aboriginal and Torres Strait Islander children and 95% in non-Indigenous children (Figure 48). The lower rates at 12 months suggest issues around timeliness of completion of the vaccination course in Aboriginal and Torres Strait Islander children, which may lead to increased risk of disease acquisition.

**Figure 48** Hepatitis B vaccination coverage estimates at 12 and 24 months, 2011 – 2015, by Aboriginal and Torres Strait Islander status



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



# Main Findings

## Sexually transmissible infections

### Chlamydia

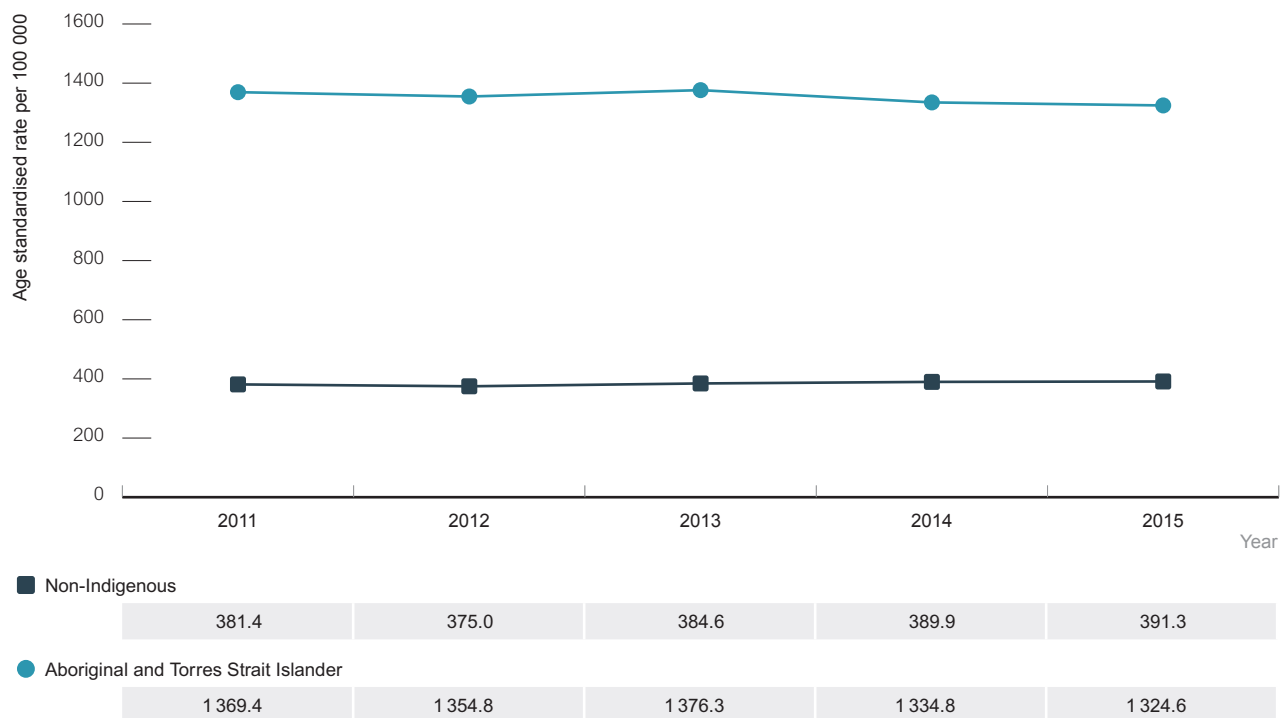
- Chlamydia was the second most frequently reported notifiable condition in Australia in 2015. There were a total of 66 033 notifications, 6 532 (9%) were among the Aboriginal and Torres Strait Islander population, 25 508 (39%) were among the non-Indigenous population, and Indigenous status was not reported for 33 993 (51%) notifications. Data for 2015 for Victoria were unavailable at the time of reporting.
- Notification rates are based on data from four jurisdictions (the Northern Territory, Queensland, South Australia, and Western Australia), where Aboriginal and Torres Strait Islander status was  $\geq 50\%$  complete for chlamydia notifications for each year of the five years 2011 – 2015.
- The chlamydia notification rate for the Aboriginal and Torres Strait Islander population of 1 325 per 100 000 in 2015 was more than three times that of the non-Indigenous notification rate of 391 per 100 000 population.
- In 2015, 82% of notifications were in 15 – 29 year olds in the Aboriginal and Torres Strait Islander population and 78% of notifications were in 15 – 29 year olds in the non-Indigenous population.
- The chlamydia notification rate in Australia in both the Aboriginal and Torres Strait Islander population and non-Indigenous population has remained relatively stable since 2011, with variation by jurisdiction.
- In 2015, the chlamydia notification rate in major cities in the Aboriginal and Torres Strait Islander population was 2 times higher than that among the non-Indigenous population, increasing to 8 times higher in remote areas.

Chlamydia was the second most frequently reported notifiable condition in Australia in 2015. There were a total of 66 033 notifications, 6 532 (9%) were among the Aboriginal and Torres Strait Islander population, 25 508 (39%) were among the non-Indigenous population and Indigenous status was not reported for 33 993 (51%) notifications. Data for 2015 for Victoria were unavailable at the time of reporting, but will be available in the future.

In the period 2011 – 2015, Aboriginal and Torres Strait Islander status was not reported for more than 50% of notifications each year in the Australian Capital Territory, New South Wales, Tasmania and Victoria and as such notification data for chlamydia excludes these jurisdictions. Here after, notification data for the period 2011 – 2015 refers to Northern Territory, Queensland, South Australia, and Western Australia.

The chlamydia notification rate for the Aboriginal and Torres Strait Islander population in 2015 of 1 325 per 100 000 population was 3 times that of the non-Indigenous population at 391 per 100 000 population. Since 2011, the notification rate of chlamydia in the Aboriginal and Torres Strait Islander population and non-Indigenous population has remained stable (Figure 49).

**Figure 49** Chlamydia notification rate per 100 000 population, 2011 – 2015, by Aboriginal and Torres Strait Islander status

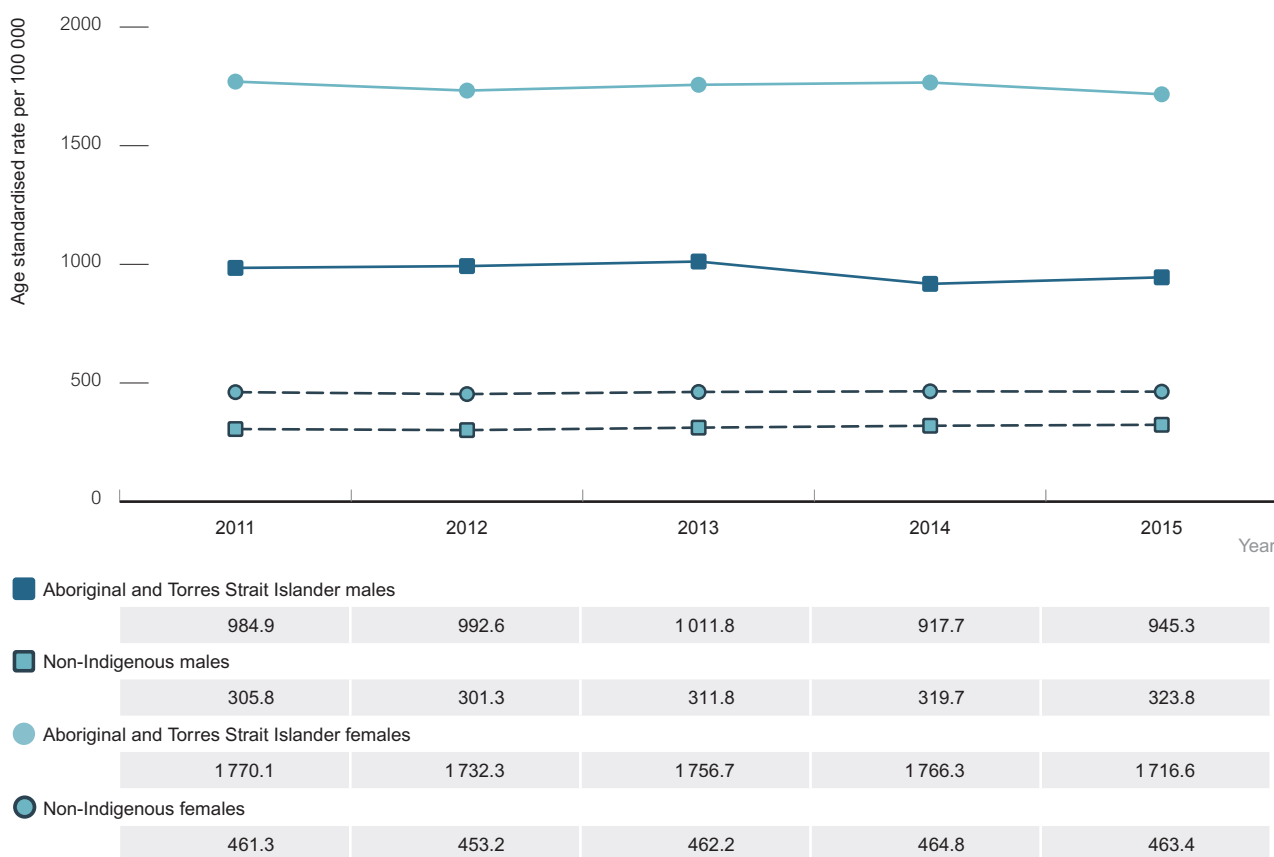


Source: Australian National Notifiable Diseases Surveillance System. Includes jurisdictions (Northern Territory, Queensland, South Australia, and Western Australia) in which Aboriginal and Torres Strait Islander status was reported for ≥50% of diagnoses for each year.

Between 2011 and 2015 the chlamydia notification rate for the Aboriginal and Torres Strait Islander population has remained highest among Aboriginal and Torres Strait Islander females, at 1 770 per 100 000 in 2011 and 1 717 per 100 000 in 2015 and 4 times higher compared to non-Indigenous females (461 per 100 000 in 2011 and 463 per 100 000 in 2015) (Figure 50). Rates among males were also three times higher in Aboriginal and Torres Strait Islander males in 2015 compared to non-Indigenous males (945 per 100 000 compared to 324 per 100 000) (Figure 50).



**Figure 50** Chlamydia notification rates per 100 000 population, 2011 – 2015, by Aboriginal and Torres Strait Islander status and sex

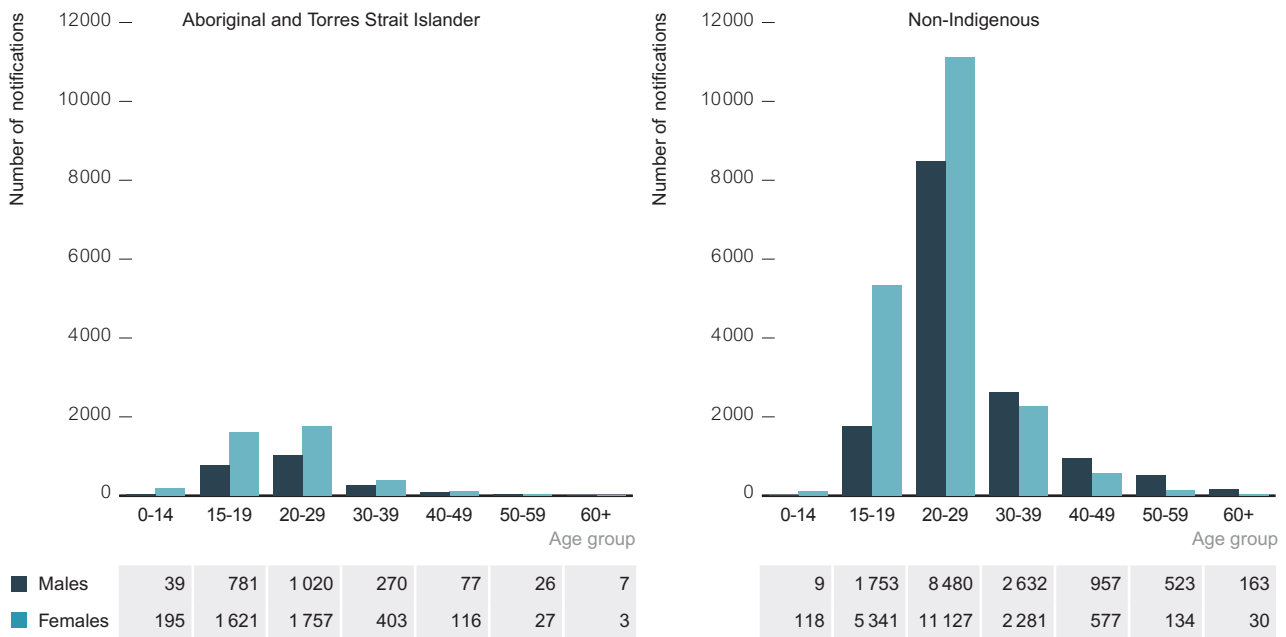


Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Northern Territory, Queensland, South Australia, and Western Australia) for each of the five years 2011 – 2015.

Chlamydia diagnoses are notified predominantly among young people. In 2015, 82% of chlamydia notifications were in 15–29 year olds in the Aboriginal and Torres Strait Islander population and 78% of notifications were in 15 – 29 year olds in the non-Indigenous populations. In 2015, of the chlamydia notifications in the Aboriginal and Torres Strait Islander population, 2 220 and 4 122 were among males and females respectively, providing a male to female ratio of 0.5:1 compared to 0.7:1 in the non-Indigenous population (Figure 51).



**Figure 51** Number of notifications of chlamydia in 2015, by Aboriginal and Torres Strait Islander status, sex and age group



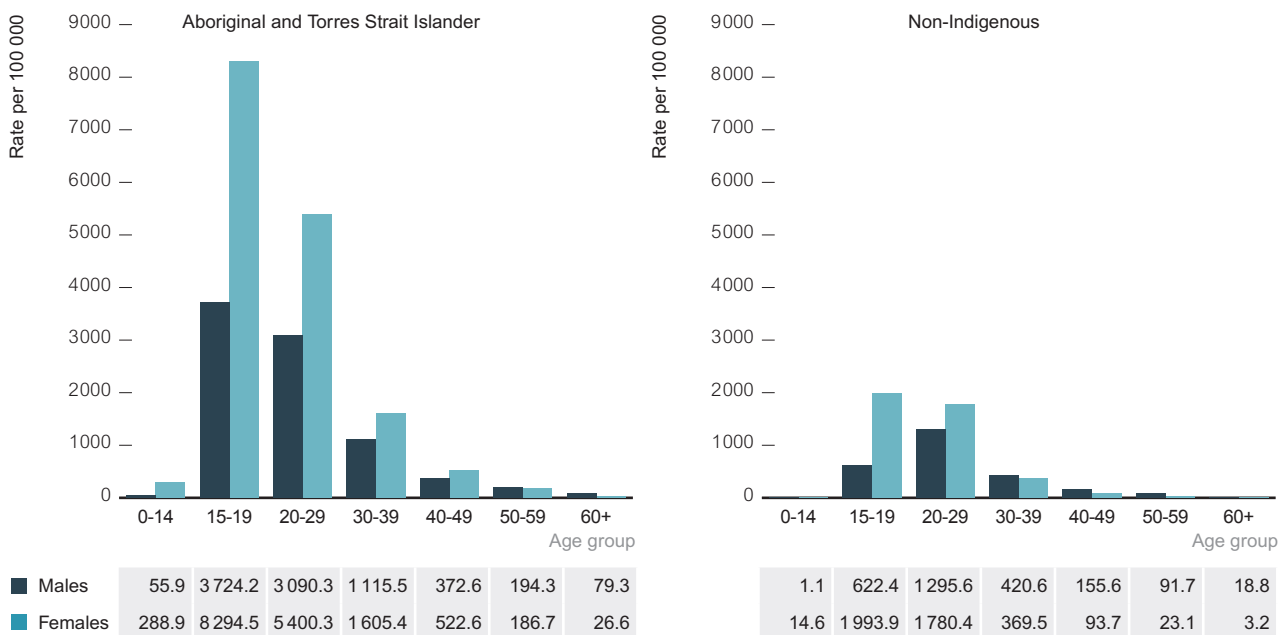
Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Northern Territory, Queensland, South Australia, and Western Australia).

The chlamydia notification rate in Aboriginal and Torres Strait Islander males aged 15–19 and 20–29 years in 2015 were 6 times and 2 times higher, respectively, than in the non-Indigenous population (Figure 52). The chlamydia notification rate in Aboriginal and Torres Strait Islander females aged 15–19 and the 20–29 years in 2015 was 4 times and 3 times higher, respectively, than in the non-Indigenous population (Figure 52).

Notification rates were highest in Aboriginal and Torres Strait Islander females, particularly in the 15 – 19 year old age group (8 295 per 100 000 population in 2015) which may reflect greater health care attendance and testing.



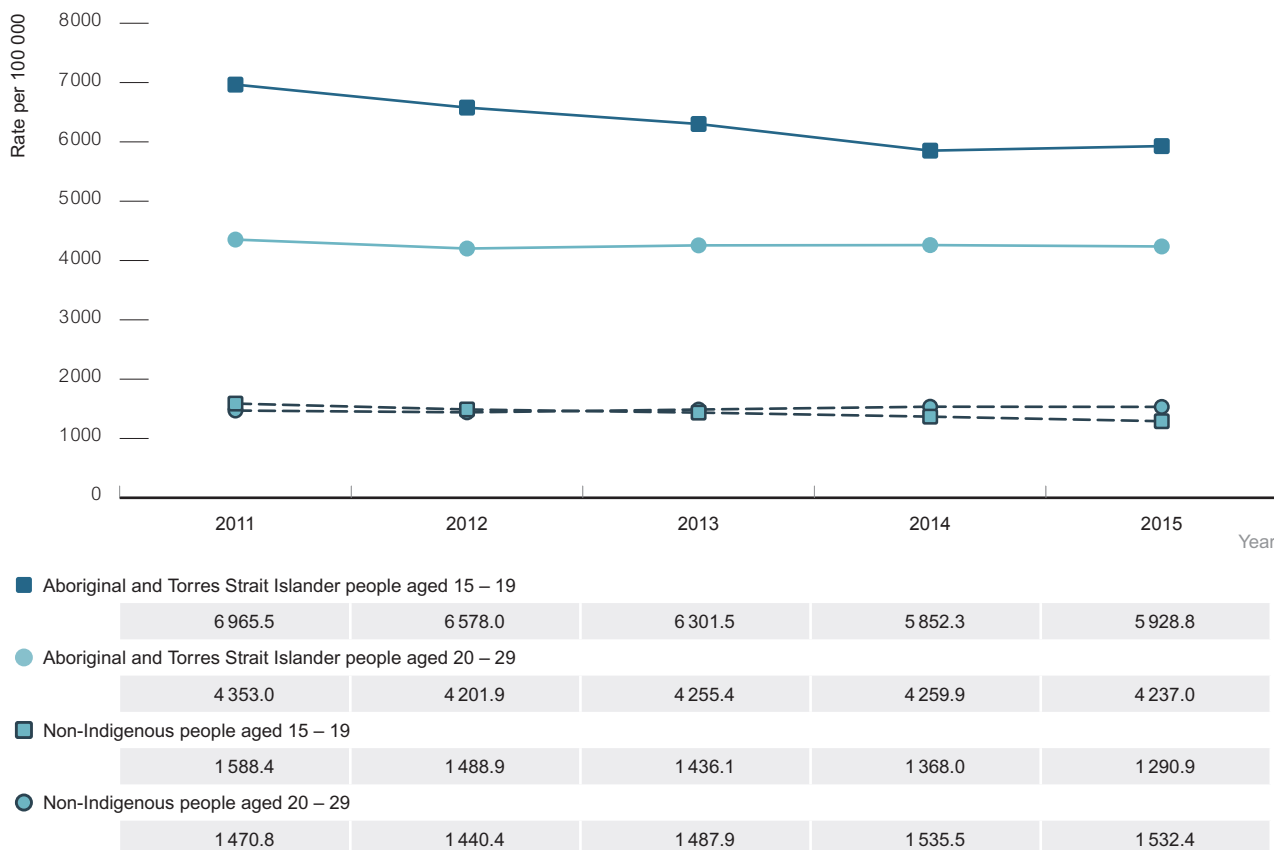
**Figure 52** Chlamydia notification rate per 100 000 population, 2015, by Aboriginal and Torres Strait Islander status, sex and age group



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

The chlamydia notification rate in the Aboriginal and Torres Strait Islander population in the 15–19 year old age group declined between 2011 – 2014 and the stabilised at 5 929 per 100 000 in 2015 (Figure 53). This decline may reflect a decrease in testing conducted or decreased transmission.

**Figure 53** Chlamydia notification rate per 100 000 population by Aboriginal and Torres Strait Islander status, 2011 – 2015, in selected age groups by sex



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

The chlamydia notification rate from 2011 – 2015 in the Aboriginal and Torres Strait Islander population was highest in the Northern Territory (Figure 54). Over the most recent five year reporting period, in South Australia the chlamydia notification rate increased by 27% (from 644 per 100 000 in 2011 to 819 per 100 000 in 2015); in the Northern Territory notification rates fluctuated (from 1 881 in 2011 increasing to 2 045 in 2013 and declining to 1 845 per 100 000 in 2015) in Queensland the rate decreased by 3% (from 1 305 in 2010 to 1 261 per 100 000 in 2014); and in Western Australia decreased by 10% (from 1 383 in 2011 to 1 249 per 100 000 in 2015). In South Australia, since 2012 there has been increased promotion of opportunistic testing, health promotion together with increased support for an annual 6-week screen in Aboriginal Community Controlled Health Services.

**Figure 54** Chlamydia notification rate per 100 000 population, 2011 – 2015, by Aboriginal and Torres Strait Islander status and State/Territory

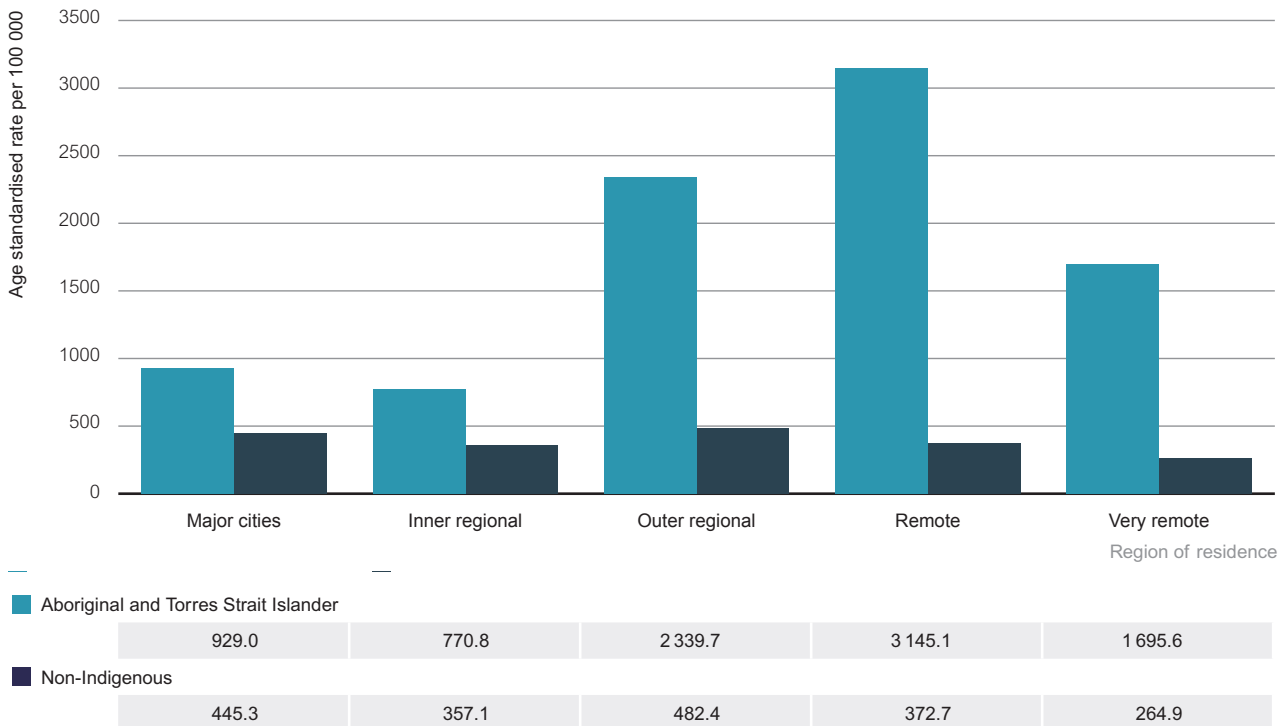


Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Northern Territory, Queensland, South Australia, and Western Australia) for each of the five years 2011 – 2015.

In 2015, the chlamydia notification rate in the Aboriginal and Torres Strait Islander population resident in major cities was 2 times higher than the rate in the non-Indigenous population (929 per 100 000 compared with 445 per 100 000); 2 times higher in inner regional centres; 5 times higher in outer regional areas; 8 times higher in remote areas and 6 times higher in very remote areas (Figure 55).



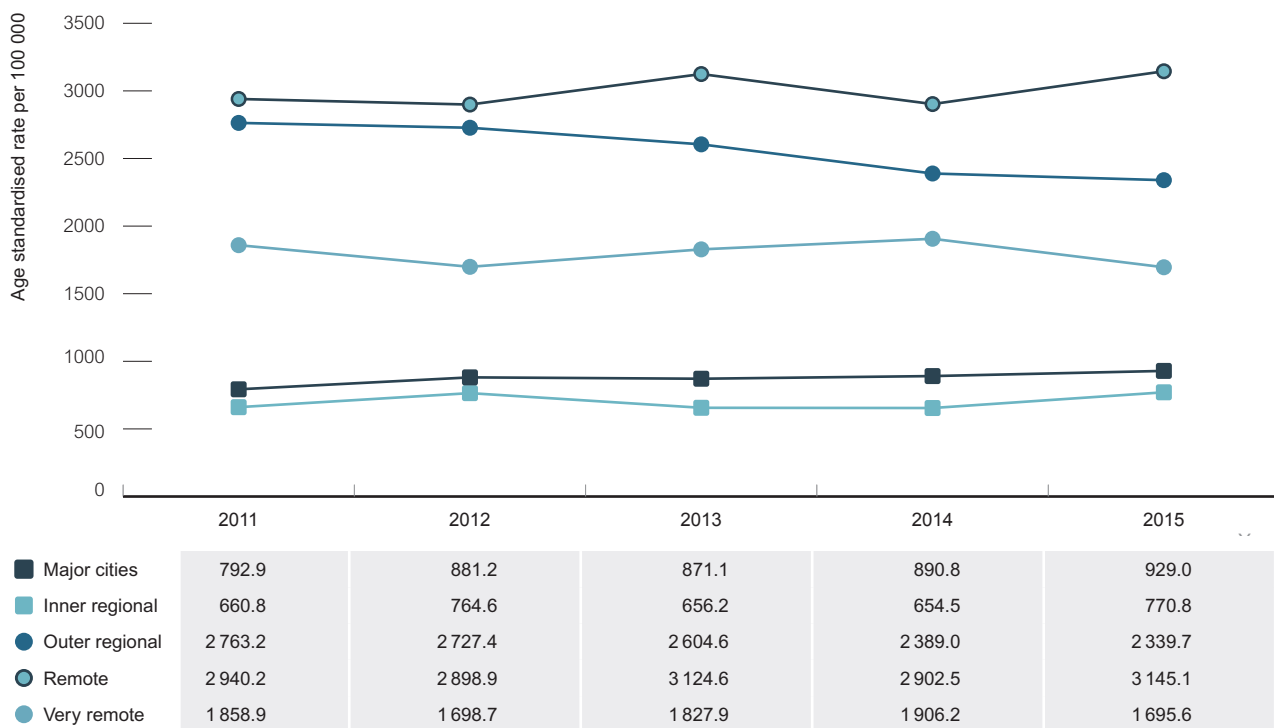
**Figure 55** Chlamydia notification rate per 100 000 population, 2015, by Aboriginal and Torres Strait Islander status and area of residence



Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  in 2015 (Northern Territory, Queensland, South Australia, and Western Australia).

There were no major trends in chlamydia notification rate by area of residence in major cities, inner regional, remote and very remote areas in the Aboriginal and Torres Strait Islander population, with relatively stable notification rates by region between 2011 and 2015 (Figure 56). There was a 15% decline in notification rates in outer regional areas, from 2 763 per 100 000 in 2011, to 2 340 per 100 000 in 2015.

**Figure 56** Chlamydia notification rate in the Aboriginal and Torres Strait Islander population per 100 000 population, 2011 – 2015, by area of residence



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

## Gonorrhoea

- There were a total of 18 588 gonorrhoea notifications in Australia in 2015; 3 518 (19%) were among the Aboriginal and Torres Strait Islander population, 8 315 (45%) were in the non-Indigenous population, and there were a further 6 755 (36%) for which Aboriginal and Torres Strait Islander status was not reported.
- Notification rates are based on data from seven jurisdictions (the Australian Capital Territory, the Northern Territory, South Australia, Tasmania, Victoria, Queensland and Western Australia), where Aboriginal and Torres Strait Islander status was ≥50% complete for gonorrhoea notifications for each year of the five years 2011 – 2015.
- In 2015, the gonorrhoea rate in the Aboriginal and Torres Strait Islander population was 10 times that of the non-Indigenous population (626 vs. 62 per 100 000 population), increasing to 72 times higher in remote areas.
- In 2015, 72% of cases among Aboriginal and Torres Strait Islander population were diagnosed among people in the age group 15 – 29 years compared with 53% in the non-Indigenous population.
- In the period 2011 – 2015, the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population declined by 35% in the 15–19 year old age group and 27% in the 20 – 29 year old age group.
- In Aboriginal and Torres Strait Islander people, there were nearly an equal number of gonorrhoea notifications among males and females in 2015, indicating predominantly heterosexual transmission, and most resided in remote areas.
- In contrast, gonorrhoea notifications in non-Indigenous people in 2015 were predominantly in men, in urban settings, suggesting that transmission is primarily related to sex between men.

STIs

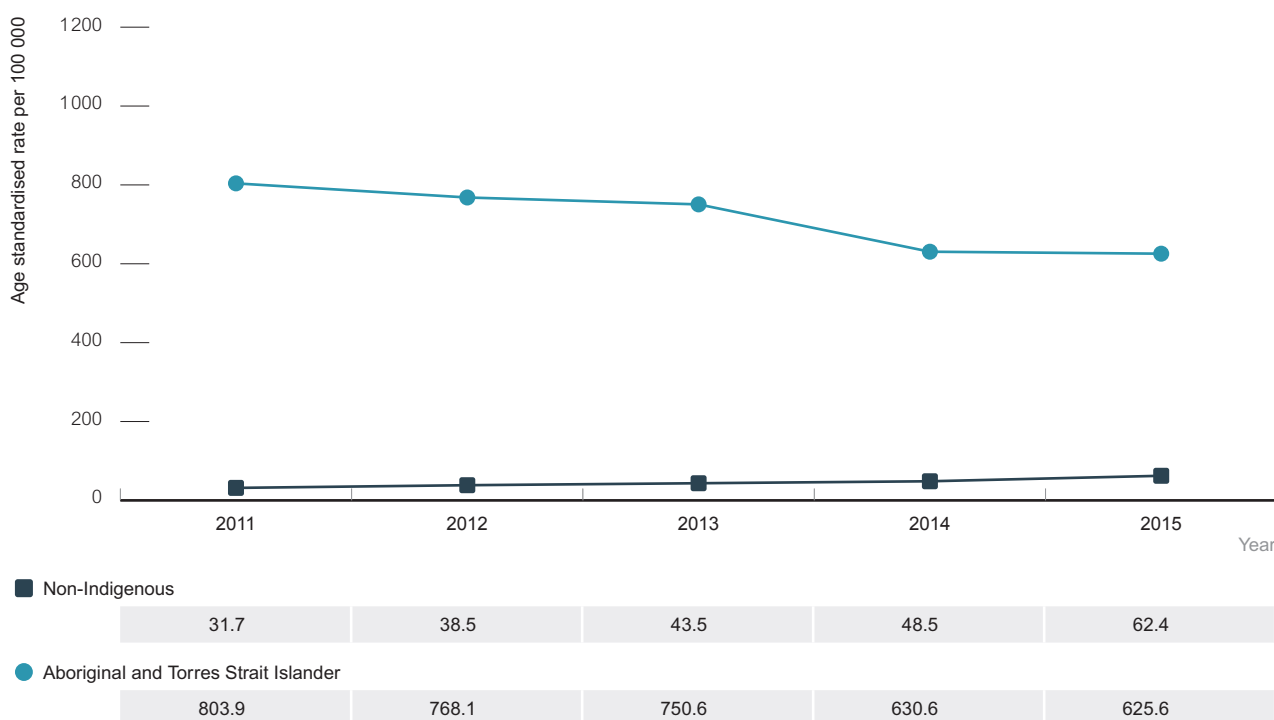
There were a total of 18 588 gonorrhoea notifications in Australia in 2015; 3 518 (19%) were among the Aboriginal and Torres Strait Islander population, 8 315 (45%) were in the non-Indigenous population, and there were a further 6 755 (36%) for which Aboriginal and Torres Strait Islander status was not reported.

In the period 2011 – 2015, Aboriginal and Torres Strait Islander status was  $\geq 50\%$  complete per year in the Northern Territory, South Australia, Tasmania, Victoria, the Australian Capital Territory, Queensland and Western Australia, and therefore notification data presented below include these jurisdictions.

The gonorrhoea notification rate for the Aboriginal and Torres Strait Islander population in 2015 of 626 per 100 000 population was 10 times that of the non-Indigenous population at 62 per 100 000 population. Since 2011, the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population has declined by 22% compared to an increase of 94% in the non-Indigenous population (Figure 57).

The increase in gonorrhoea notifications in the non-Indigenous population, particularly females, may be influenced by the move toward routine duplex testing whereby if a test for either chlamydia or gonorrhoea is ordered by a clinician, both are conducted. The emphasis on testing for chlamydia in young people has therefore led to a substantial rise in the number of tests conducted for gonorrhoea. This would have less impact on trends in the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population as gonorrhoea testing has been routinely offered in remote regions for more than a decade, due to the high prevalence. Recent trends in gonorrhoea notifications in the non-Indigenous population and comparisons made to the Aboriginal and Torres Strait Islander population should therefore be interpreted with caution.

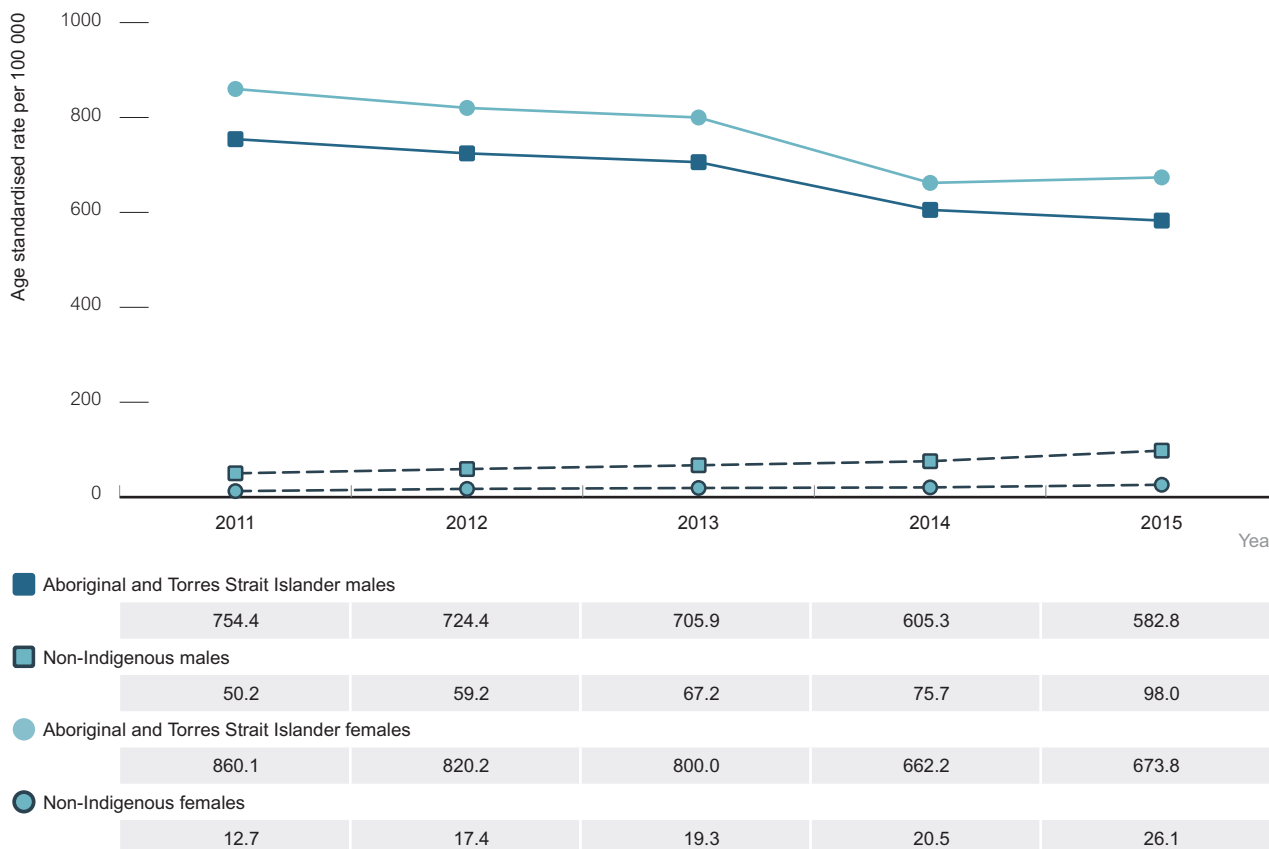
**Figure 57** Gonorrhoea notification rate per 100 000 population, 2011 – 2015, by Aboriginal and Torres Strait Islander status



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

The gonorrhoea notification rate for the Aboriginal and Torres Strait Islander female population in 2015 of 674 was 26 times that of the non-Indigenous population at 26 per 100 000 population (Figure 58). The gonorrhoea notification rate for the Aboriginal and Torres Strait Islander male population in 2015 of 583 per 100 000 population was 6 times that of the non-Indigenous population at 98 per 100 000 population (Figure 58).

**Figure 58** Gonorrhoea notification rate per 100 000 population, 2011 – 2015, by Aboriginal and Torres Strait Islander status and sex



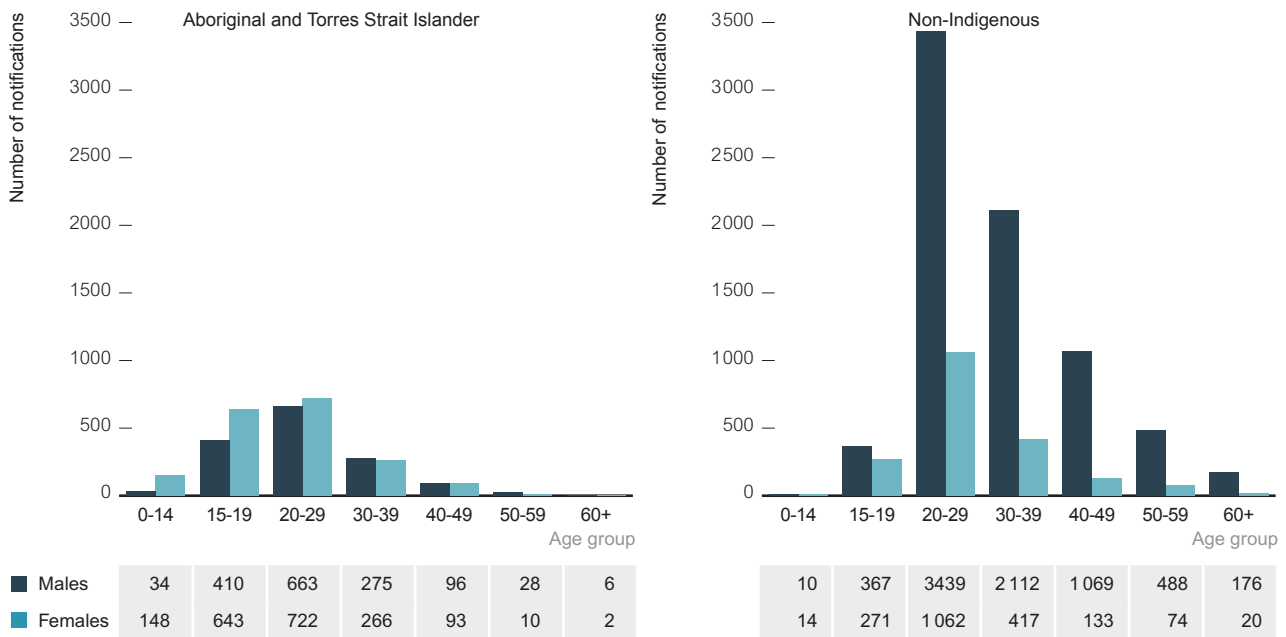
Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of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

Differences in age at notification exist between the Aboriginal and Torres Strait Islander population and the non-Indigenous population. A much greater proportion of gonorrhoea notifications among the Aboriginal and Torres Strait Islander population were in young people. In 2015, 31% of gonorrhoea notifications among the Aboriginal and Torres Strait Islander population were in 15–19 year olds, compared with 7% in the non-Indigenous population (Figure 59).

In 2015, 1 512 and 1 884 notifications of gonorrhoea were made among Aboriginal and Torres Strait Islander males and females respectively, giving a male to female ratio of 0.8:1 suggesting transmission predominantly through heterosexual contact (Figure 59). In comparison, there were 7 661 notifications of gonorrhoea in males and 1 991 in females in the non-Indigenous population in 2015; giving a male to female ratio of 3.9:1, suggesting transmission occurring predominantly by sex between males (Figure 59). Notification rates in the Aboriginal and Torres Strait Islander population were significantly higher than the non-Indigenous population across all age groups for both males and females (Figure 60).

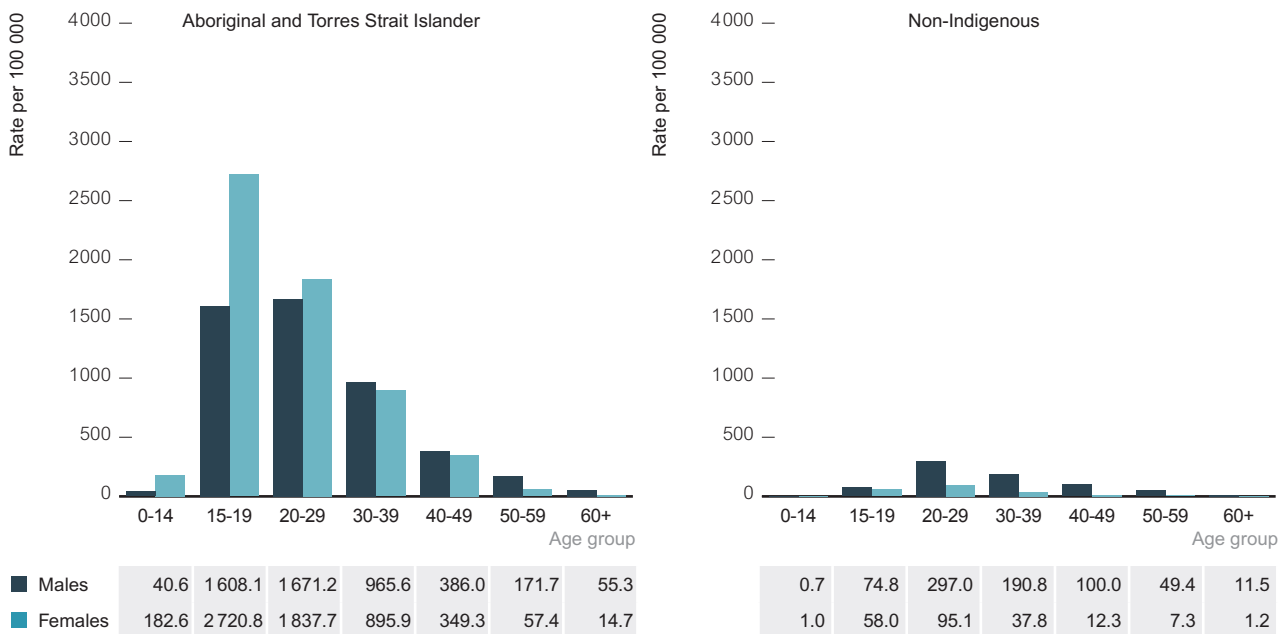


**Figure 59** Number of gonorrhoea notifications, 2015, by Aboriginal and Torres Strait Islander status, sex and age group



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

**Figure 60** Gonorrhoea notification rate per 100 000 population, 2015, by Aboriginal and Torres Strait Islander status, sex and age group

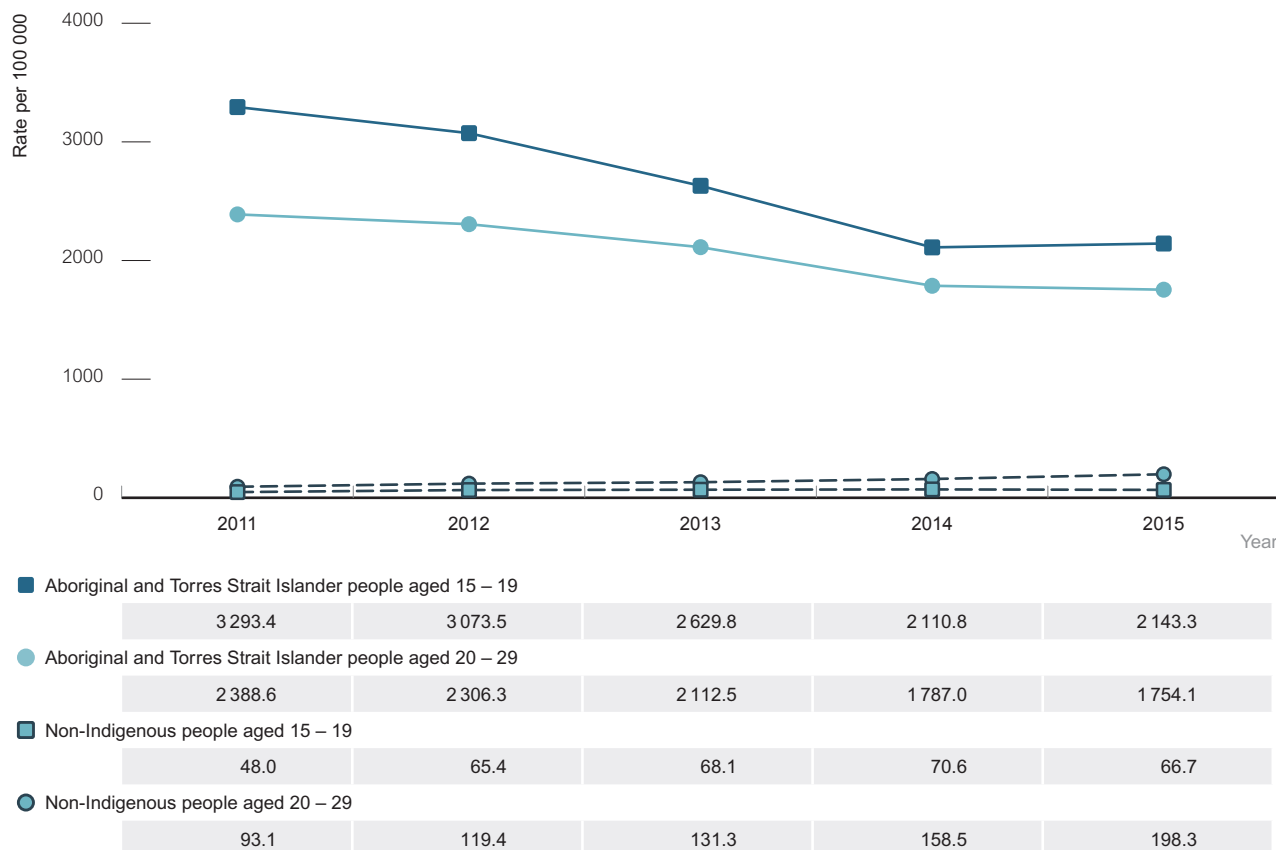


Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of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



Since 2011, the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population has declined by 35% in the 15–19 year age group and by 27% in the 20 – 29 year old age group (Figure 61). This compares to increases of 40% and 113% respectively in the non-Indigenous population.

**Figure 61** Gonorrhoea notification rate per 100 000 population, 2011 – 2015, by Aboriginal and Torres Strait Islander status and select age group

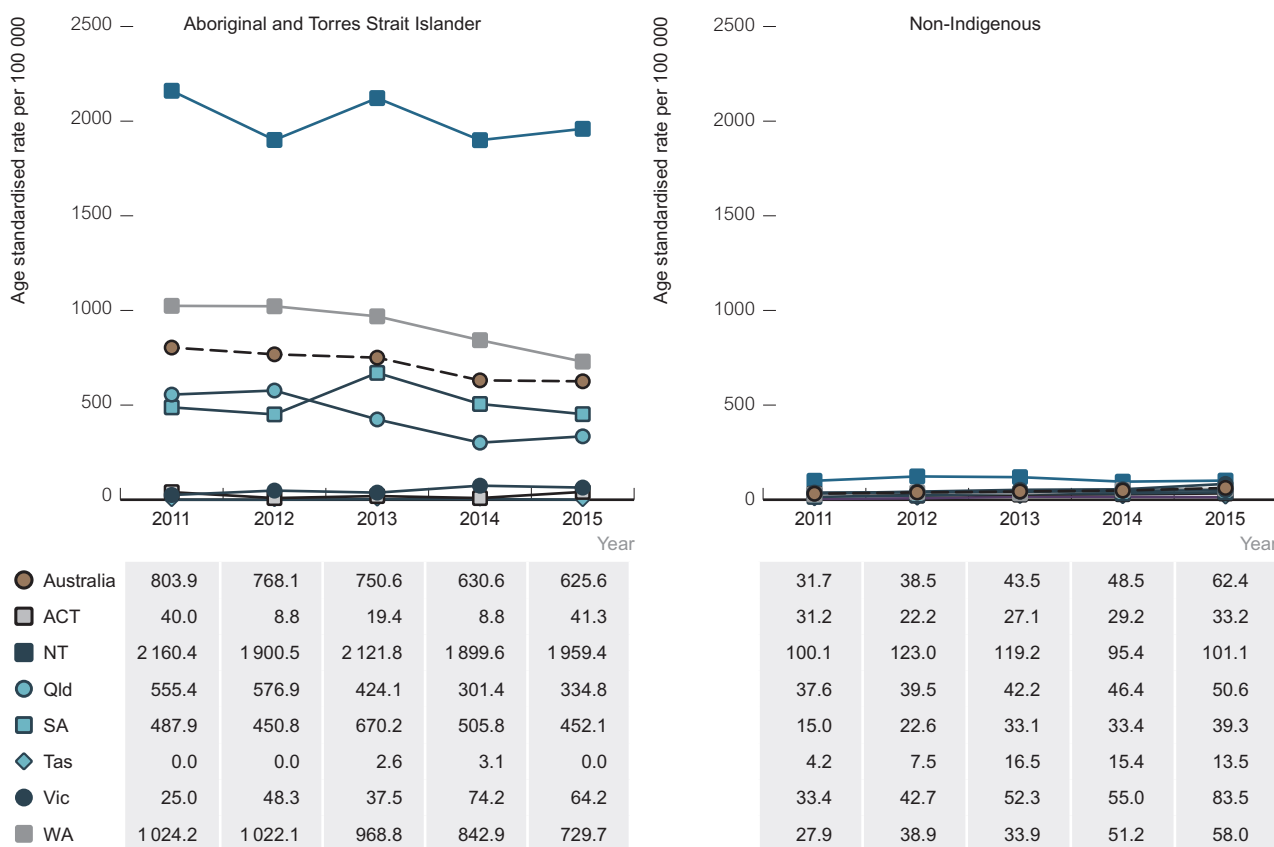


Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia) for each of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

From 2011 – 2015, 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 62). Notification rates were higher in the Aboriginal and Torres Strait Islander population than the non-Indigenous population in 2015 in all jurisdictions except for Victoria and Tasmania (Figure 62). Rates of gonorrhoea notification in the Aboriginal and Torres Strait Islander population declined by 40% in Queensland (from 555 per 100 000 in 2011 to 335 per 100 000 in 2015), declined by 29% in Western Australia (from 1 024 in 2011 to 730 per 100 000 in 2015) and increased by 156% in Victoria (from 25 per 100 000 in 2011 to 64 per 100 000 in 2015).



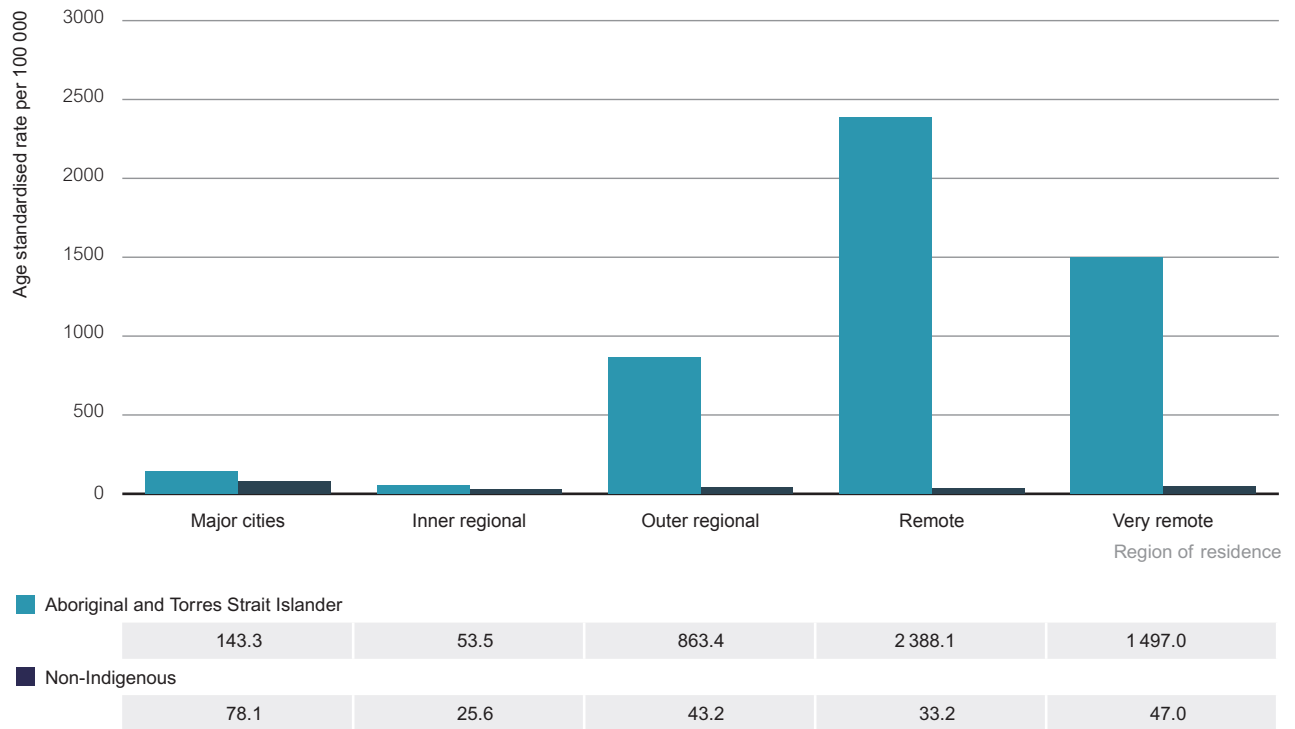
**Figure 62** Gonorrhoea notification rate per 100 000 population, 2011 – 2015, by Aboriginal and Torres Strait Islander status, and State/Territory



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

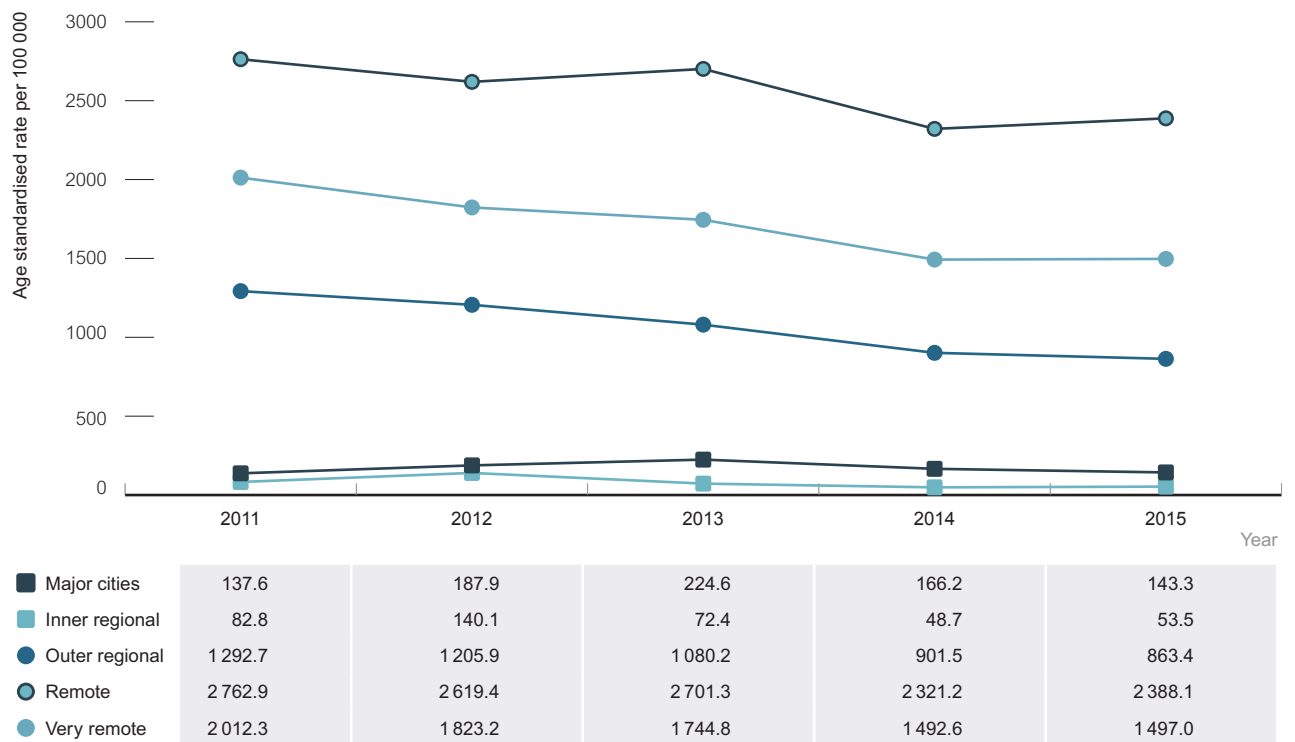
In 2015, in the Aboriginal and Torres Strait Islander population resident in major cities, outer regional, remote and very remote areas, the population rate of gonorrhoea was 2 times, 20 times, 72 times, and 32 times higher than the corresponding rate in the non-Indigenous population, respectively (Figure 63). In the five-year period 2011 – 2015, there were declines in the gonorrhoea notification rate in the Aboriginal and Torres Strait Islander population in outer regional, remote and very remote areas of residence, with a slight increase in major cities and fluctuating rates in inner regional areas (Figure 64).

**Figure 63** Gonorrhoea notification rate per 100 000 population, 2015, by Aboriginal and Torres Strait Islander status and area of residence



Source: Australian National Notifiable Diseases Surveillance System; includes jurisdictions with Aboriginal and Torres Strait Islander status completeness  $\geq 50\%$  in 2015 (Australian Capital Territory, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia).

**Figure 64** Gonorrhoea notification rate per 100 000 population, 2011 – 2015, by area of residence



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



## Infectious syphilis

An expanded national infectious syphilis case definition was implemented in July 2015 (July 2016 in New South Wales) which includes a new subcategory of 'probable' infectious syphilis. The probable category was developed to capture infectious syphilis cases in people without a recent history of testing, particularly young people aged 15 – 19 years.

Of the 2736 cases of infectious syphilis notified in 2015, 233 cases were categorised as probable, accounting for 12% of the 36% increase in notifications between 2014 and 2015. Of the 233 probable cases, 100 were notified as Aboriginal and Torres Strait Islander, 93 as non-Indigenous, and there were 40 for which Indigenous status was not reported.

For Aboriginal and Torres Strait Islander notifications, the probable case definition accounted for 8% of the 42% increase in the notification rate between 2014 and 2015. This 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.

- There were a total of 2 736 infectious syphilis notifications nationally in 2015, with 433 (16%) among the Aboriginal and Torres Strait Islander population, 2 043 (75%) among the non-Indigenous population, and a further 206 (8%) notifications for which Indigenous status was not reported.
- An expanded national infectious syphilis case definition was implemented in July 2015, to include a 'probable' category, with 233 probable cases notified in 2015, 100 of which were notified as Aboriginal and Torres Strait Islander, 93 as non-Indigenous and 40 for which Indigenous status was not reported.
- Infectious syphilis notification rates include all jurisdictions, as Aboriginal and Torres Strait Islander status was  $\geq 50\%$  complete for infectious syphilis notifications for each year of the ten year reporting period 2006 – 2015.
- In 2015, the infectious syphilis notification rate in the Aboriginal and Torres Strait Islander population was 6 times higher than the non-Indigenous population (61 vs. 10 per 100 000 population) increasing to 132 times higher in remote areas.
- In 2015, 67% of infectious syphilis cases among the Aboriginal and Torres Strait Islander population were diagnosed among people in the age group 15 – 29 years compared with 31% in the non-Indigenous population.
- The notification rate of infectious syphilis among the Aboriginal and Torres Strait Islander population declined by 46% between 2006 and 2009, and then increased by 177% between 2010 and 2015 from 22 per 100 000 in 2010 to 61 per 100 000 in 2015, largely driven by an outbreak in Northern Australia (including regions of Queensland, the Northern Territory and Western Australia). Between 2010 and 2015, the greatest increase was in 15 – 19 year olds from 34 per 100 000 to 146 per 100 000.
- In Aboriginal and Torres Strait Islander peoples, the number of infectious syphilis notifications among males and females was nearly equal in 2015, indicating predominantly heterosexual transmission.
- In contrast, diagnoses in non-Indigenous peoples are predominantly in men, in urban settings, suggesting that transmission is primarily related to sex between men.
- There were 22 congenital syphilis cases over the period 2011 – 2015, 64% (14) of which were in the Aboriginal and Torres Strait Islander population.

Accurate and complete systems for the notification of infectious syphilis exist nationally, enabling greater than 50% of all infectious syphilis notifications in all jurisdictions to be notified by Aboriginal and Torres Strait Islander status in every year of the last ten years. For this reason, infectious syphilis data are presented for the ten year reporting period 2006 – 2015.

In 2015, there were a total of 2 736 infectious syphilis notifications nationally in 2015, with 433 (16%) among the Aboriginal and Torres Strait Islander population, 2 043 (75%) among the non-Indigenous population, and a further 206 (8%) notifications for which Indigenous status was not reported.

In 2015, the age-standardised infectious syphilis notification rate in the Aboriginal and Torres Strait Islander population was 6 times that of the non-Indigenous population (61 vs. 10 per 100 000 population) (Figure 65). The dotted line indicates the 2015 notification rate if only confirmed cases were included.

**Figure 65** Infectious syphilis notification rate per 100 000 population, 2006 – 2015, by Aboriginal and Torres Strait Islander status



Note: Dotted line indicates the 2015 notification rate if only confirmed cases were included

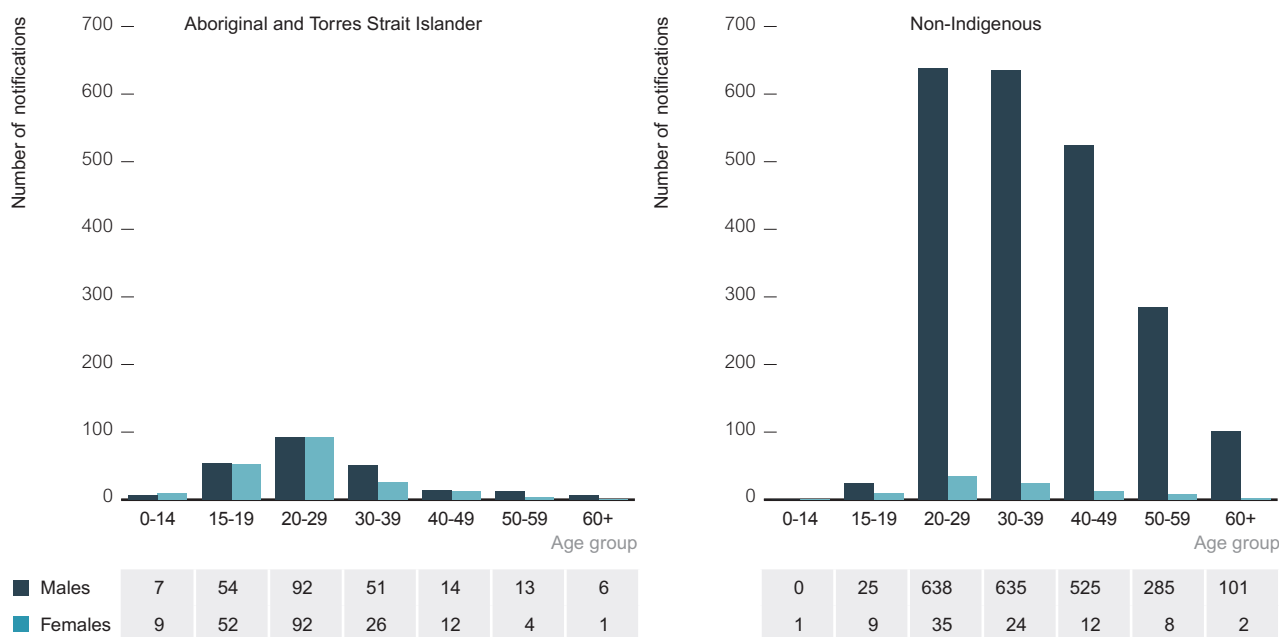
Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was ≥50% in each year of the ten years presented.

In 2015, 55% of notifications of infectious syphilis in the Aboriginal and Torres Strait Islander population were among males, compared with 96% in the non-Indigenous population (Figure 66). The male to female ratio among the Aboriginal and Torres Strait Islander cases indicates transmission of infectious syphilis predominantly through heterosexual contact and through sex between males in the non-Indigenous population.

In 2015, 24% of infectious syphilis notifications among the Aboriginal and Torres Strait Islander population were in 15–19 year olds, compared with 1% in the non-Indigenous population (Figure 66).



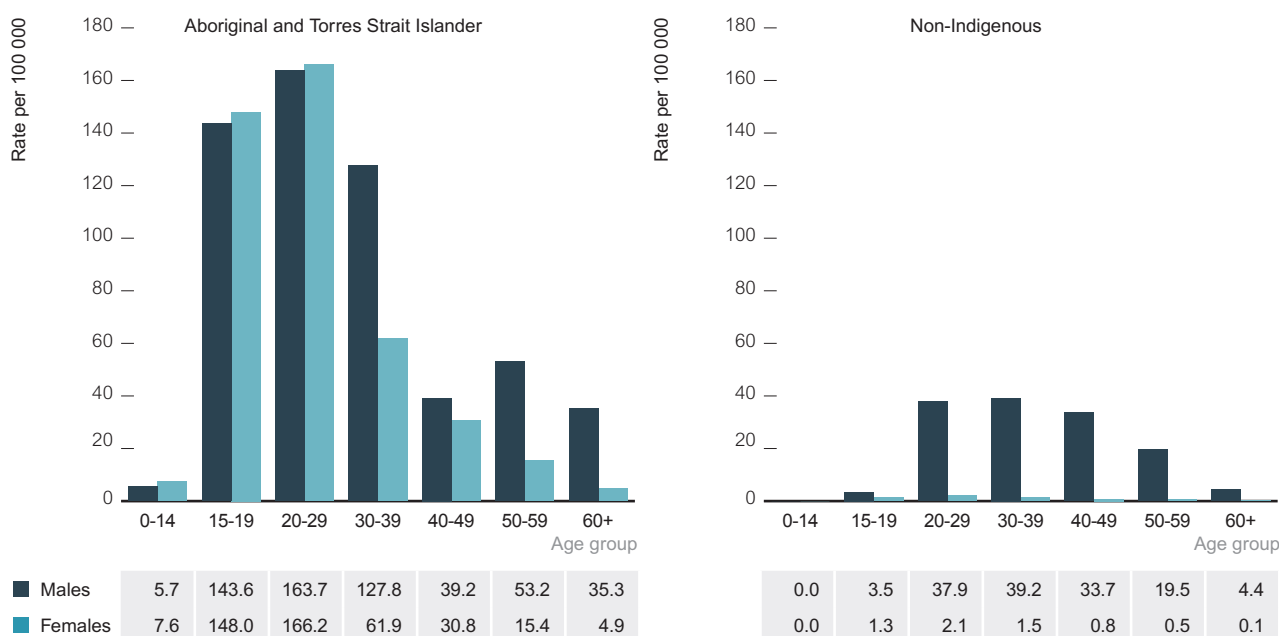
**Figure 66** Number of infectious syphilis notifications, 2015, by Aboriginal and Torres Strait Islander status, sex and age group



Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was  $\geq 50\%$  in each of the last ten years 2006 – 2015.

In 2015, the infectious syphilis notification rate was highest in the 20 – 29 year age group for the Aboriginal and Torres Strait Islander population (164 per 100 000 in males and 166 per 100 000 in females), and the 30–39 year age group for the non-Indigenous population (39 per 100 000 in males and 1.5 per 100 000 in females) (Figure 67).

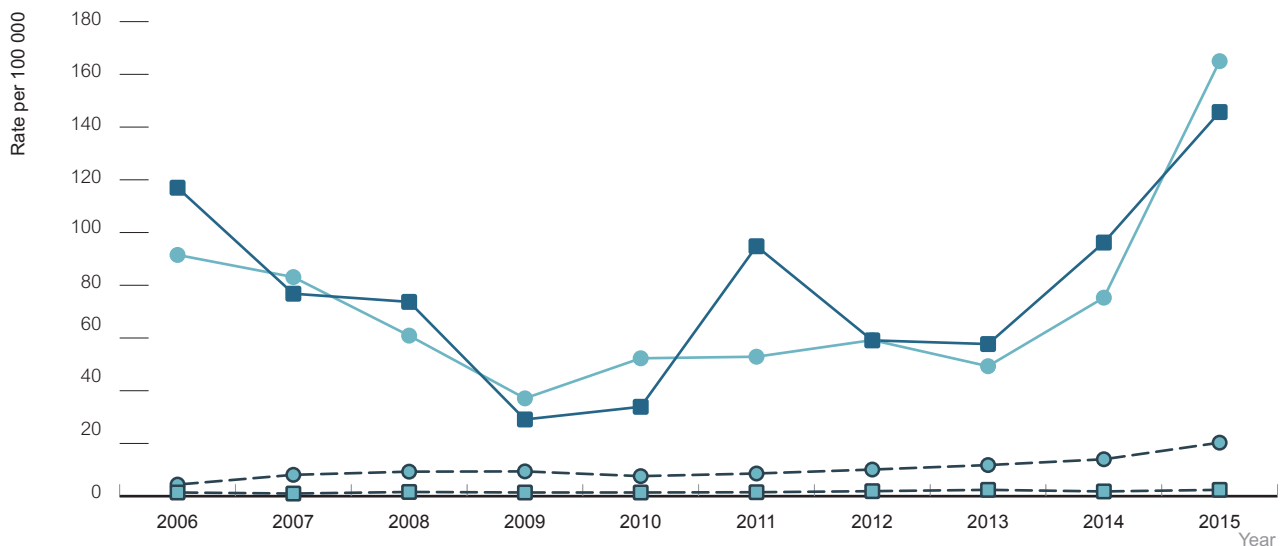
**Figure 67** Infectious syphilis notification rate per 100 000 population, 2015, by Aboriginal and Torres Strait Islander status and age group



Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was  $\geq 50\%$  in each of the last ten years 2006 – 2015.

Between 2006 and 2009, notification rates of infectious syphilis declined in Aboriginal and Torres Strait Islander peoples aged 15 – 19 and 20 – 29 (Figure 68), but increased sharply from 2009 to 2015. A similar pattern was seen in non-Indigenous notifications among people aged 20 – 29, with a decline in 2010, and then an increase from 2011 to 2015, with the increase less marked than in the Aboriginal and Torres Strait Islander population. Infectious syphilis notification rates were relatively stable in the non-Indigenous population aged 15 – 19 between 2006 and 2015. In all years, the notification rate was higher among both age groups in the Aboriginal and Torres Strait Islander population compared to the non-Indigenous population.

**Figure 68** Infectious syphilis notification rate per 100 000 population in Aboriginal and Torres Strait Islander peoples, 2011 – 2015, by select age group



Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Aboriginal and Torres Strait Islander aged 15 – 19	117.0	76.8	73.7	29.1	33.9	94.8	59.1	57.7	96.2	145.7
Aboriginal and Torres Strait Islander aged 20 – 29	91.5	83.1	60.9	37.1	52.3	52.9	59.2	49.3	75.3	165.0
Non-Indigenous aged 15 – 19	1.4	1.0	1.6	1.4	1.4	1.5	1.9	2.4	1.8	2.4
Non-Indigenous aged 20 – 29	4.4	8.1	9.3	9.4	7.6	8.6	10.1	11.8	14.0	20.3

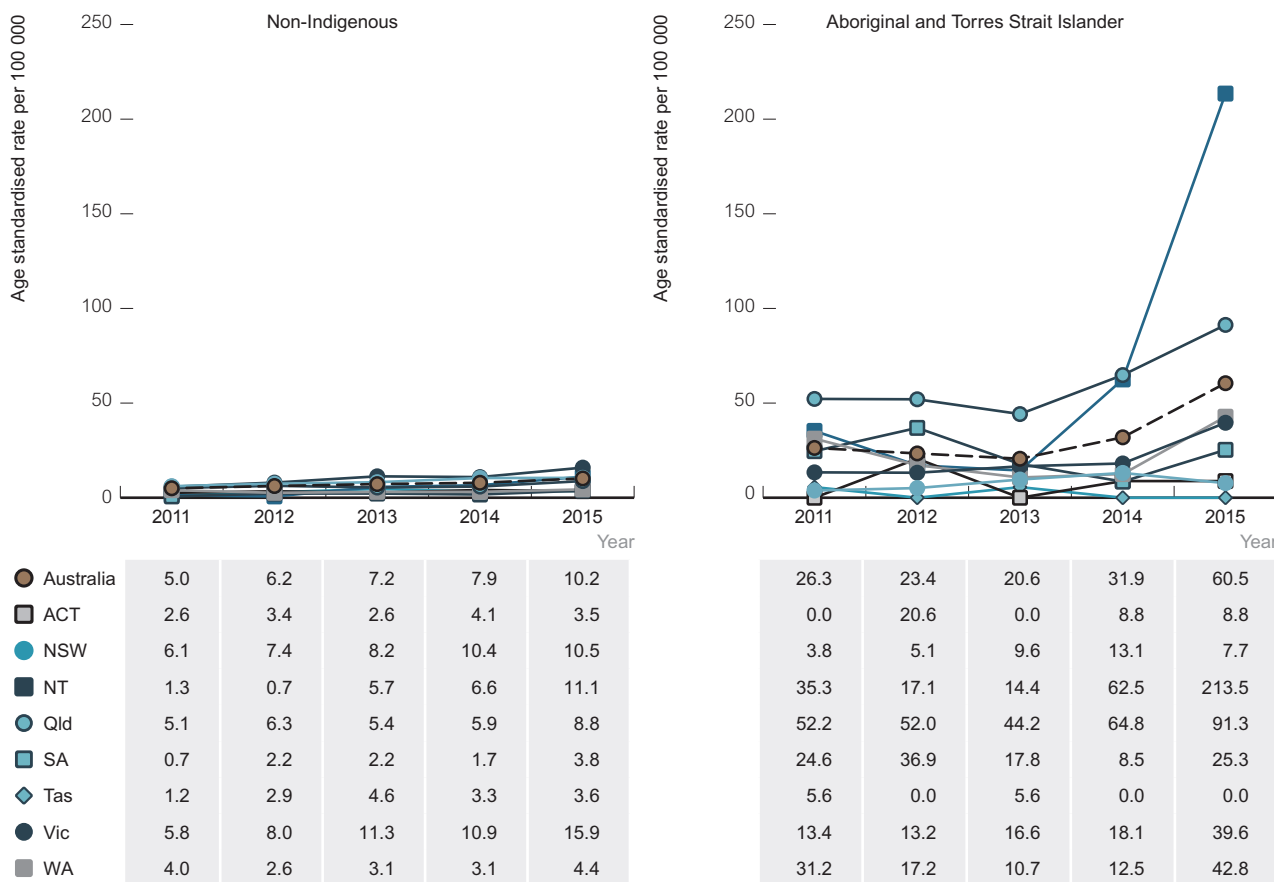
Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was ≥50% in each year of the ten years presented.

In 2015, the majority of the 433 infectious syphilis notifications in the Aboriginal and Torres Strait Islander population occurred in the Northern Territory (41%), Queensland (39%), and Western Australia (11%). In contrast the majority of the 2 043 infectious syphilis notifications in the non-Indigenous population occurred in Victoria (40%), New South Wales (33%), and Queensland (17%).

In the Northern Territory the notification rate of infectious syphilis in the Aboriginal and Torres Strait Islander population decreased by 60% from 2011 to 2013 (35 per 100 000 to 14 per 100 000), but increased sharply by 240% between 2014 and 2015 (from 63 per 100 000 to 214 per 100 000). In Queensland the notification rate of infectious syphilis in the Aboriginal and Torres Strait Islander population decreased by 23% between 2011 and 2013 (from 52 per 100 000 to 44 per 100 000) and increased by 107% between 2014 and 2015 (from 44 per 100 000 to 91 per 100 000) (Figure 69). In Western Australia the notification rate of infectious syphilis in the Aboriginal and Torres Strait Islander population decreased between 2011 and 2014 but increased by 231% between 2014 and 2015 (from 13 per 100 000 to 43 per 100 000) (Figure 69).



**Figure 69** Infectious syphilis notification rate per 100 000 population, 2011 – 2016, by Aboriginal and Torres Strait Islander status and State/Territory

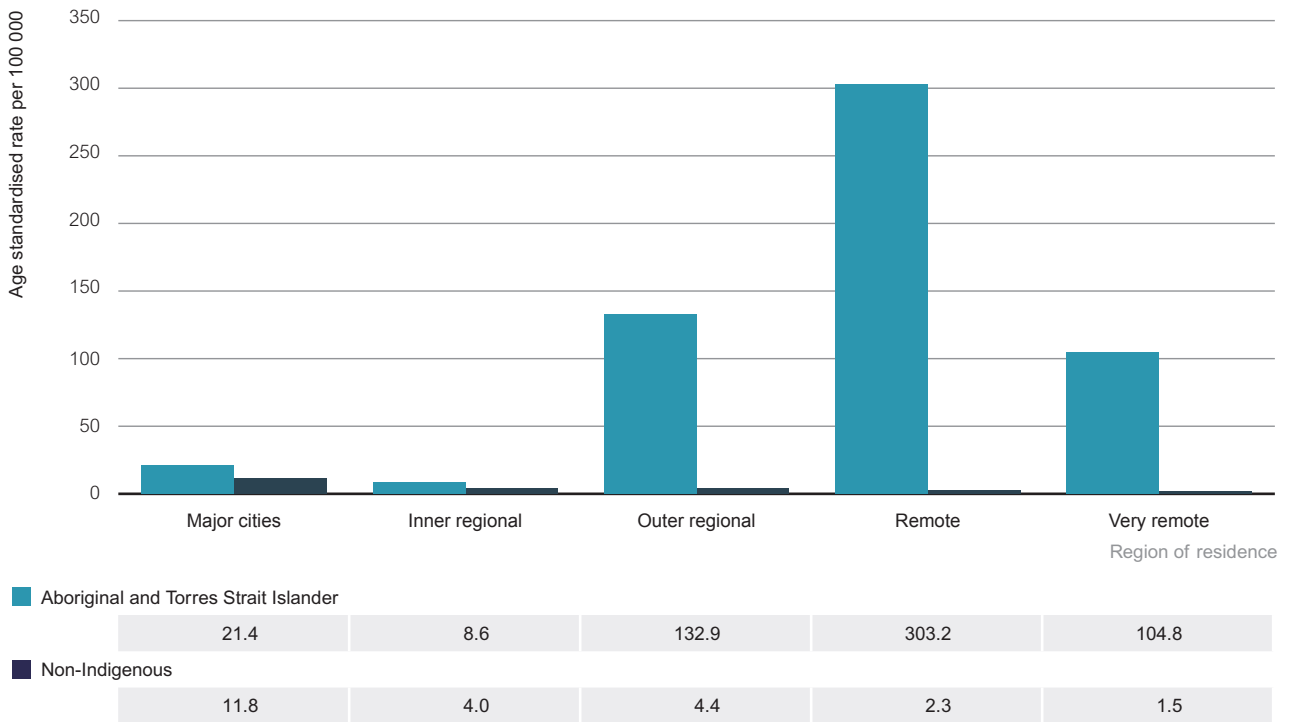


Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was ≥50% in each year of the ten years presented.

In 2015, the infectious syphilis notification rate in the Aboriginal and Torres Strait Islander population in major cities was 2 times higher than in the non-Indigenous population (21 versus 12 per 100 000), 2 times higher in inner regional areas, increasing to 30, 132 and 70 times the rate in outer regional, remote and very remote areas of Australia, respectively (Figure 70).



**Figure 70** Infectious syphilis notification rate per 100 000 population, 2015, by Aboriginal and Torres Strait Islander status and area of residence

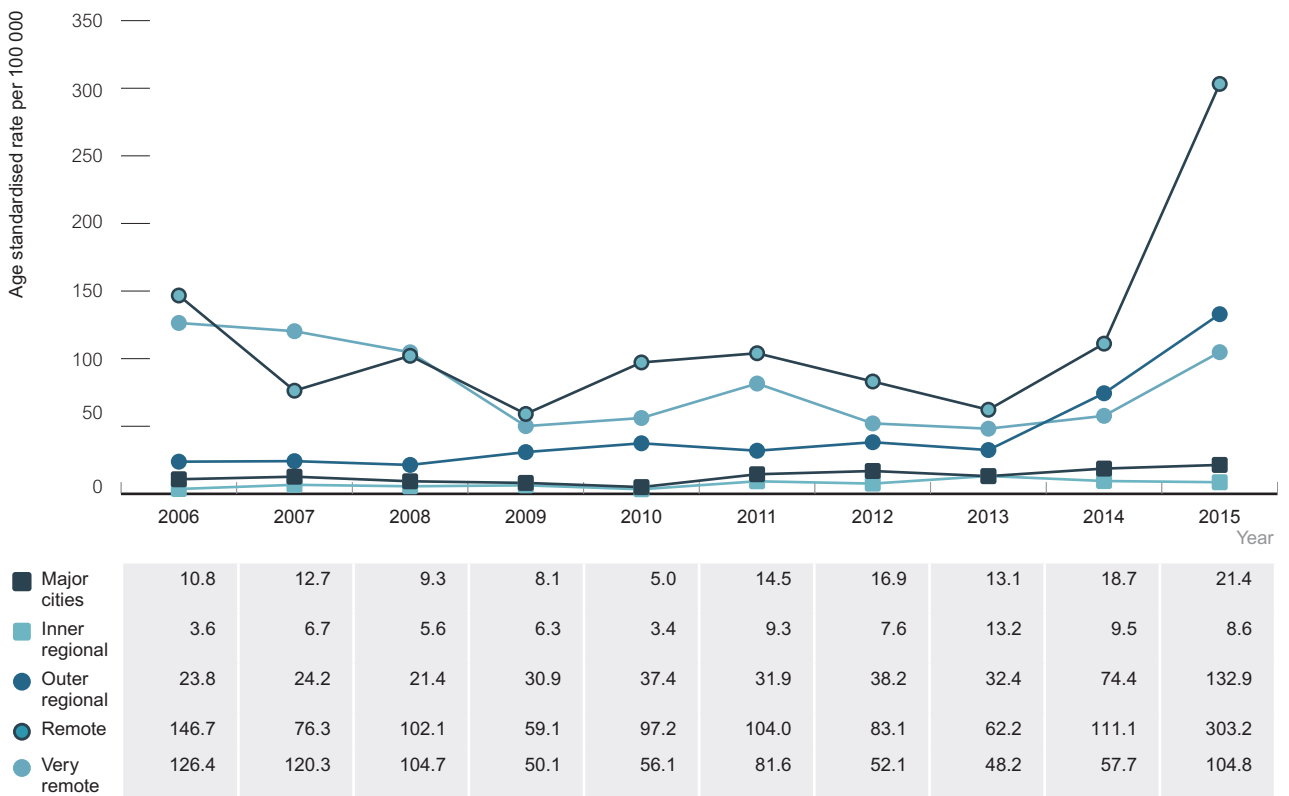


Source: Australian National Notifiable Diseases Surveillance System; includes all jurisdictions as Aboriginal and Torres Strait Islander status was  $\geq 50\%$  in 2015.

The area of residence where there was the greatest increases in infectious syphilis notification rates in the last ten years in the Aboriginal and Torres Strait Islander population was in remote areas and outer regional areas at 106% and 454%, respectively (Figure 71). Rates were lower in major cities and inner regional areas, but fluctuated over the ten year period 2006 – 2015.



**Figure 71** Infectious syphilis notification rate per 100 000 Aboriginal and Torres Strait Islander population, 2011 – 2015, by area of residence



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

## Congenital syphilis

Over the last ten years, more than half (56%, 29) of the 52 congenital syphilis notifications were in the Aboriginal and Torres Strait Islander population. Congenital syphilis is caused by the bacteria *Treponema pallidum*, which is passed from mother to child during foetal development or at birth. The number of notifications of congenital syphilis in this population declined from 6 in 2006 to 1 in 2009, and then increased to 5 in 2014, and 3 in 2015 (Figure 72). The notification rate of congenital syphilis in the Aboriginal and Torres Strait Islander population was 16.2 per 100 000 live births in 2015, compared to 0.3 per 100 000 live births in the non-Indigenous population.

**Figure 72** Number of congenital syphilis cases and rate per 100 000 live births, 2006 – 2015, by Aboriginal and Torres Strait Islander status



<sup>1</sup> Includes not-reported

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

## Bacterial STIs reported in persons aged less than 16 years

The occurrence of STIs among the Aboriginal and Torres Strait Islander population aged less than 16 years is a sensitive issue and likely linked to early sexual debut in areas of high endemicity of STIs. Incorrect assumptions may link these data to child sexual assault but caution should be taken in their interpretation. The occurrence of chlamydia, gonorrhoea and infectious syphilis among people aged 15 years or younger is described, based on cases notified to the National Notifiable Diseases Surveillance System and is summarised only for those jurisdictions in which Aboriginal and Torres Strait Islander status was reported for at least 50% of notifications in each year over the past five years.

From 2011 – 2015, a total of 3 111 cases of chlamydia, 1 469 cases of gonorrhoea and 104 cases of infectious syphilis were reported among Aboriginal and Torres Strait Islander aged less than 16 years respectively. In the same period 1 469 cases of chlamydia, 126 cases of gonorrhoea and 4 cases of infectious syphilis were reported in the non-Indigenous populations aged less than 16 years respectively. Within the Aboriginal and Torres Strait Islander population, the majority of these notifications (95% for chlamydia, 94% for gonorrhoea and 93% for infectious syphilis) were among people aged 13 to 15 years. A similar pattern of diagnosis occurred among the non-Indigenous young population where 97% of chlamydia, 92% of gonorrhoea and 100% of infectious syphilis notifications were among people aged 13 to 15 years. The majority of diagnoses of STIs in the young Aboriginal and Torres Strait Islander population occurred in areas of known high endemicity of STIs, and where screening for STIs is routinely carried out. Caution should be taken in describing these data as related to child sexual assault; as it is likely that a significant proportion of these notifications are the result of early sexual debut and/or sex with peer-aged partners.

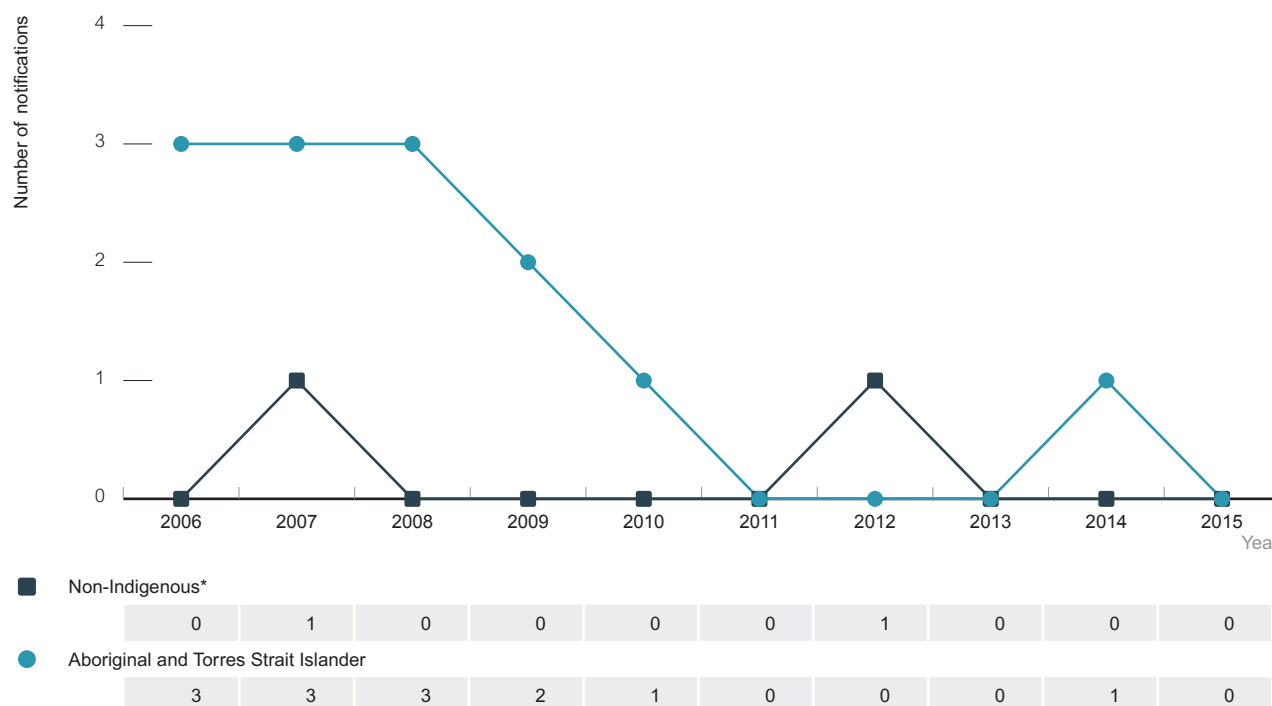
## Donovanosis

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 was carried out employing strategies such as targeted surveillance, high quality education and support of primary health care workers in their management of genital ulcerative disease, intermittent or short course oral medication and new laboratory techniques, for the elimination of donovanosis. Since 2009 there have been fewer than three notifications of donovanosis per year nationally, with zero in 2011, 1 in 2012, zero in 2013, 1 in 2014 and zero in 2015.

The decline in the annual number of notifications of donovanosis from 3 in 2006 to 0 in 2015 may be attributed to improved case ascertainment and treatment (Figure 73). There were no notifications of donovanosis in New South Wales, South Australia, Tasmania, Queensland, Victoria and the Northern Territory in the past 5 years. In Western Australia there were no notifications between 2006 and 2011, with 1 in 2012, none in 2013, 1 in 2014 and none in 2015.



**Figure 73** Number of notifications of newly diagnosed donovanosis infections, 2006 – 2015, by Aboriginal and Torres Strait Islander status



\* Includes not reported

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

## Human papillomavirus

Human papillomavirus (HPV) types 16 and 18 cause 70 – 80% of cervical cancer and about half of high grade cervical intraepithelial neoplasia (CIN2/3) lesions, and genotypes 6 and 11, cause most cases of genital warts. In Australia, the quadrivalent HPV vaccine (types 16, 18, 6 and 8) HPV is provided free in schools to all males and females aged 12 – 13 years under the National HPV Vaccination Program. The Program began in 2007 for females, and was extended to include males 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 adolescent boys 14 – 15 years.<sup>10,11</sup> Data on HPV vaccination coverage is not available by Aboriginal and Torres Strait Islander status, but will be available in the future.

Following the introduction of vaccination against HPV in 2007, a decline has been seen in the diagnosis of genital warts at first visit at sexual health clinics (see the *HIV, viral hepatitis and sexually transmissible infections in Australia Annual Surveillance Report 2016 for further detail*). Information available from 41 sexual health clinics included in the Genital Warts Surveillance Network indicate a greater than 80% reduction in genital warts among Aboriginal and Torres Strait Islander women and men, aged 21 years or younger to <1% in 2015 (Figures 74 and 75). In 21 – 30 year olds reductions were greater in women than men, reflecting the catch up campaign in women aged up until 26 years in 2007 – 2009.

**Figure 74** Proportion of Aboriginal and Torres Strait Islander males diagnosed with genital warts at first visit at sexual health clinics, 2004 – 2015, by age group



Source: The Australian Collaboration for Coordinated Enhanced Sentinel Surveillance of Sexually Transmitted Infections (STIs) and Blood Borne Viruses (BBVs)

**Figure 75** Proportion of Aboriginal and Torres Strait Islander females diagnosed with genital warts at first visit at sexual health clinics, 2004 – 2015, by age group



Source: The Australian Collaboration for Coordinated Enhanced Sentinel Surveillance of Sexually Transmitted Infections (STIs) and Blood Borne Viruses (BBVs)





# Methodological Notes

## HIV infection

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

Newly diagnosed HIV infection is a notifiable condition in each State/Territory health jurisdiction in Australia. Cases of newly diagnosed 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, Aboriginal and Torres Strait Islander 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 infection newly diagnosed 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 newly diagnosed from 1 January 2004 and by all jurisdictions from 2008. Reporting of a previous HIV diagnosis overseas was introduced for cases of HIV infection newly diagnosed in Australia from 1 January 2007. Advanced HIV diagnosis was defined as newly diagnosed HIV infection with a CD4+ cell count of less than 200 cells/ $\mu$ l, and late HIV diagnosis was defined as newly diagnosed HIV infection with a CD4+ cell count of less than 350 cells/ $\mu$ l.

In New South Wales, information on cases of newly diagnosed 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 new HIV diagnoses and reassignment of cases found to have been newly diagnosed in earlier years.

The surveillance systems for newly diagnosed HIV infection are described in Guy et al (2007)<sup>12</sup> and McDonald et al (1994)<sup>13</sup>. The National Serology Reference Laboratory, Australia (Dax and Vandenbelt 1993)<sup>14</sup>, 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 newly diagnosed in Australia from 1 January 1991. Newly acquired HIV infection was defined as newly diagnosed infection 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 (1994).

### *New diagnoses*

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\_2012<sup>12</sup>. Population denominators by country/region of birth were based on the standard Australian Classification of Countries (ABS series 1269.0) 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 32380do001\_2011. ABS regional population denominators by age, sex, indigenous status and state were obtained from ABS 2011 census data using remoteness according to postcode as assigned by ABS catalogue 1270055006\_CG\_POSTCODE\_2012\_RA\_2011. Proportion of population by remoteness was held constant over the range of data presented and used to evaluate remoteness populations by year using ABS population data matched by state, age, sex and indigenous status.

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*

Estimated HIV prevalence among people seen at needle and syringe programs was obtained from the Australian Needle and Syringe Program Survey (ANSPS)<sup>15</sup>. ANSPS methodology has been described in detail elsewhere<sup>16</sup>.

Briefly, the 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

New diagnoses of hepatitis B, newly acquired hepatitis B, hepatitis C infection and newly acquired hepatitis C were notifiable conditions in all State/Territory health jurisdictions in Australia. Cases were notified by the diagnosing laboratory, medical practitioner, hospital or a combination of these sources, through State/Territory health authorities, to the National Notifiable Diseases Surveillance System (NNDSS). Population rates of diagnosis 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 (Communicable Diseases Network Australia 2004). Diagnoses of newly acquired hepatitis B infection was notifiable in all health jurisdictions. Diagnoses of newly acquired hepatitis C infection were recorded in all health jurisdictions other than Queensland.

### *New hepatitis C diagnoses*

Notification procedures for new diagnoses 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 New diagnoses methodology).

### *Hepatitis C prevalence*

Hepatitis C prevalence among prison entrants was estimated using the National Prison Entrants' Bloodborne Virus Survey (NPEBVS). NPEBVS methodology has been described in detail elsewhere<sup>17</sup>. Briefly, the study is a consecutive cross-sectional sample of prison entrants over a two week period.

## Hepatitis B infection

### *Hepatitis B new diagnoses*

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

### *Hepatitis B prevalence*

The estimated prevalence of chronic hepatitis B according to country of birth was derived from combining multiple published sources into an average point estimate. The estimates used comprised two Australian antenatal seroprevalence studies<sup>18, 19</sup>; a study of hepatitis B prevalence in migrants to the United States<sup>20</sup>; and the most recent global seroprevalence study conducted as part of the Global Burden of Disease Project<sup>21</sup>. The Australian prevalence figure was obtained from local modelled estimates<sup>22</sup>.

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

HBV prevalence among blood donors was estimated using Australian Red Cross Blood Service data described above.

## Sexually transmissible infections other than HIV

Diagnoses of specific sexually transmissible infections were notified by State/Territory health authorities to the National Notifiable Diseases 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, diagnoses of sexually transmissible infections were notified by the diagnosing laboratory, the medical practitioner, hospital or a combination of these sources (see Table below).

**Table 4 Source of notification of specific sexually transmissible infections to the National Notifiable Diseases Surveillance System by State/Territory**

Diagnosis	Australian Capital Territory	New South Wales	Northern Territory	Queensland	South Australia	Tasmania	Victoria	Western Australia
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

### *New diagnoses*

Notification procedures for new diagnoses 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 new diagnoses 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<sup>23</sup> 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 CHCV 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.

The survey involved collection of data comprising four areas; (i) demographics; (ii) questions assessing knowledge of STIs and BBVs; (iii) questions relating to risk behaviours and (iv) questions related to use of and access to health services. Just under 3 000 Aboriginal and Torres Strait Islander people aged 16 – 29 were surveyed in every Australian jurisdiction. The project was initiated in 2010, and data collection occurred during 2011 – 2013. The survey was funded by an Australian Research Council Linkage Grant with contributions from State and Territory Health Departments. The survey was coordinated by peak Aboriginal health organisations in each jurisdiction.

### *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.





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