

2009

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

Surveillance and Evaluation Report



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Bloodborne viral and sexually transmitted infections in Aboriginal and Torres Strait Islander people:
Surveillance and Evaluation Report


edited by
James Ward

**National Centre in HIV Epidemiology and Clinical Research,
Sydney, Australia**

in collaboration with Australian networks in surveillance for HIV/AIDS, viral hepatitis and sexually transmitted infections

This report was overseen by the Ministerial Advisory Committee on AIDS, Sexual Health and Hepatitis and the National Aboriginal Community Controlled Health Organisation (NACCHO) Sexual Health and Blood Borne Virus Advisory Group.

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Preface

This surveillance report provides information on the occurrence of bloodborne viral and sexually transmissible infections (STIs) among Aboriginal and Torres Strait Islander people in Australia. The report is published by the National Centre in HIV Epidemiology and Clinical Research for the purposes of stimulating and supporting discussion on ways forward in minimising the risk of transmission of bloodborne viruses and STIs as well as the personal and social consequences of these infections within Aboriginal and Torres Strait Islander communities.

This report is published annually as an accompanying document to the report *HIV/AIDS, viral hepatitis and sexually transmissible infections in Australia Annual Surveillance Report* and is overseen by the National Aboriginal Community Controlled Health Organisation (NACCHO) Sexual Health and Blood Borne Virus Advisory Group and the Surveillance and Evaluation Report 2009 Advisory Committee.

The report is produced in a format that is recognised as appropriate for Aboriginal and Torres Strait Islander health services and communities and is available in hard copy and at the internet address <http://www.nchechr.unsw.edu.au>

Unless specifically stated otherwise, all data provided in the *Surveillance and Evaluation Report 2009* are to the end of 2008, as reported by 31 March 2009. Data in the *Surveillance Report and Evaluation Report 2009* are provisional and subject to future revision.

The *Surveillance and Evaluation Report 2009* could not have been prepared without the collaboration of a large number of organisations involved in health services throughout Australia. The ongoing contribution of these organisations, listed in the following section, is gratefully acknowledged.

Acknowledgments

National Organisations

- Australasian Society for HIV Medicine, Sydney, NSW
- Australian Federation of AIDS Organisations, Sydney, NSW
- Australian Government Department of Health and Ageing, Canberra, ACT
- Australian Institute of Health and Welfare, Canberra, ACT
- Communicable Diseases Network Australia, Canberra, ACT
- Hepatitis Australia, Canberra, ACT
- National Aboriginal Community Controlled Health Organisation, ACT
- National Association of People Living with HIV/AIDS, Sydney, NSW

State/Territory Health Departments

- Communicable Disease Control Program, ACT Department of Health and Community Care, Canberra, ACT
- Area Health Services, NSW Health Department, North Sydney, NSW
- Sexual Health and BBV Program, Centre for Disease Control, Department of Health and Community Services, Darwin, NT
- Queensland Health, Brisbane, QLD
- Sexually Transmitted Diseases (STD) Services, Internal Medicine Service, Royal Adelaide Hospital, SA
- Department of Community and Health Services, Hobart, TAS
- STD/Bloodborne Virus Program, Infectious Diseases Unit, Department of Human Services, Melbourne, VIC; The Macfarlane Burnet Institute for Medical Research and Public Health Limited, Prahran, VIC
- Communicable Diseases Control Branch, Department of Health, Perth, WA

Collaboration of Australian Needle and Syringe Programs

- Directions ACT, ACT
- AIDS Council of NSW (Sydney and Hunter); Albury Community Health Centre, Albury; First Step Program, Port Kembla and Nowra; Health ConneXions, Harm Reduction Program, Liverpool; Hunter Harm Reduction Services, Newcastle; Indo-Chinese Outreach Network (ICON) Bankstown, Cabramatta and Liverpool; Kirketon Road Centre and K2, Kings Cross; NSW Users and AIDS Association (NUAA), Surry Hills; Northern Rivers Area Health Service, Ballina, Byron Bay, Lismore, Murwillumbah, Nimbin, and Tweed Heads; Resource and Education Program for IDUs, Redfern and Canterbury; Responsive User Services in Health (RUSH), Manly, Ryde and St Leonards; St George NSP, Kogarah; South Court Primary Care NSP, Nepean; Sydney West Area Health Service HIV/Hepatitis C Prevention Service, Auburn, Blacktown, Merrylands, Mt Druitt and Parramatta, NSW
- Northern Territory AIDS and Hepatitis C Council, Alice Springs, Darwin and Palmerston, NT
- Biala Community Alcohol and Drug Services, Brisbane; Cairns Base Hospital NSP, Cairns; Cairns Youthlink, Cairns; Queensland Injectors Health Network (QuIHN), Brisbane, Gold Coast and Sunshine Coast; Kobi House, Toowoomba; West Moreton Sexual Health Service, Ipswich, QLD
- Drug and Alcohol Services South Australia, Adelaide; Hindmarsh Centre, Hindmarsh; Nunkuwarrin Yunti Community Health Centre, Adelaide; South Australia Voice for Intravenous Education (SAVIVE): AIDS Council South Australia, Norwood; Parks Community Health Service, Adelaide; Port Adelaide Community Health Service, Port Adelaide; Noarlunga Community Health Service, Adelaide; Northern Metropolitan Community Health Service NSP and Shopfront, Salisbury, SA

- Clarence Community Health Centre, Clarence; Devonport Community Health Centre, Devonport; Salvation Army Launceston, Launceston; Tasmanian Council on AIDS, Hepatitis & Related Diseases (TasCAHRD), Hobart and Glenorchy; The Link Youth Health Service, Hobart, TAS
- Barwon Health Drug and Alcohol Services, Geelong; Bendigo NSP Services, Bendigo; Darebin Community Health Centre, Northcote; Health Information Exchange, St Kilda; Health Works, Footscray; Melbourne Inner Needle Exchange, Collingwood; North Richmond NSP, North Richmond; South East Alcohol and Drug Service, Dandenong; 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 Bunbury, WA

Surveillance and Evaluation Report 2009 Advisory Committee

- Dr Russell Waddell, Australasian Chapter of Sexual Health Medicine
- Dr Anne Mijch, Australasian Society of HIV Medicine
- Phillip Keen, Australian Federation of AIDS Organisations, Sydney, NSW
- Kate Robinson, Australian Government Department of Health and Ageing, Canberra, ACT
- Helen Tyrrell, Hepatitis Australia, Canberra, ACT
- Dr Cindy Shannon, Committee Member, Ministerial Advisory Committee on Blood Borne Viruses and Sexually Transmissible Infections
- Tadgh McMahon, Multicultural HIV/AIDS and Hepatitis C Service, Sydney, NSW
- John Daye, National Association of People Living with HIV/AIDS, Sydney, NSW
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National Aboriginal Community Controlled Health Organisation Sexual Health and Blood Borne Virus Advisory Committee 2008

- Ms Kathy Malera Bandjolan, Chair NACCHO Sexual Health and Blood Borne Virus Advisory Committee; Mrs Dea Delaney-Thiele and Mr Mark Saunders, National Aboriginal Community Controlled Health Organisation (NACCHO); Mr Peter Waples-Crowe, Victorian Aboriginal Community Controlled Health Organisation; Mr Sidney Williams, Queensland Aboriginal and Islander Health Council; Dr David Scrimgeour and Mr Clinton Dadleh, Aboriginal Health Council of South Australia; Ms Kyra Kum-Sing, Aboriginal Medical Service Redfern, Dr Liz Moore, Aboriginal Medical Services Alliance Northern Territory; Ms Sallie Cairnduff, Aboriginal Health and Medical Research Council of NSW; Ms Sharon Clews, Aboriginal Health Council of Western Australia; Ms Cheryl Mundy, Tasmanian Aboriginal Centre

Guide to technical terms

AIDS (Acquired Immune Deficiency Syndrome): The late stage of infection with Human Immunodeficiency Virus (HIV). Without treatment, AIDS will develop in about 50% of people with HIV infection within the first ten years. The time to AIDS can range widely between people, being as short as one year in some people and longer than 15 years in others. The wide availability of effective antiretroviral therapy has dramatically reduced the number of AIDS cases in many countries.

Chlamydia: A sexually transmitted infection caused by a type of bacterium. The most common symptom in males is an inflammation of the urethra, causing some pain and penile discharge, and in females the main symptom is a vaginal discharge. Complications of long-term infection are particularly serious for women and can include pelvic inflammatory disease and infertility. Chlamydia is fully curable by a single dose of antibiotics.

Donovanosis: A sexually transmitted infection caused by a type of bacterium. The most common symptom is a large, painless ulcer of the genitals, the groin or the anal region, that can progress and become complicated by other bacterial infection if untreated, ultimately leading to serious damage to the affected part of the body, and even become life-threatening. Donovanosis is fully curable by 3 to 4 doses of antibiotics over a month. Donovanosis occurs in central and northern Australia.

Gonorrhoea: A sexually transmitted infection caused by a type of bacterium. Symptoms are similar to those of chlamydia, as are the complications. Most men with urethral gonorrhoea have symptoms. Gonorrhoea is fully curable by a single antibiotic injection.

HBV (hepatitis B virus) infection: An infection that is transmitted by sexual and blood contact, as well as from mother to child, and is caused by a virus known as HBV. Newly diagnosed hepatitis B virus infection means that a person previously not known to have the infection has been tested and now found to have the infection. Newly acquired infection means the person has become infected within the past two years.

HCV (hepatitis C virus) infection: An infection that is transmitted by blood contact as well as from mother to child. Newly diagnosed hepatitis C virus infection means that a person previously not known to have the infection has been tested and now found to have the infection.

HDV (hepatitis D virus) infection: An infection caused by an RNA virus that is usually transmitted by sharing injecting equipment.

HIV (Human Immunodeficiency Virus) infection: An infection that is transmitted by sexual and blood contact, as well as from mother to child. HIV infection is the cause of 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 transmitted infection caused by a type of bacterium. The main symptoms in the early stage are a small painless sore at the site of infection within the first few weeks, followed by a rash in the next few months. In the absence of treatment, there will then be a period of several years without any symptoms, followed by a range of complications over decades that can involve the skin, bone, intestinal tract, 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 Chin J (2000). *Control of Communicable Diseases Manual*.

Age specific rate: The proportion of people in a particular age group who have the infection, usually expressed per 100 000 people in the specified age group.

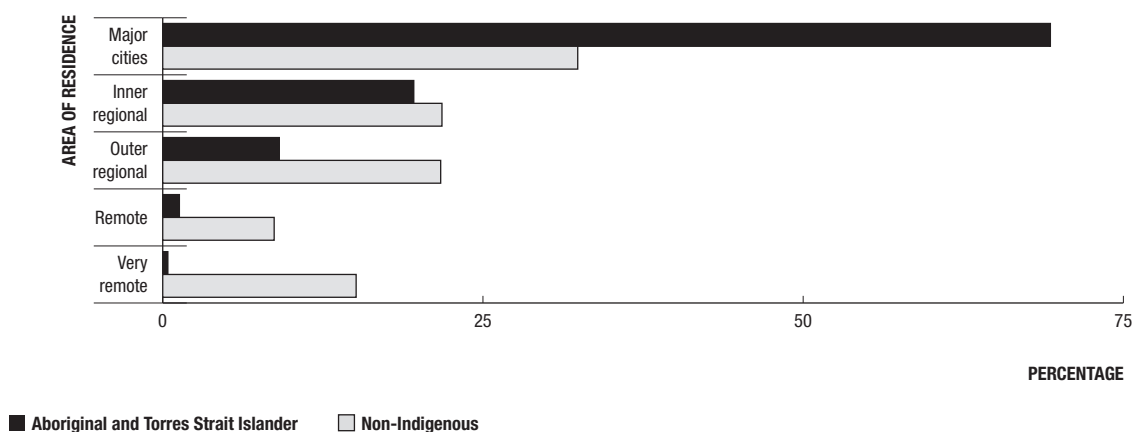
Example: Age-specific rate of diagnosis of gonorrhoea among men aged 20 – 29 years

$$= \frac{\text{Number of diagnoses of gonorrhoea among men aged 20 – 29 years}}{\text{Number of men aged 20 – 29 years}} \times 100\,000$$

Age standardised rate of infection: The proportion of people in a particular population who have the infection, adjusted by a mathematical technique to account for differences in age structure across populations when comparing rates.

Area of residence: Australia's population lives in many different geographic locations. Area of residence, indicated by postcode of residence at diagnosis of the specific blood borne viruses and sexually transmitted infections included in this report, has been classified into 5 remoteness areas: major cities of Australia, inner regional, outer regional, remote and very remote areas. A relatively high proportion of the Aboriginal and Torres Strait Islander population lives in regional and remote areas of Australia. In 2006, the highest proportion of the Aboriginal and Torres Strait Islander population (32.4%) lived in major cities. Almost half (45.5%) lived in outer regional, remote and very remote areas combined, compared with 10.8% in the non-Indigenous population (See *Methodological Notes* for further information).

Figure 1 Area of residence, 2006, by Aboriginal and Torres Strait Islander status



Source: Australian Bureau of Statistics

Reporting new diagnoses of specific bloodborne viruses and sexually transmitted infections by Aboriginal and Torres Strait Islander status: Trends in diagnoses of specific bloodborne viruses and sexually transmitted infections were included in the *Surveillance and Evaluation Report 2009* if information on Aboriginal and Torres Strait Islander status was available in a State/Territory health jurisdiction for at least 50% of diagnoses in each year over the past five years. Trends were not included in this *Surveillance and Evaluation Report* if information on Aboriginal and Torres Strait Islander status was available for less than 50% of diagnoses in a State/Territory health jurisdiction for less than five of the past five years.

Figure 2 Reporting of Aboriginal and Torres Strait Islander identity at diagnosis of selected sexually transmitted infections, by State/Territory, 2008

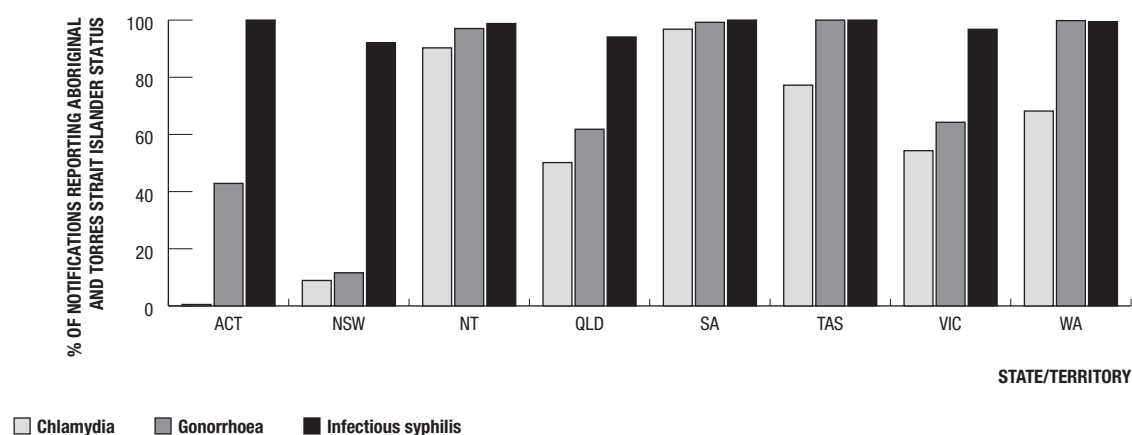
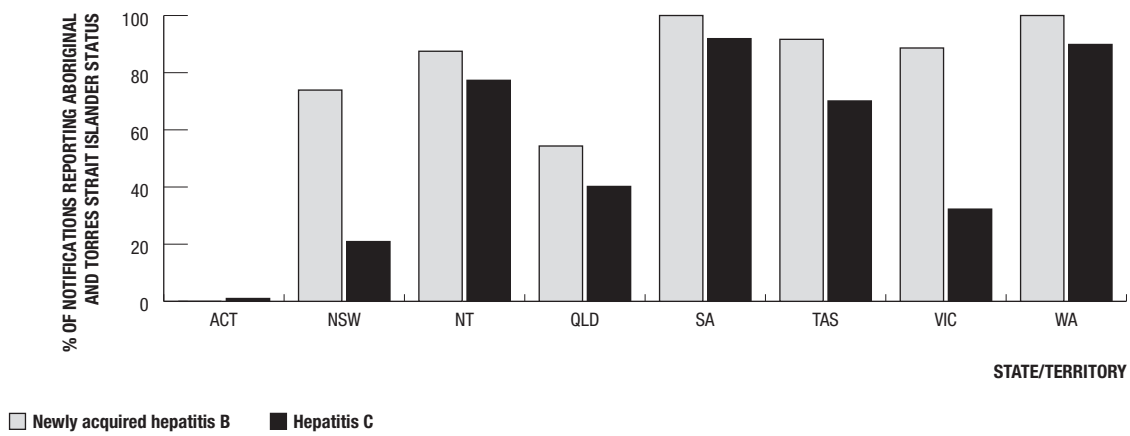


Figure 3 Reporting of Aboriginal and Torres Strait Islander identity at diagnosis of viral hepatitis, by State/Territory, 2008



Contextualizing the occurrence of bloodborne viruses and sexually transmitted infections in the Aboriginal and Torres Strait Islander population

In Australia, higher rates of diagnosis of sexually transmitted infections and bloodborne viruses occur among Aboriginal and Torres Strait Islander people than among non-Indigenous people. This discrepancy has the potential to impact on the already excess levels of morbidity and mortality experienced by Aboriginal and Torres Strait Islander people. Factors that may contribute to higher rates of bloodborne viruses and sexually transmitted infections among Aboriginal and Torres Strait Islander people include:

- **Less access to health services:** Aboriginal and Torres Strait Islander people have less access to culturally appropriate primary health care services to facilitate early detection, treatment and follow up of sexually transmitted infections.
- **Shortage of clinical staff:** Access to health services is further exacerbated in many communities by the limited number of clinicians (particularly of the same gender) who are able to deal sensitively and competently with sexual health issues.
- **Transmission dynamics:** There is limited information comparing differences in behavioural patterns between Aboriginal and Torres Strait Islander people and non-Indigenous people. However, there is the potential for differences in transmission risk due to networks of sexual contact within cultural groups.
- **High rates of screening:** In some remote Aboriginal and Torres Strait Islander communities, high rates of screening have led to early detection and treatment of bacterial sexually transmitted infections.
- **A younger and more mobile population:** Aboriginal and Torres Strait Islander people are a much younger and more mobile population compared with the non-Indigenous population, adding to the complexity of appropriate sexual health testing and treatment.
- **Socio-economic disadvantage** including lower educational standards and subsequent lower health literacy is a predictor of poor health.
- **Shame and historical factors associated with treatment for sexually transmitted infections.** As with the non-Indigenous population, there is a substantial amount of shame associated with having and or being diagnosed with a sexually transmitted infection. In many areas of Australia there are well documented cases where Aboriginal people were treated in a discriminatory and inhumane manner if diagnosed with a sexually transmitted infection.
- **Mainstream sexually transmitted infection and bloodborne virus social marketing** messages do not always reach and have impact with Aboriginal and Torres Strait Islander communities across Australia.

Furthermore, these factors contribute differently to the epidemiological patterns in Aboriginal and Torres Strait Islander communities across Australia.

Summary

- Information on the occurrence of bloodborne viruses and sexually transmitted infections is included in the *Surveillance and Evaluation Report 2009* if information on Aboriginal and Torres Strait Islander status was reported for at least 50% of diagnoses in a State or Territory health jurisdiction in each of the past five years.
- Population rates of diagnosis of bloodborne viral and sexually transmitted infections by Aboriginal and Torres Strait Islander status were calculated using *Experimental estimates of Aboriginal and Torres Strait Islander Australians June 2006* (ABS 2008) for cases diagnosed in the years 2004 – 2008, and the *2001 Census of Population and Housing* (ABS 2001) for cases diagnosed in 1999 – 2003.

Bacterial sexually transmitted infections

- Considerable gaps remain in the reporting of Aboriginal and Torres Strait Islander status. Aboriginal and Torres Strait Islander status was not reported in 52% or over 30 000 cases of chlamydia diagnosed in Australia in 2008. Similarly, Aboriginal and Torres Strait Islander status was not reported for 2 178 cases or 28% of diagnoses of gonorrhoea in 2008. Incomplete information on Aboriginal and Torres Strait Islander identification has the potential to underestimate the true prevalence and morbidity associated with these STIs in the Aboriginal and Torres Strait Islander population.
- In 2008, in State/Territory health jurisdictions where accurate data on Aboriginal and Torres Strait Islander status was available,
 - 11% of all chlamydia notifications reported from Northern Territory, South Australia, Tasmania, Victoria, and Western Australia occurred among Aboriginal and Torres Strait Islander people despite representing 2.3% of the total population in these jurisdictions.
 - 55% of all gonorrhoea notifications in 2008 occurred among Aboriginal and Torres Strait Islander people in Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia.
 - 14% of all infectious syphilis notifications in Australia were among Aboriginal and Torres Strait Islander people.
- The number of donovanosis diagnoses continued to decline, with less than five cases being notified in the past two years.
- A total of 183 cases of infectious syphilis were diagnosed among Aboriginal and Torres Strait Islander people nationally in 2008 compared with 1 057 cases among non-Indigenous people. The age standardised rate of diagnosis of infectious syphilis decreased from 40 per 100 000 in 2006 to 34 per 100 000 Aboriginal and Torres Strait Islander population in 2008, but remains high compared with the non-Indigenous population where the rate in 2008 was 6 per 100 000.
- Communities resident in remote and very remote areas continue to experience substantially higher rates of chlamydia, gonorrhoea and infectious syphilis compared with those resident in major cities and inner and outer regional areas.

Bloodborne viruses

HIV infection

- A total of 995 cases of HIV infection were newly diagnosed in Australia in 2008, including 19 cases in Aboriginal and Torres Strait Islander people. Despite the relatively small number of notifications, the population rate of HIV diagnosis in the Aboriginal and Torres Strait Islander population remains similar to that in the non-Indigenous population.
- Over the past ten years, 186 cases of HIV infection have been diagnosed among Aboriginal and Torres Strait Islander people.
- A very different epidemiological profile exists for HIV infection among the Aboriginal and Torres Strait Islander population compared to that in the Australian born non-Indigenous population. For infections newly diagnosed in the Aboriginal and Torres Strait Islander population in the five years from 2004 to 2008, exposure to HIV was attributed to sex between men in 54%, injecting drug use in 22%, heterosexual contact in 23% and was undetermined in 1%. In the Australian born non-Indigenous population, exposure to HIV was attributed to sex between men in 79%, injecting drug use in 3%, heterosexual contact in 13% and was undetermined in 5%.

Viral hepatitis

- A total of 246 cases of newly acquired hepatitis B (HBV) were diagnosed in Australia in 2008. Twenty (8%) of these were among Aboriginal and Torres Strait Islander people, 180 (73%) were among non-Indigenous people and Aboriginal and Torres Strait Islander status was not reported for 46 (19%) cases.
- In 2008, the rate of diagnosis of newly acquired hepatitis B infection in the Aboriginal and Torres Strait Islander population and the non-Indigenous population was 5 and 1 per 100 000 population, respectively.
- Aboriginal and Torres Strait Islander people are overrepresented in the hepatitis C virus notifications. A total of 11 303 cases of hepatitis C were diagnosed in Australia in 2008. Of these, 627 (6%) were among Aboriginal and Torres Strait Islander people, 4 115 (36%) were among non-Indigenous people and Aboriginal and Torres Strait Islander status was not reported in 6 561 (58%) cases.

Table 1 Aboriginal and Torres Strait Islander population in Australia, 2006, by State/Territory

State/Territory	Census 2006 Number ¹	Estimated resident population Number ²
ACT	3 873	4 282
NSW	138 504	152 685
NT	53 663	64 005
QLD	127 581	144 885
SA	25 556	28 055
TAS	16 770	18 415
VIC	30 140	33 517
WA	58 709	70 966
Total	455 016	517 043

1 Australian Bureau of Statistics. 2006 Census of population and housing. Indigenous status by age by sex. Canberra: Australian Bureau of Statistics, 2007

2 Australian Bureau of Statistics 2008. *Experimental estimates of Aboriginal and Torres Strait Islander Australians*, 2006. Canberra: Australian Bureau of Statistics, 2008

Source: Australian Bureau of Statistics 2007, 2008

Table 2 Number and rate¹ of diagnosis of bloodborne viruses and specific sexually transmitted infections in Australia², 2008, by Aboriginal and Torres Strait Islander status

Bloodborne virus/ sexually transmitted infection	Aboriginal and Torres Strait Islander		Non-Indigenous		Jurisdictions (number of cases) in which Aboriginal and Torres Strait Islander status was reported for less than 50% of diagnoses
	Number ¹	Rate ²	Number ³	Rate ²	
Chlamydia	3 018	1 131	25 274	273	ACT, NSW, QLD (30 164)
Gonorrhoea	3 439	806	2 872	22	ACT, NSW (1 355)
Infectious syphilis	183	34	1 111	6	ACT (4)
HIV infection	19	4.2	976	5.0	
Newly acquired hepatitis B	20	5	180	1	ACT, TAS (13)
Hepatitis C infection	204	130	1 945	52	ACT, NSW, QLD, TAS, VIC (9 154)

1 State/Territory health jurisdictions in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses in each of the past five years.

2 Age standardised rate per 100 000 population. Population estimates by State/Territory and year from *Experimental estimates of Aboriginal and Torres Strait Islander Australians* (ABS 2008)

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

Source: State/Territory health authorities; National Notifiable Diseases Surveillance System

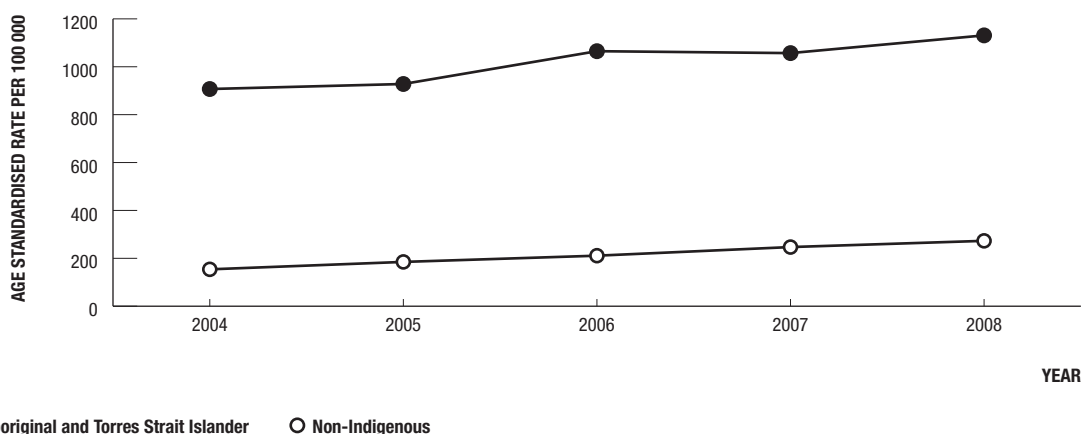
Main Findings

Chlamydia

- Chlamydia continued to be the most frequently reported notifiable condition in Australia in 2008. A total of 58 456 diagnoses were reported, giving a population rate of 271 per 100 000 population. The population rate of diagnosis in the Aboriginal and Torres Strait Islander population in 2008 was 1 131 per 100 000.
- Of the 58 456 cases of chlamydia diagnoses in 2008, 5 533 (9%) were among Aboriginal and Torres Strait Islander people, 22 607 (39%) were among non-Indigenous people and Indigenous status was not reported for 30 316 (52%) cases.
- The rate of diagnosis of chlamydia in Australia continues to increase in both the Aboriginal and Torres Strait Islander population and in the non-Indigenous population. The rate of diagnosis of chlamydia in the Aboriginal and Torres Strait Islander population increased from 907 in 2004 to 1 131 in 2008 (25% increase). In the non-Indigenous population, the rate increased by 77%, from 154 in 2004 to 273 per 100 000 population in 2008.
- Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses in the Northern Territory, South Australia, Tasmania, Victoria and Western Australia.
- Chlamydia is diagnosed predominantly among young people. In 2008, 78% of diagnoses in the Aboriginal and Torres Strait Islander population and 80% in the non-Indigenous population were in people aged 15 to 29 years.
- The female to male ratio of chlamydia diagnoses in 2008 for Aboriginal and Torres Strait Islander people and non-Indigenous people were 1.7:1 and 1.4:1. The highest rates of diagnoses occurred among women in the 15 – 19 year and 20 – 29 year age groups, and may partly reflect higher rates of access to health services and subsequent testing in these populations.
- In 2008, 1 132 and 1 886 diagnoses of chlamydia were among Aboriginal and Torres Strait Islander males and females, respectively, resident in the Northern Territory, South Australia, Tasmania, Victoria and Western Australia.
- The rate of diagnosis of chlamydia in the Aboriginal and Torres Strait Islander population resident in major cities in South Australia, Victoria and Western Australia in 2008 was 3 times that among non-Indigenous people. Among Aboriginal and Torres Strait Islander people resident in remote and very remote areas in the Northern Territory, South Australia, Tasmania, Victoria and Western Australia, the rate of diagnosis of chlamydia was at least 7 times that among non-Indigenous people.

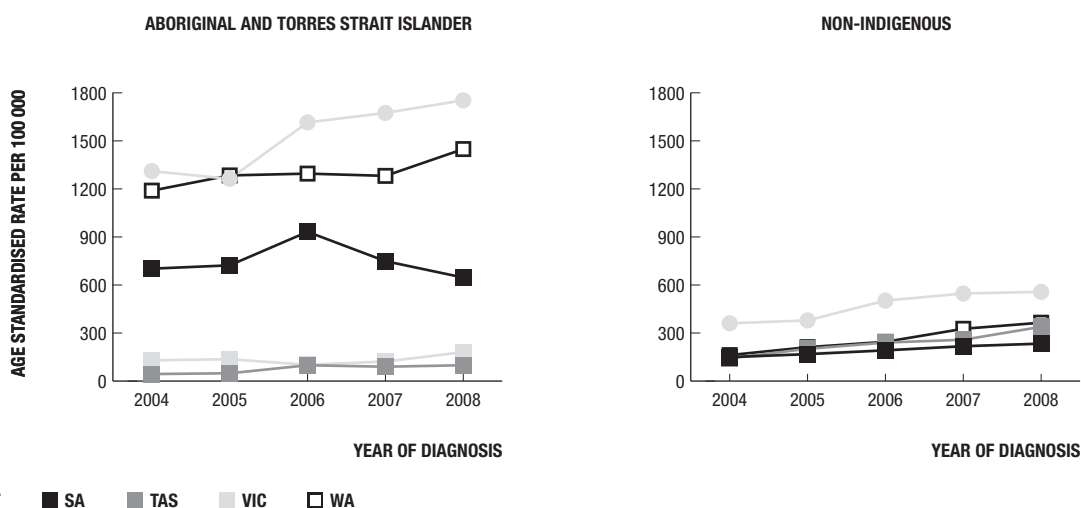
In the five years from 2004 to 2008, the rate of diagnosis of chlamydia increased by 25% in the Aboriginal and Torres Strait Islander population and by 77% in the non-Indigenous population resident in the Northern Territory, South Australia, Tasmania, Victoria and Western Australia. It is not clear whether this discrepancy is an artefact of increased testing in the non-Indigenous population combined with maintenance of already high testing rates in these jurisdictions in Aboriginal and Torres Strait Islander communities, or as a result of decreased chlamydia testing in these jurisdictions (Figure 4).

Figure 4 Chlamydia by Aboriginal and Torres Strait Islander status¹ and year



¹ Jurisdictions (NT, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

Figure 5 Chlamydia by Aboriginal and Torres Strait Islander status, State/Territory¹ and year



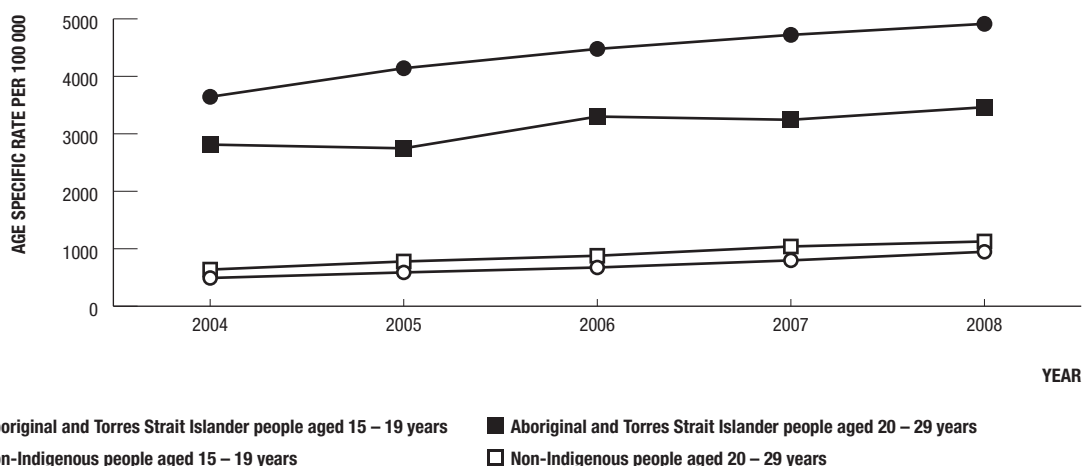
¹ Jurisdictions (NT, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

The rate of diagnosis of chlamydia in 2004 – 2008 in the Aboriginal and Torres Strait Islander population increased by 22% in Western Australia, 34% in the Northern Territory, 39% in Victoria, and decreased by 8% in South Australia (Figure 5) and more than doubled in Tasmania (although numbers are small) (Figure 5). Substantially higher percentage increases in the rate of chlamydia diagnosis were recorded in the non-Indigenous population. The rate of chlamydia diagnosis in the non-Indigenous population increased by 54% in the Northern Territory, 57% in South Australia and 59% in Victoria, and more than doubled in Western Australia.

From 2004 to 2008, the rate of chlamydia diagnosis in the Aboriginal and Torres Strait Islander population in the 15 – 19 and 20 – 29 year age groups increased by 38% and 23%, respectively, whereas in the non-Indigenous population the rate increased by 92% and 76% in the respective age groups (Figure 6). However, the rate of diagnosis of chlamydia in the Aboriginal and Torres Strait Islander population in the 15 – 19 and the 20 – 29 year age groups in 2008 was more than 5 times and 3 times higher, respectively, than that in the non-Indigenous population.

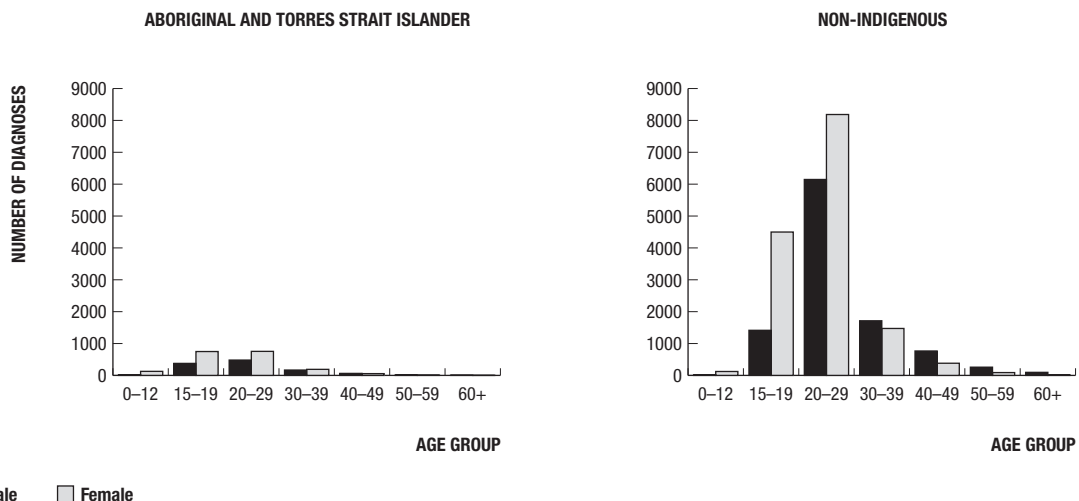
The number of diagnoses of chlamydia in 2008 peaked in the 20 – 29 year age group in both the Aboriginal and Torres Strait Islander and non-Indigenous populations (Figure 7). In the Aboriginal and Torres Strait Islander population, the female to male ratio of chlamydia diagnoses in the age groups 15 – 19 years, 20 – 29 years and 30 – 39 years was 1.9, 1.6 and 1.1, respectively. In the non-Indigenous population the ratio was 3.2, 1.3 and 0.9 in the age groups 13 – 19, 20 – 29 and 30 – 39 years, respectively, suggesting increasing transmission of chlamydia through male homosexual contact with increasing age.

Figure 6 Chlamydia by selected age groups, Aboriginal and Torres Strait Islander status¹ and year



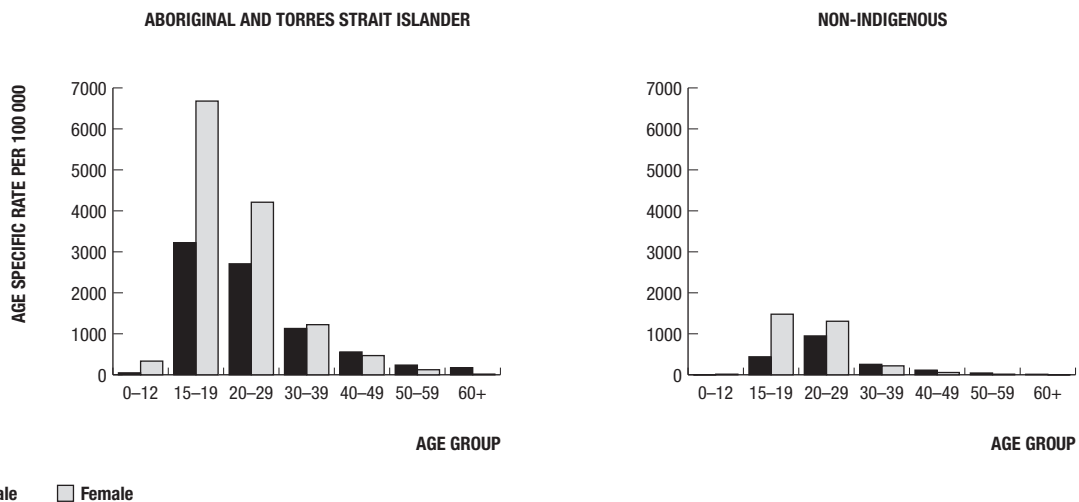
¹ Jurisdictions (NT, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

Figure 7 Number of diagnoses of chlamydia in 2008 by Aboriginal and Torres Strait Islander status¹, sex and age group



¹ Jurisdictions (NT, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

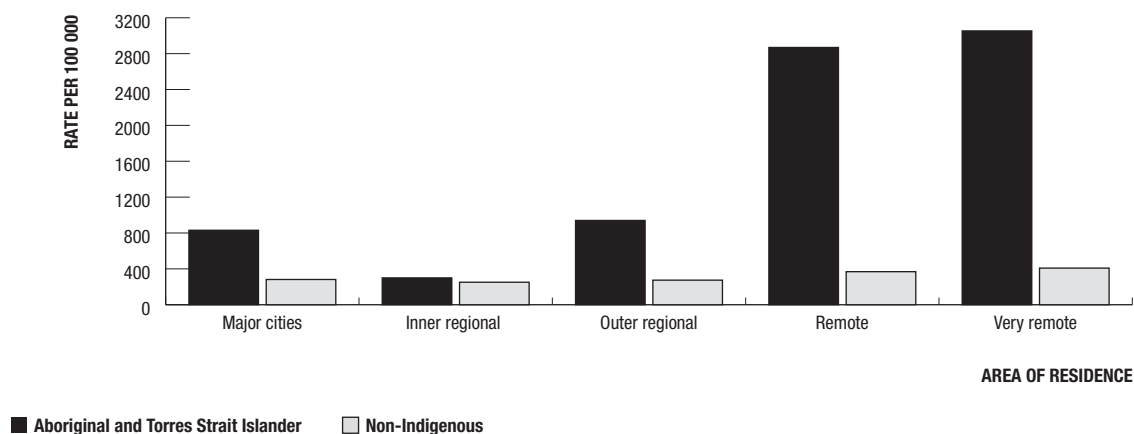
Figure 8 Rate of diagnosis of chlamydia in 2008 by Aboriginal and Torres Strait Islander status¹, sex and age group



¹ Jurisdictions (NT, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

The rate of chlamydia diagnosis was highest among the Aboriginal and Torres Strait Islander women aged 15 – 19 years, with the rate in 2008 (6 678 per 100 000) was more than four times the rate among non-Indigenous women in the same age group (Figure 8).

Figure 9 Chlamydia by Aboriginal and Torres Strait Islander status¹ and area of residence, 2008



¹ Jurisdictions (NT, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

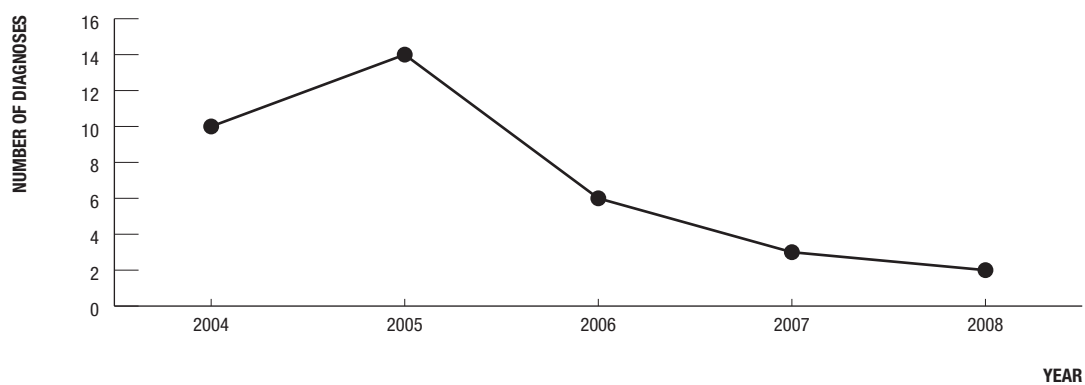
In 2008, the rate of diagnosis of chlamydia in the Aboriginal and Torres Strait Islander population resident in major cities (831 per 100 000) was almost three times the rate (282 per 100 000) in the non-Indigenous population. The rate of chlamydia diagnosis in remote and very remote areas of the Northern Territory, South Australia, Tasmania, Victoria and Western Australia was at least seven times higher than the rate in non-Indigenous population (Figure 9).

Donovanosis

- Donovanosis notifications in Australia remain very low but continue to occur. Since 2004 there have been fewer than 15 cases per year. In 2008, two cases were diagnosed. 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.

The decline in annual number of diagnoses of donovanosis, from 14 in 2005 to 2 in 2008 may be attributed to improved case ascertainment and treatment (Figures 10 and 11). There were no diagnoses of donovanosis in New South Wales, South Australia, Tasmania and Victoria in the past five years and no diagnoses in Western Australia in the past three years.

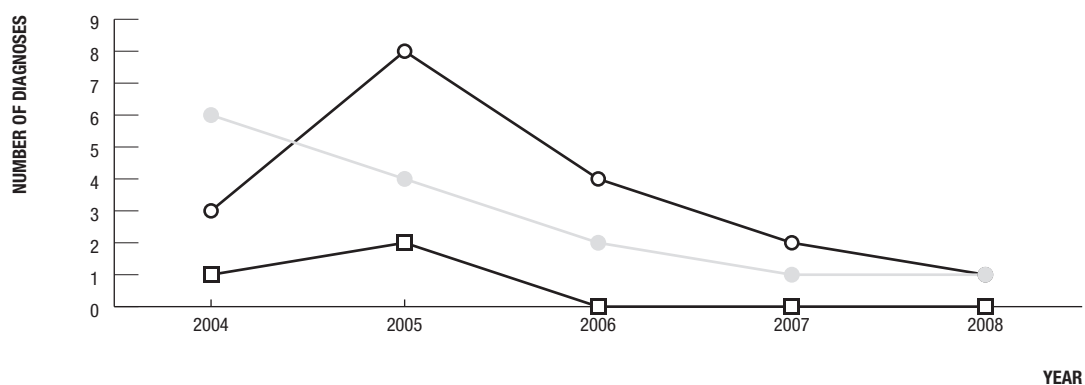
Figure 10 Donovanosis¹ by year



● Aboriginal and Torres Strait Islander

¹ Jurisdictions (NT, QLD and WA) reporting diagnoses of donovanosis in 2004 - 2008

Figure 11 Donovanosis by State/Territory¹ and year



● NT ○ QLD □ WA

¹ Jurisdictions (NT, QLD and WA) reporting diagnoses of donovanosis in 2004 - 2008

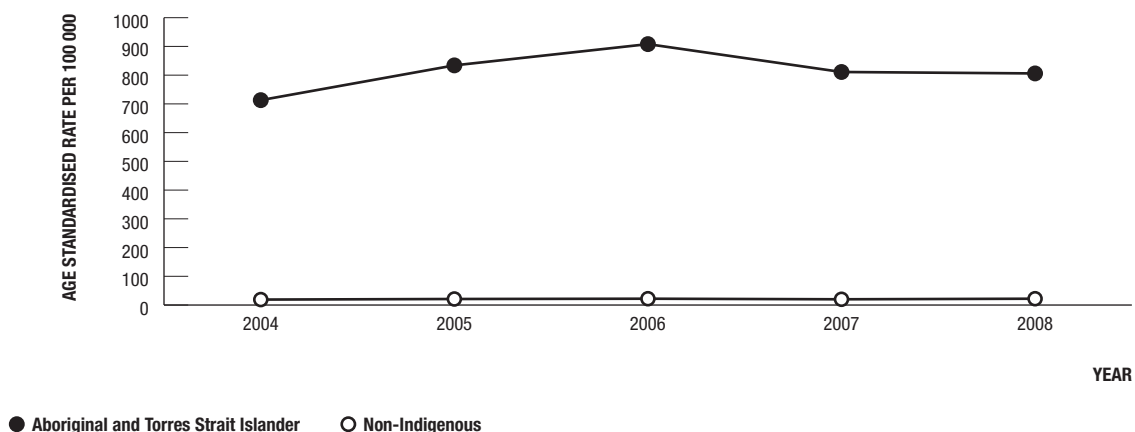
Gonorrhoea

- Of 7 662 diagnoses of gonorrhoea in Australia in 2008, 3 459 (45%) were among Aboriginal and Torres Strait Islander people, 2 025 (27%) were among non-Indigenous people, and Aboriginal and Torres Strait Islander status was not reported for 2 178 (28%) diagnoses.
- Information on Aboriginal and Torres Strait Islander status was reported for at least 50% of diagnoses of gonorrhoea in each of the past five years in the Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia.
- The rate of diagnosis of gonorrhoea in the Aboriginal and Torres Strait Islander population in the Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia increased from 713 per 100 000 population in 2004 to 806 in 2008 (a 13% increase), and from 19 in 2004 to 22 in 2008 (a 15% increase) in the non-Indigenous population. In 2008, the rate of gonorrhoea diagnosis in the Aboriginal and Torres Strait Islander population was more than 36 times that for the non-Indigenous population.
- The number of diagnoses of gonorrhoea in 2008 in the Aboriginal and Torres Strait Islander population resident in the Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia was 3 439 and was 1 882 in the non-Indigenous population.
- The female to male ratio of cases of gonorrhoea diagnosed in 2008 suggests transmission predominantly through heterosexual contact in the Aboriginal and Torres Strait Islander population (1.1:1) and predominantly by sex between men (1:0.28) in the non-Indigenous population.
- In 2008, gonorrhoea was diagnosed in the Aboriginal and Torres Strait Islander population at substantially higher rates than in the non-Indigenous population in all areas of residence, especially in remote and very remote areas of Australia.

Of 7 662 diagnoses of gonorrhoea in 2008, Aboriginal and Torres Strait Islander status was not reported for 2 178 cases or 28%.

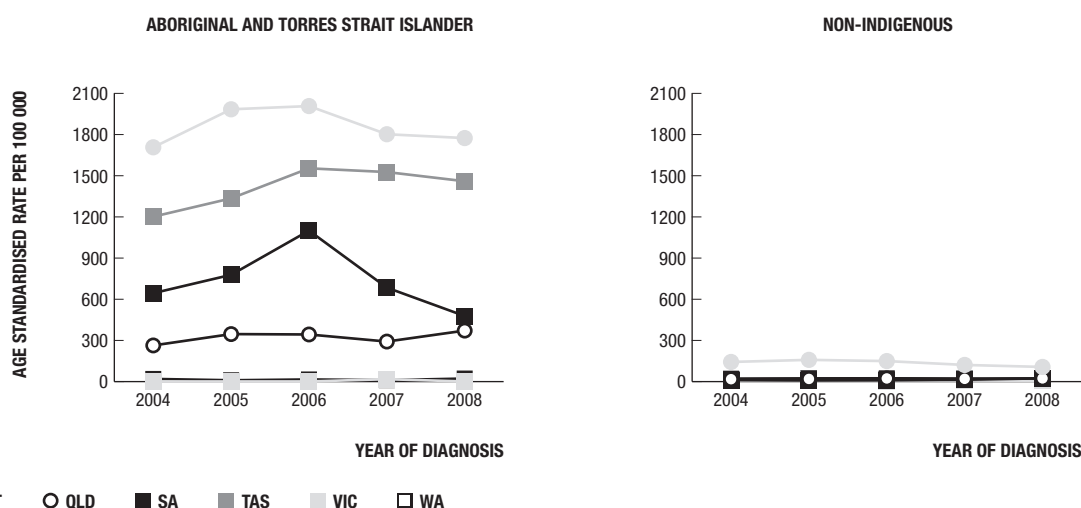
The rate of diagnosis of gonorrhoea in the Aboriginal and Torres Strait Islander population resident in the Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia increased from 713 in 2004 to 908 in 2006 and then declined to 806 per 100 000 in 2008. In the non-Indigenous population, the rate of diagnosis of gonorrhoea has remained stable at around 22 per 100 000 over the past five years (Figure 12). The rate of gonorrhoea diagnosis in the Aboriginal and Torres Strait Islander population in 2008 was 36 times that in the non-Indigenous population.

Figure 12 Gonorrhoea by Aboriginal and Torres Strait Islander status¹ and year



¹ Jurisdictions (NT, QLD, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

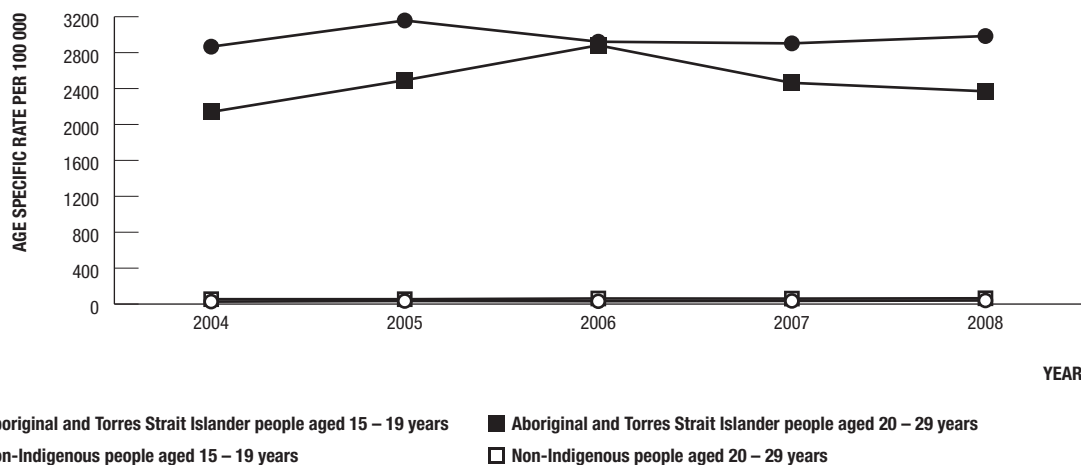
Figure 13 Gonorrhoea by Aboriginal and Torres Strait Islander status, State/Territory¹ and year



¹ Jurisdictions (NT, QLD, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

In the Northern Territory, South Australia, Tasmania, and Western Australia, the rate of gonorrhoea diagnosis in the Aboriginal and Torres Strait Islander population declined in 2008 whereas in Queensland and Victoria, the rate increased by 27% and 20%, respectively, in 2008 (Figure 13). In South Australia, the rate of diagnosis of gonorrhoea in the Aboriginal and Torres Strait Islander population peaked in 2006 at 1 100 per 100 000 and has declined by more than two-fold to a rate of 478 per 100 000 in 2008. The drop in diagnoses of gonorrhoea in South Australia is likely to be due to ongoing and up scaled early detection and treatment programs implemented in South Australia in recent years. The rate, however, is almost 20 times that in the non-Indigenous population in South Australia.

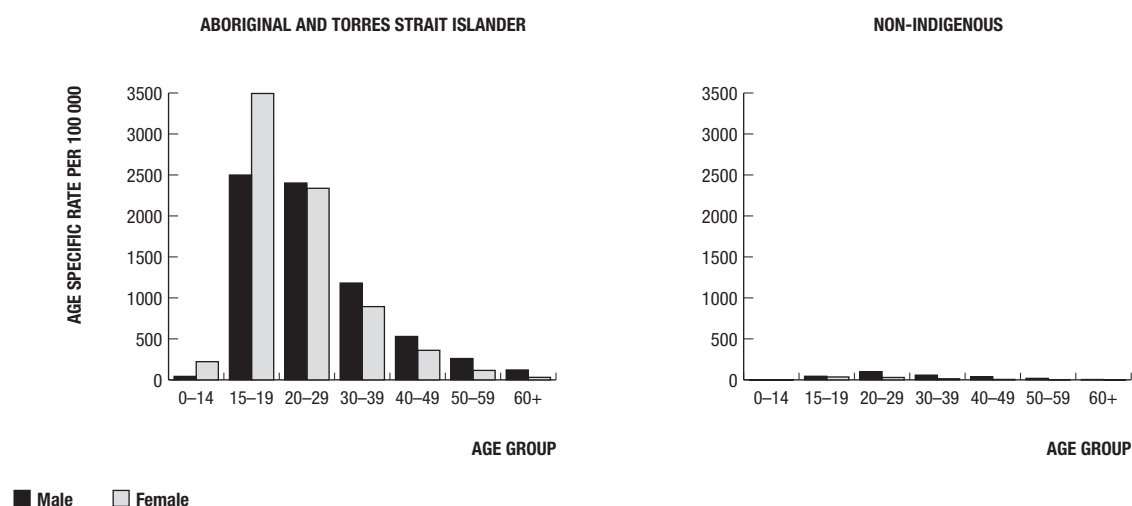
Figure 14 Gonorrhoea in selected age groups by Aboriginal and Torres Strait Islander status¹ and year



¹ Jurisdictions (NT, QLD, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

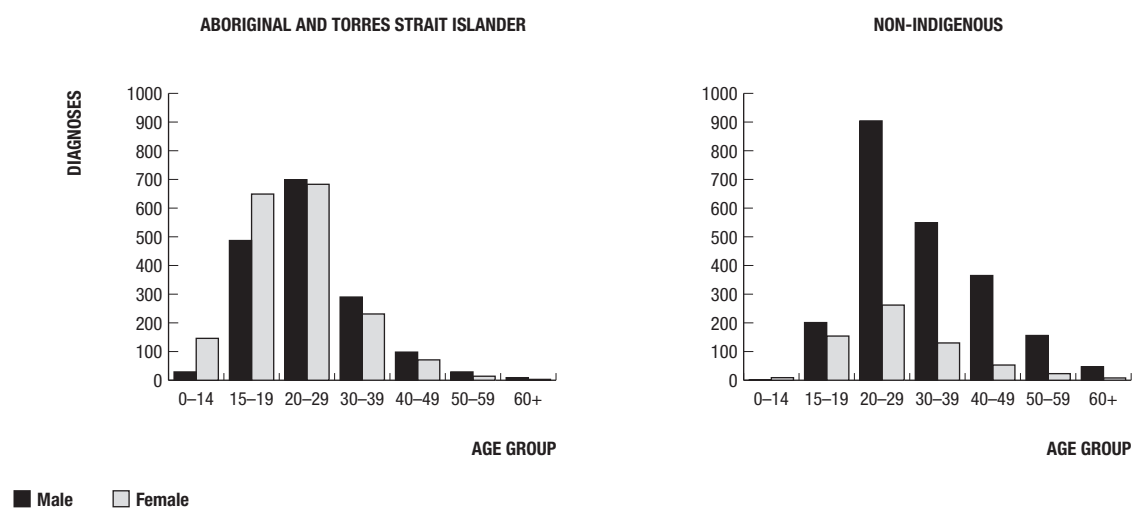
The difference in the age specific rate of gonorrhoea by Aboriginal and Torres Strait Islander status was greatest in the 15 – 19 year age group. In 2008, the rate in the 15 – 19 year age group in the Aboriginal and Torres Strait Islander population was 2 984 per 100 000, whereas in the non-Indigenous population, the rate was 39 per 100 000 (Figure 14). Furthermore, the rate differential between Aboriginal and Torres Strait Islander and non-Indigenous cases was greatest among young women and men. In the age groups 15 – 19 and 20 – 29 years, the rate of diagnosis was 90 and 35 times that, respectively, among non-Indigenous cases in the same age group (Figure 15).

Figure 15 Rate of diagnosis of gonorrhoea in 2008 by Aboriginal and Torres Strait Islander status¹, sex and age group



¹ Jurisdictions (NT, QLD, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

Figure 16 Number of diagnoses of gonorrhoea in 2008 by Aboriginal and Torres Strait Islander status¹, sex and age group

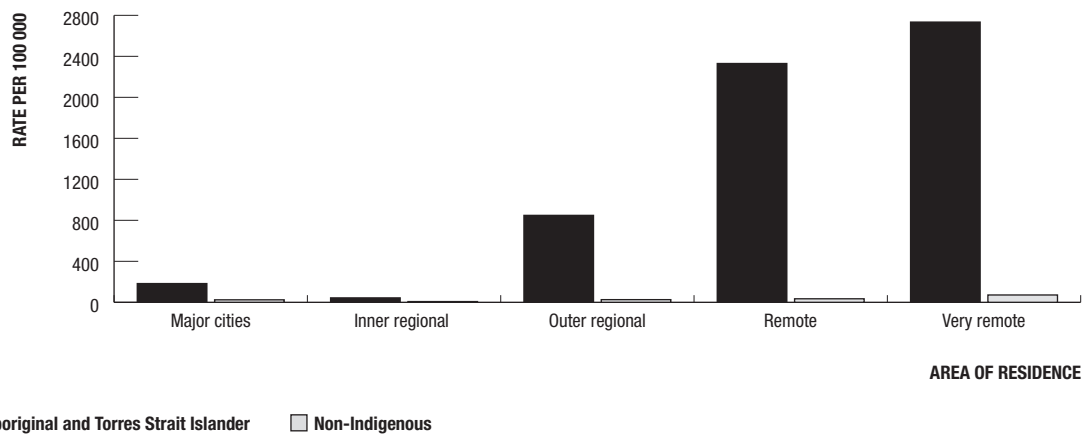


¹ Jurisdictions (NT, QLD, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

A total of 1 641 male and 1 797 female Aboriginal and Torres Strait Islanders resident in the Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia, were diagnosed with gonorrhoea in 2008 (Figure 16). In comparison, 2 224 males and 641 females in the non-Indigenous population were diagnosed with gonorrhoea in 2008. The female to male ratio of gonorrhoea diagnoses in Aboriginal and Torres Strait Islander cases in the age groups 15 – 19 years, 20 – 29 years and 30 – 39 years was 1.33, 1.0 and 1.25, respectively, whereas the sex ratio for non-Indigenous cases in the same age groups was 0.76, 0.28 and 0.23, respectively. This suggests that transmission occurs predominantly through heterosexual contact in the Aboriginal and Torres Strait Islander population and increasing transmission through sex between men with increasing age in the non-Indigenous population.

In the Aboriginal and Torres Strait Islander population resident in major cities, regional centres, and remote areas of the Northern Territory, Queensland, South Australia, Victoria and Western Australia, the population rate of gonorrhoea was 8 times, 19 times, 53 times that of the non-Indigenous population, respectively, in 2008 (Figure 17). The rates of diagnosis of sexually transmitted infections in remote and very remote communities may be exaggerated by high testing rates achieved through annual screening programs.

Figure 17 Gonorrhoea by Aboriginal and Torres Strait Islander status¹ and area of residence, 2008



¹ Jurisdictions (NT, QLD, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

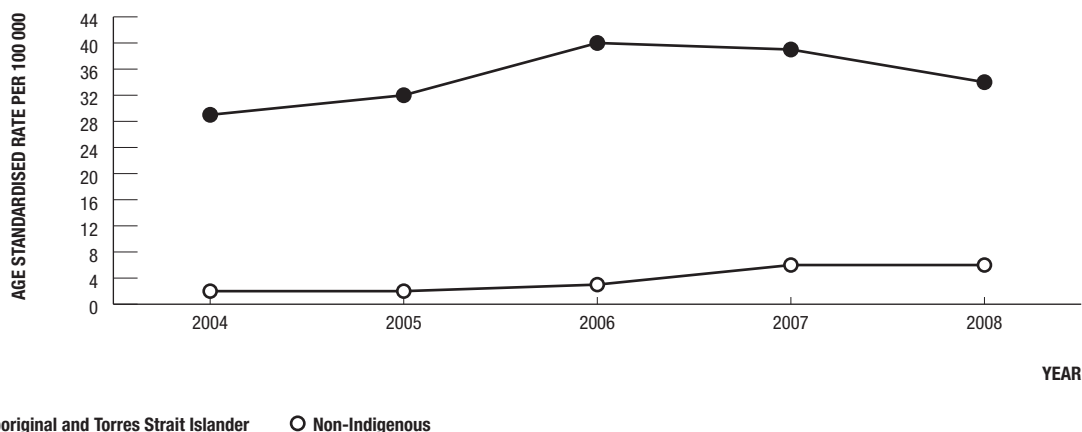
Infectious syphilis

- Diagnoses of infectious syphilis have been reported nationally since 2004.
- A total of 1 298 cases of infectious syphilis were notified in 2008, with 183 cases among Aboriginal and Torres Strait Islander people, 1 057 cases among non-Indigenous people and 58 cases for which Indigenous status was not reported.
- Information on Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses of infectious syphilis in each of the past five years through all State and Territory health jurisdictions in Australia other than the Australian Capital Territory.
- In the years from 2004 to 2008, the rate of diagnosis of infectious syphilis increased from 29 to 34 per 100 000 Aboriginal and Torres Strait Islander population. The rate of diagnosis in the non-Indigenous population trebled from 2 in 2004 to 6 per 100 000 in 2008.
- The number of diagnoses of infectious syphilis among Aboriginal and Torres Strait Islander men and women in 2008 was 95 and 88, respectively, whereas in the non-Indigenous population 1 050 men and 59 women were diagnosed in 2008.
- The male to female sex ratio suggests that infectious syphilis was transmitted predominantly through heterosexual contact in the Aboriginal and Torres Strait Islander population, whereas in the non-Indigenous population, infectious syphilis was transmitted predominantly by sexual contact between men.
- In 2008, 64% and 26% of diagnoses of infectious syphilis in the Aboriginal and Torres Strait Islander and non-Indigenous populations, respectively, occurred among people aged less than 30 years.
- In 2008, the rate of diagnosis of infectious syphilis among Aboriginal and Torres Strait Islander women in the age groups 15 – 19 and 20 – 29 years was 90 and 45 times that among non-Indigenous women in the same age groups. Among Aboriginal and Torres Strait Islander men, the rate of diagnosis of infectious syphilis was 33 and 4 times the rate for non-Indigenous men in the age groups 15 – 19 years and 20 – 29 years.
- The rate of diagnosis of infectious syphilis increased as remoteness increased in both the Aboriginal and Torres Strait Islander population with the following exceptions. In the major cities, the population rate of infectious syphilis among Aboriginal and Torres Strait Islander people was almost 7 times that for non-Indigenous residents. The rate among the non-Indigenous population decreased from 16 per 100 000 in major cities to 5 per 100 000 in inner regional areas, and then increased in outer regional, remote and very remote areas to 20, 31 and 69 per 100 000. In the Aboriginal and Torres Strait Islander population the rate differential between residents in regional and remote areas ranged from 31 to 39 times that of non-Indigenous residents diagnosed in the same regions.

Very good data systems exist for infectious syphilis enabling more than 95% of diagnoses to have information on Aboriginal and Torres Strait Islander status. In 2008, there were 183 diagnoses of infectious syphilis in the Aboriginal and Torres Strait Islander population, a decline from 232 cases in 2006. Over the past five years, the rate of diagnosis of infectious syphilis in the Aboriginal and Torres Strait Islander population resident in all State and Territory health jurisdictions other than the Australian Capital Territory increased from 29 in 2004 to 40 in 2006 and declined to 34 in 2008. In the non-Indigenous population the rate trebled from 2 in 2004 to 6 in 2007 and 2008 (Figure 18).

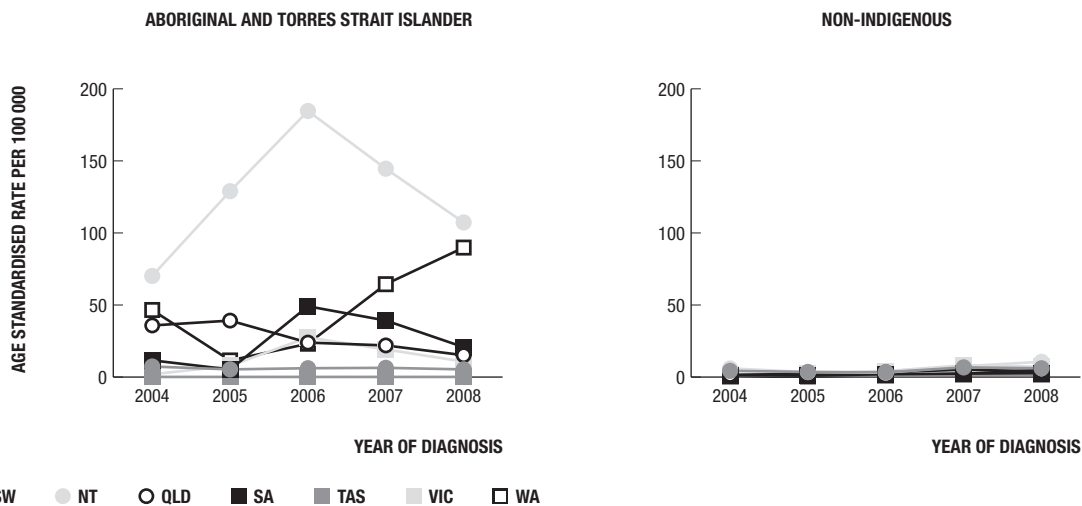
In the Aboriginal and Torres Strait Islander population resident in New South Wales, Queensland and Tasmania, the rate of diagnosis of infectious syphilis remained stable or declined over the years from 2004 to 2008 whereas the rate increased in the Northern Territory, South Australia, Victoria and Western Australia (Figure 19).

Figure 18 Infectious syphilis by Aboriginal and Torres Strait Islander status¹ and year



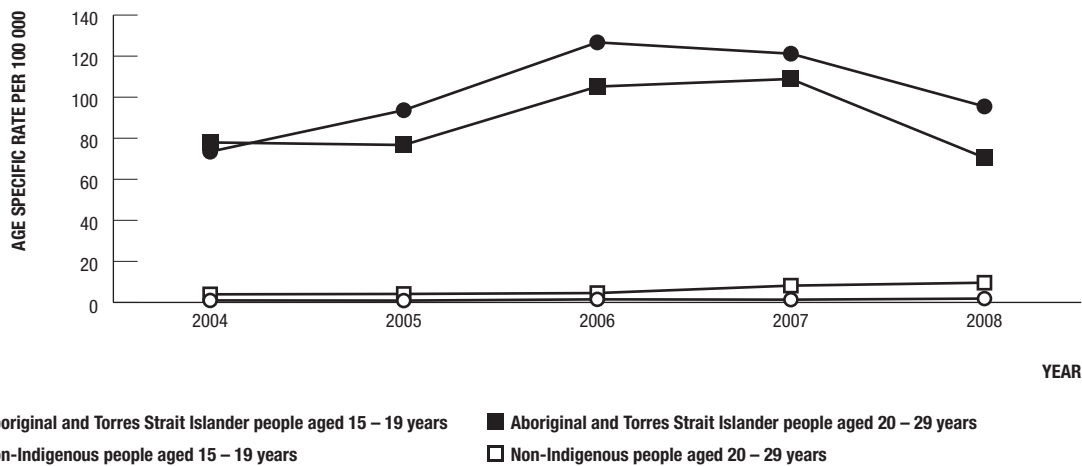
¹ Jurisdictions (NSW, NT, QLD, SA, TAS, VIC & WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

Figure 19 Infectious syphilis by Aboriginal and Torres Strait Islander status, State/Territory¹ and year



¹ Jurisdictions (NSW, NT, QLD, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

Figure 20 Infectious syphilis in selected age groups by Aboriginal and Torres Strait Islander status¹ and year

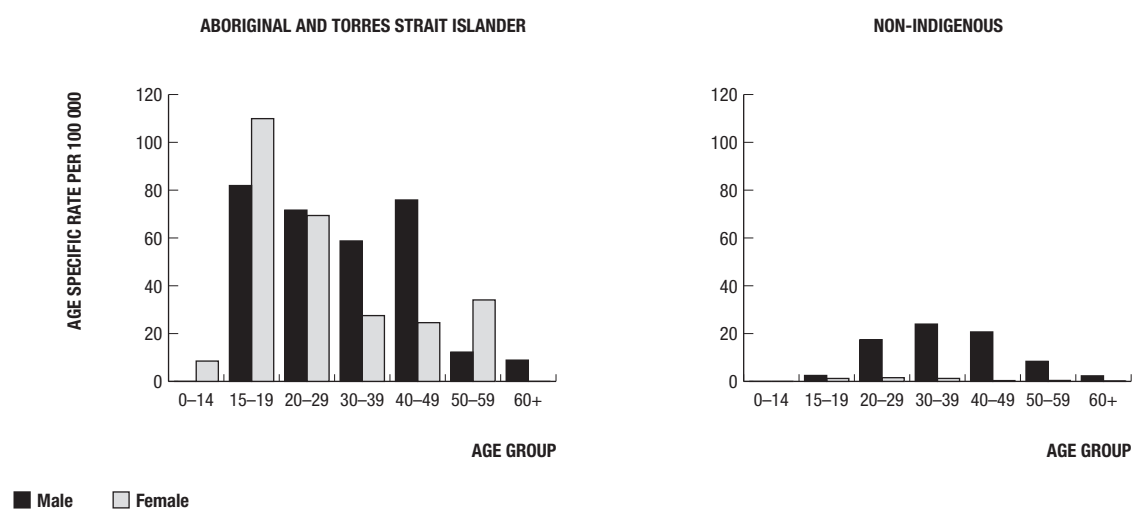


¹ Jurisdictions (NSW, NT, QLD, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

From 2004 to 2008, the rate of diagnosis of infectious syphilis in the Aboriginal and Torres Strait Islander population aged 15 – 19 years was at least 50 times that in the non-Indigenous population and at least 7 times that in the non-Indigenous population aged 20 – 29 years (Figure 20). The rate of diagnosis of infectious syphilis in the Aboriginal and Torres Strait Islander population in 2008 was highest among women aged 15 – 19 years (110 per 100 000) and among men in the non-Indigenous population, aged 30 – 39 (24 per 100 000) (Figure 21).

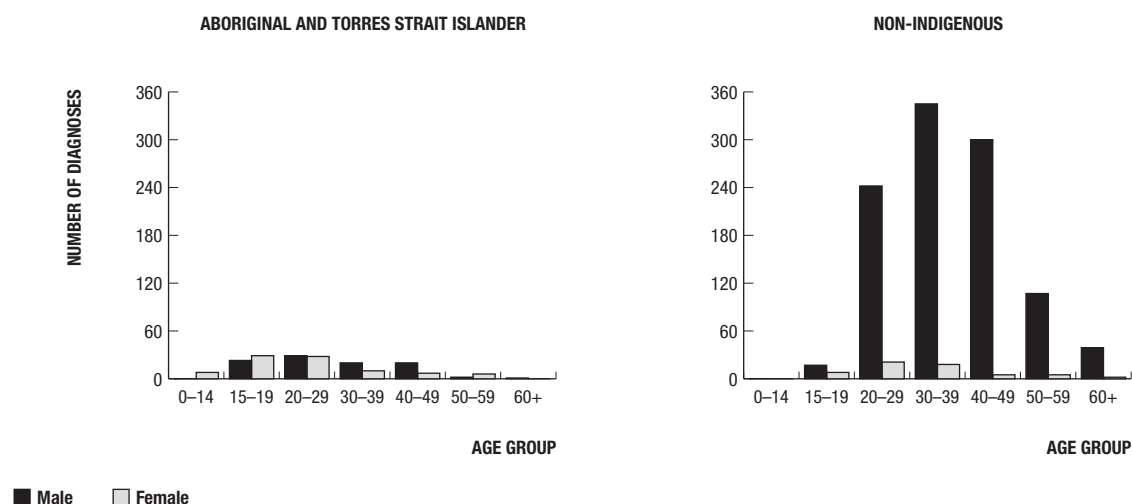
In 2008, 95 and 88 cases of infectious syphilis were diagnosed in males and females, respectively, in the Aboriginal and Torres Strait Islander population whereas 1 052 and 59 cases were diagnosed among males and females, respectively, in the non-Indigenous population (Figure 22). The male to female ratio among the Aboriginal and Torres Strait Islander cases and the non-Indigenous cases indicates transmission of infectious syphilis predominantly through heterosexual contact in the Aboriginal and Torres Strait Islander population and through sexual contact between men in the non-Indigenous population.

Figure 21 Rate of diagnosis of infectious syphilis in 2008 by Aboriginal and Torres Strait Islander status¹, sex and age group



¹ Jurisdictions (NSW, NT, QLD, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

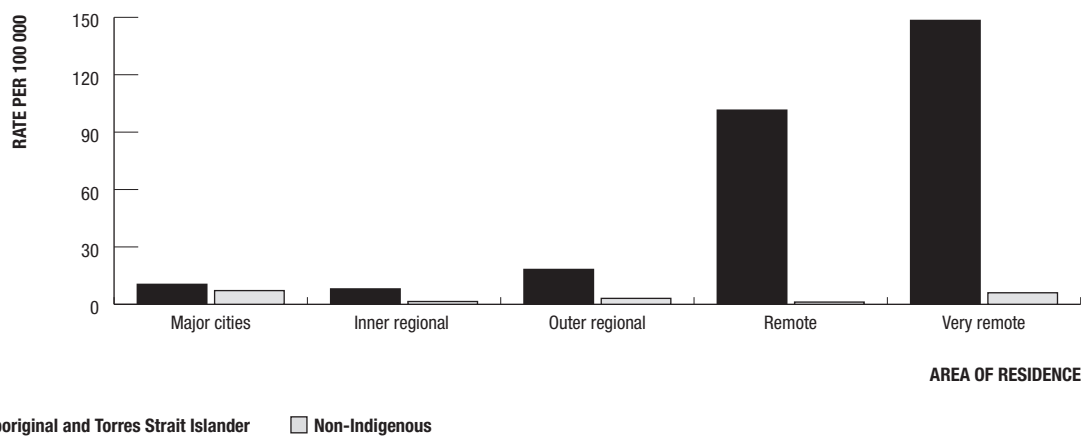
Figure 22 Number of diagnoses of infectious syphilis in 2008 by Aboriginal and Torres Strait Islander status¹, sex and age group



¹ Jurisdictions (NSW, NT, QLD, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

In 2008, the rate of diagnosis of infectious syphilis in the Aboriginal and Torres Strait Islander population was 7, 26 and 23 times the rate of non-Indigenous people residing in major cities, regional and remote areas of Australia, respectively.

Figure 23 Infectious syphilis by Aboriginal and Torres Strait Islander status¹ and area of residence, 2008



¹ Jurisdictions (NSW, NT, QLD, SA, TAS, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

Bacterial sexually transmitted infections reported in people aged less than 16 years

Much negative attention has focused on the occurrence of sexually transmitted infections among young Aboriginal and Torres Strait Islander people including linkage to child sexual assault. 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 health jurisdictions in which Aboriginal and Torres Strait Islander status was reported for at least 50% of diagnoses in each year over the past five years.

From 2004 to 2008, a total of 2 603 cases of chlamydia, 1 690 cases of gonorrhoea and 86 cases of infectious syphilis were diagnosed among Aboriginal and Torres Strait Islander people aged 15 years or younger. The majority (93% for chlamydia, 92% for gonorrhoea and 95% for infectious syphilis) of these diagnoses were among people aged from 13 to 15 years. A similar pattern of diagnosis occurred among non-Indigenous young people. From 2004 to 2008, 4 145 cases of chlamydia, 237 cases of gonorrhoea and 14 cases of infectious syphilis were diagnosed among non-Indigenous people aged 15 years or younger, with 91%, 90% and 64% of diagnoses of chlamydia, gonorrhoea and infectious syphilis, respectively, occurring in people aged between 13 and 15 years.

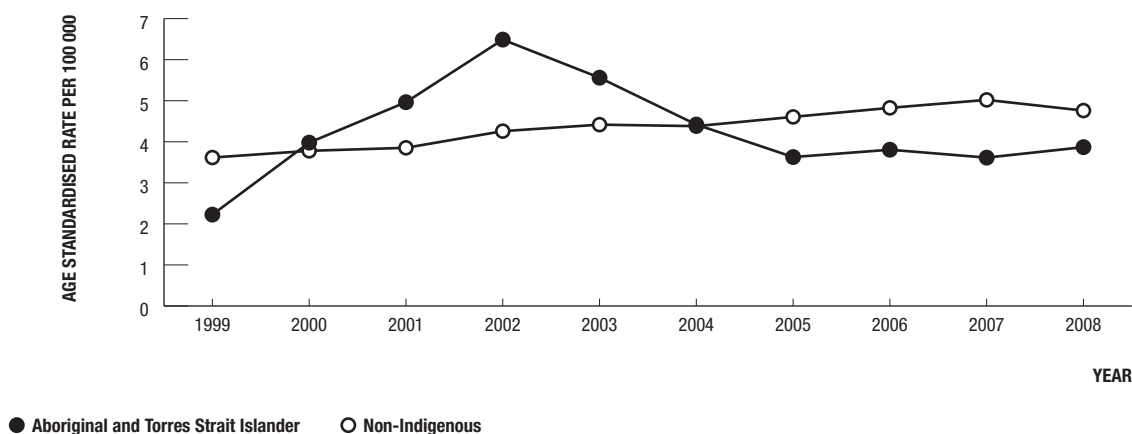
The majority of diagnoses of sexually transmitted infections in young Aboriginal and Torres Strait Islander people occurred in areas of known high endemicity where screening for sexually transmitted infections is routinely carried out. Furthermore, it is likely that sexually transmitted infections among people aged 13 to 15 years occur as a result of early sexual debut and sexual activity among similar aged peers rather than as a result of child sexual assault.

HIV infection

- In Australia, the number of new diagnoses of HIV increased by 9% from 2004 to 2008.
- Trends in newly diagnosed HIV infection differed across State and Territory health jurisdictions. New South Wales recorded a stable population rate at around 5.9 per 100 000 population in 2004 – 2008 whereas the rate steadily increased in Queensland and Western Australia from 3.4 and 2.1, respectively, in 1999 to 4.7 and 3.4 in 2008. In Victoria, the rate increased from 2.8 in 1999 to 5.5 in 2006 and was stable at 5.3 in 2007 – 2008.
- HIV continued to be transmitted primarily through sexual contact between men.
- The rate of HIV diagnosis in the Aboriginal and Torres Strait Islander population was similar to that in the non-Indigenous population in 2004 – 2008.
- In the ten years, 1999 – 2008, 186 cases of HIV infection were diagnosed among Aboriginal and Torres Strait Islander people, with 27% among women. In 2008, 4 (21.1%) of new HIV diagnoses were from Aboriginal and Torres Strait Islander women, compared with 15 new HIV diagnoses among men.
- The median age at diagnosis of HIV infection in the Aboriginal and Torres Strait Islander population (33 years) was younger than that in the non-Indigenous population (37 years).
- In the past five years, exposure to HIV was attributed to sexual contact between men in 54% of diagnoses in Aboriginal and Torres Strait Islander people and 79% in the non-Indigenous Australian born population. A history of heterosexual contact only was reported in 23% of Aboriginal and Torres Strait Islander cases and in 13% of non-Indigenous cases. Injecting drug use was reported by 22% of Aboriginal and Torres Strait Islander cases and 3% of non-Indigenous Australian born cases.

From 1999 to 2008, there was little difference in the *per capita* rate of HIV diagnosis between the Aboriginal and Torres Strait Islander population and the non-Indigenous population (Figure 24). The rate of HIV diagnosis in the Aboriginal and Torres Strait Islander population was relatively stable at around 4.0 from 1999 to 2003 and around 3.8 from 2004 to 2008. In the non-Indigenous population, the rate of HIV diagnosis increased from 3.8 in 1999 to 4.8 in 2008.

Figure 24 Newly diagnosed HIV infection, 1999 – 2008, by Aboriginal and Torres Strait Islander status and year



The rate of HIV diagnosis among Aboriginal and Torres Strait Islander women declined from 2.3 in 2004 to 1.5 in 2008 whereas among non-Indigenous Australian born women the rate remained stable at 0.5 (Figure 25). For men, the diagnosis rate remained stable in both the Aboriginal and Torres Strait Islander and non-Indigenous populations at around 6 and 7.8 respectively. In 2008, the male to female ratio of HIV diagnoses in the Aboriginal and Torres Strait Islander population was 3.75 and was 16.0 in the non-Indigenous Australian born population, suggesting different patterns of HIV transmission in the Aboriginal and Torres Strait Islander and the non-Indigenous Australian born populations (Figure 26).

Figure 25 Newly diagnosed HIV infection among Australian born people, 2004 – 2008, by Aboriginal and Torres Strait Islander status, sex and year

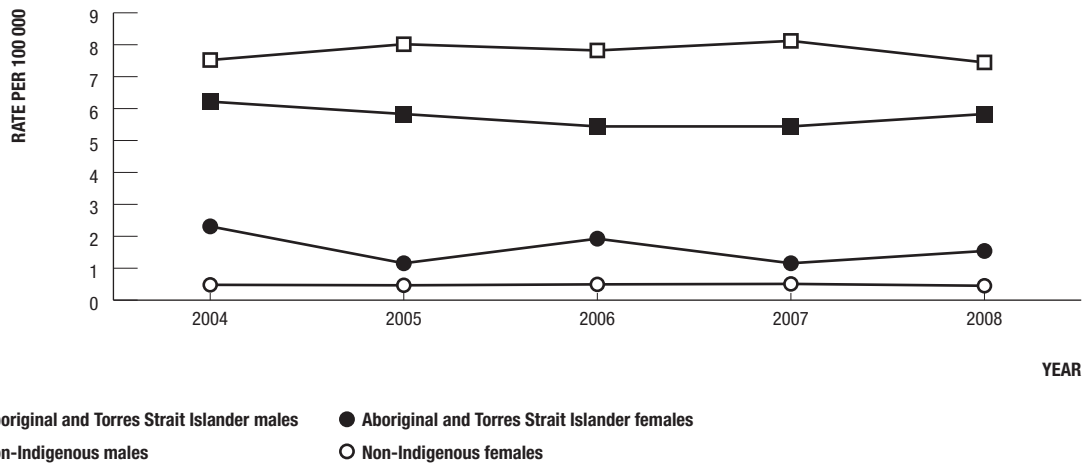


Figure 26 Newly diagnosed HIV infection among Australian born cases, 2004 – 2008, by Aboriginal and Torres Strait Islander status and HIV exposure category

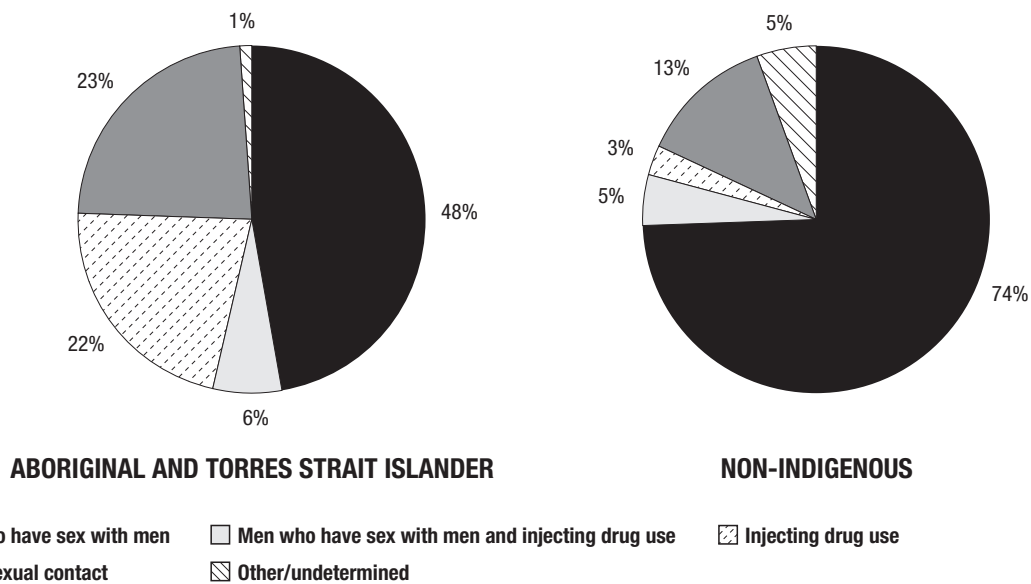
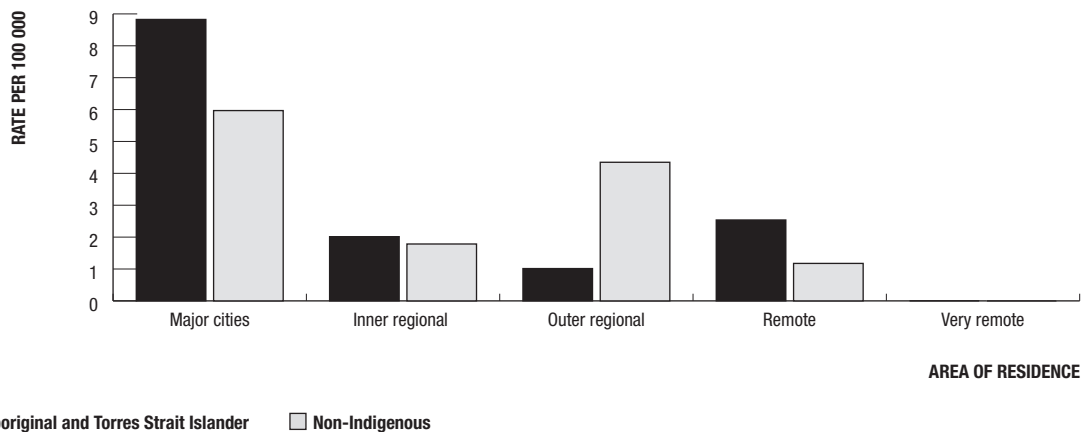
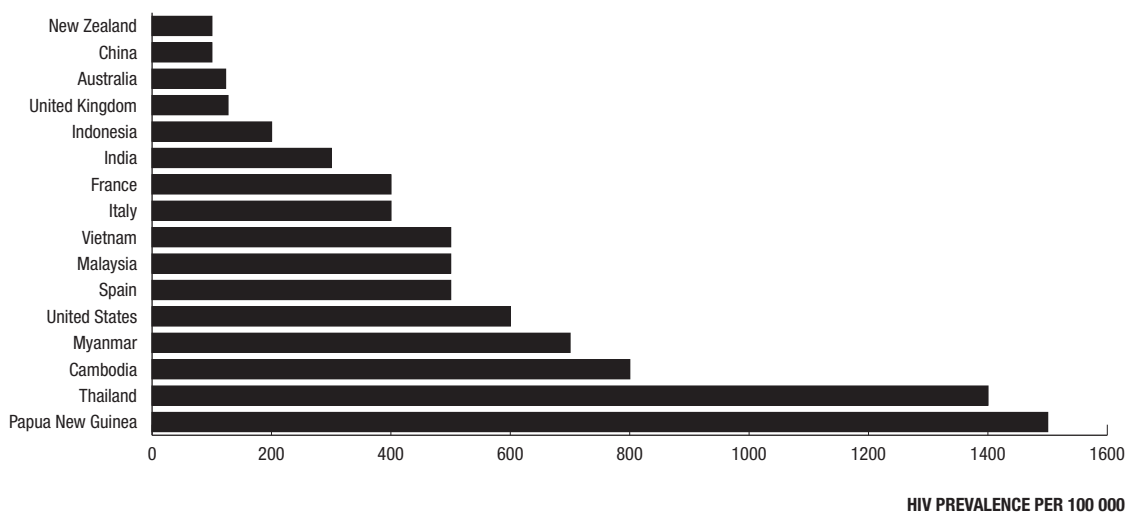


Figure 27 Newly diagnosed HIV infection by Aboriginal and Torres Strait Islander status and area of residence, 2008



In the five years from 2004 to 2008, the most frequently reported route of HIV transmission in the non-Indigenous Australian born population was sexual contact between men (79%) and heterosexual contact was reported in 13% (Figure 26). In the Aboriginal and Torres Strait Islander population, exposure to HIV was attributed to sexual contact between men in 54% of cases and heterosexual contact was the reported source of exposure to HIV in 23%. Aboriginal and Torres Strait Islander cases also differed from non-Indigenous cases in that a higher proportion of infections were attributed to injecting drug use (22% among Aboriginal and Torres Strait Islander cases vs 3% for non-Indigenous Australian born cases), and a higher proportion of infections were among women (22% among Aboriginal and Torres Strait Islander cases vs 6% for non-Indigenous Australian born cases). In 2008, the rate of HIV diagnosis was highest among those resident in major cities in both the Aboriginal and Torres Strait Islander population and the non-Indigenous population (Figure 27).

Figure 28 HIV prevalence in the population aged 15 – 49 years in selected countries



In the Oceania region of the world, Australia is among the countries with the lowest prevalence of HIV infection in its population aged 15 – 49 years. Australia’s nearest neighbour, Papua New Guinea, has the highest HIV prevalence in its population aged 15 – 49 years. It is important to view this data in the context of family and cultural connections between some Torres Strait Islander communities and Papua New Guinea peoples (Figure 28).

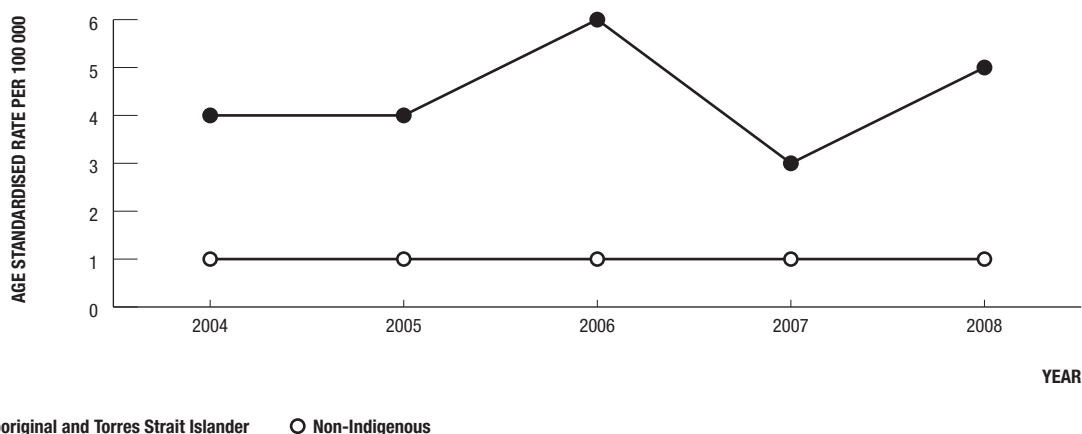
Viral hepatitis

- A total of 246 cases of newly acquired hepatitis B were diagnosed in Australia in 2008, 20 (8%) of these were diagnosed among Aboriginal and Torres Strait Islander people, 180 (73%) cases occurred among non-Indigenous people and Aboriginal and or Torres Strait Islander status was not reported in 46 (19%) cases.
- In 2008, the population rate of diagnosis of newly acquired hepatitis B infection was 5 and 1 per 100 000 in the Aboriginal and Torres Strait Islander population and the non-Indigenous population, respectively.
- A total of 11 303 cases of hepatitis C were diagnosed in Australia in 2008. Of these 626 (6%) occurred among Aboriginal and Torres Strait Islander people, 4 115 (36%) occurred among non-Indigenous people and Aboriginal and Torres Strait Islander status was not reported in 6 561 (58%) diagnoses.
- At the end of 2008, an estimated 211 700 people were living in Australia with chronic hepatitis C infection including 49 700 with moderate to severe liver disease.
- Based on reported cases, hepatitis C transmission continued to occur in Australia predominantly among people with a recent history of injecting drug use.
- In 2008, 42 cases of hepatitis D were diagnosed in Australia including 6 (14%) among Aboriginal and Torres Strait Islander people, 17 among non-Indigenous people and Aboriginal and Torres Strait Islander status was not reported in 19 (40%) cases.

In the five years from 2004 to 2008, the rate of diagnosis of newly acquired hepatitis B infection ranged from 3 to 6 per 100 000 Aboriginal and Torres Strait Islander population whereas the rate was stable at 1 per 100 000 non-Indigenous population (Figure 29). In 2008, 20 cases of newly acquired hepatitis B infection were diagnosed in Aboriginal and Torres Strait Islander people and 180 in non-Indigenous people.

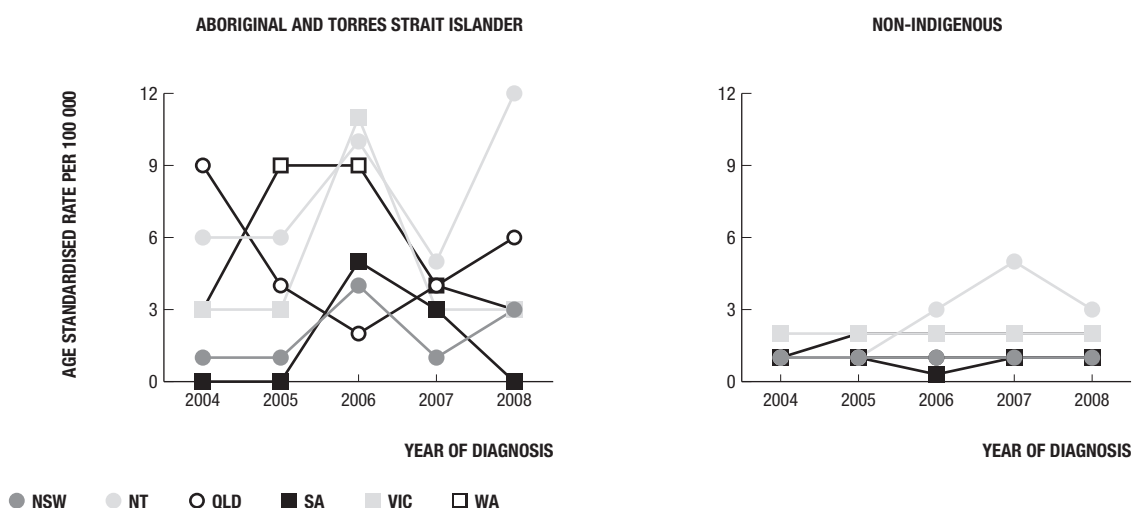
In 2008, the rate of diagnosis of newly acquired hepatitis B infection was between 1 and five times the rate of the non-Indigenous population in New South Wales, the Northern Territory, Queensland, South Australia, Victoria and Western Australia. In the non-Indigenous population, the rate of diagnosis of newly acquired hepatitis B infection remained low in all State and Territory health jurisdictions (Figure 30).

Figure 29 Newly acquired hepatitis B by Aboriginal and Torres Strait Islander status¹ and year



¹ Jurisdictions (NSW, NT, QLD, SA, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

Figure 30 Newly acquired hepatitis B by Aboriginal and Torres Strait Islander status, State/Territory¹ and year

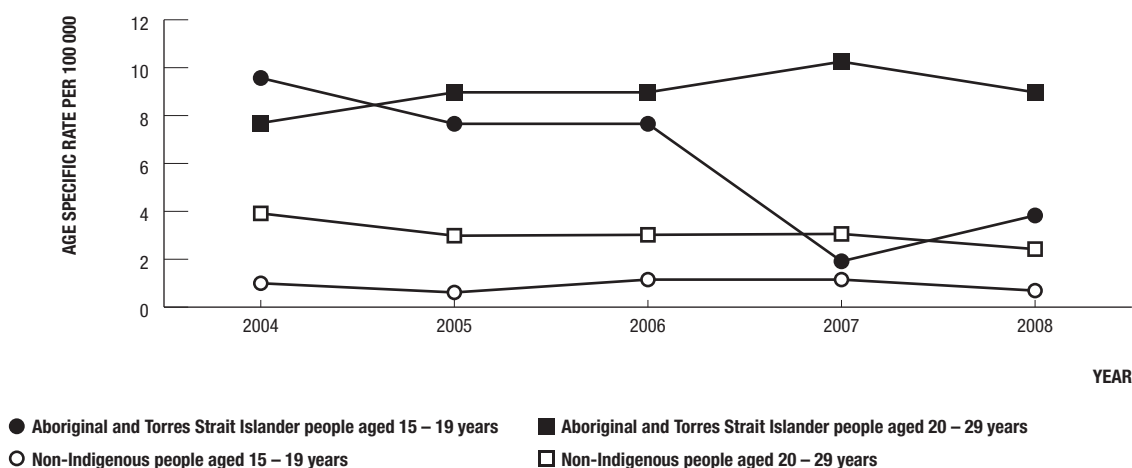


¹ Jurisdictions (NSW, NT, QLD, SA, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

In the years from 2004 to 2008, the rate of diagnosis of newly acquired hepatitis B infection in the 20 – 29 year age group remained stable in both the Aboriginal and Torres Strait Islander and the non-Indigenous populations but the rate in the Aboriginal and Torres Strait Islander population was 3 times that in the non-Indigenous population. In the Aboriginal and Torres Strait Islander population aged 15 – 19 years, the rate of diagnosis of newly acquired hepatitis B infection dropped from 9.6 in 2004 to 1.9 and then increased to 3.8 per 100 000 population, while the rate in the non-Indigenous population remained low (Figure 31).

In 2008, the rate of diagnosis of newly acquired hepatitis B infection in the Aboriginal and Torres Strait Islander population was substantially higher than that in the non-Indigenous population in almost every age group (Figure 32). However, the number of Aboriginal and Torres Strait Islander cases in each age group was less than 5 whereas there were substantially higher numbers of cases in all age groups in the non-Indigenous population (Figure 33).

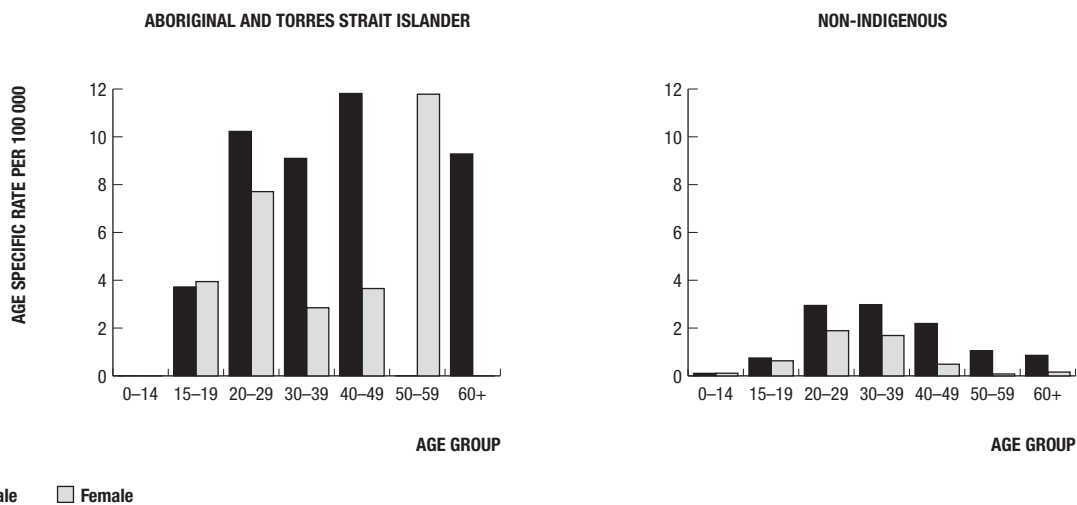
Figure 31 Newly acquired hepatitis B in selected age groups by Aboriginal and Torres Strait Islander status¹ and year



¹ Jurisdictions (NSW, NT, QLD, SA, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

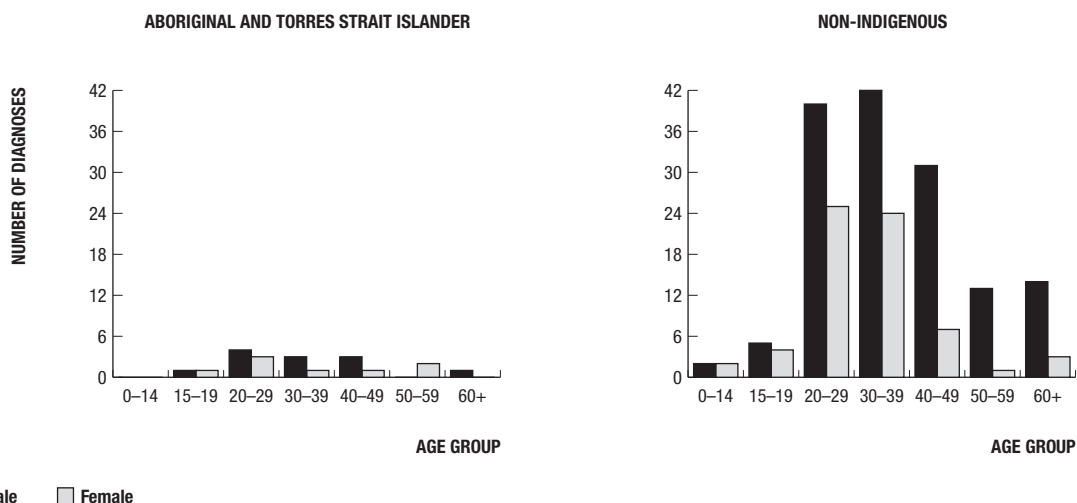
The rate of diagnosis of newly acquired hepatitis B infection was similar in the Aboriginal and Torres Strait Islander and non-Indigenous populations resident in major cities but was substantially higher in the Aboriginal and Torres Strait Islander population resident outside the major cities (Figure 34).

Figure 32 Rate of diagnosis of newly acquired hepatitis B in 2008 by Aboriginal and Torres Strait Islander status¹, sex and age group



¹ Jurisdictions (NSW, NT, QLD, SA, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

Figure 33 Number of diagnoses of newly acquired hepatitis B in 2008 by Aboriginal and Torres Strait Islander status¹, sex and age group



¹ Jurisdictions (NSW, NT, QLD, SA, VIC and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

Figure 34 Newly acquired hepatitis B infection by Aboriginal and Torres Strait Islander status and area of residence, 2008

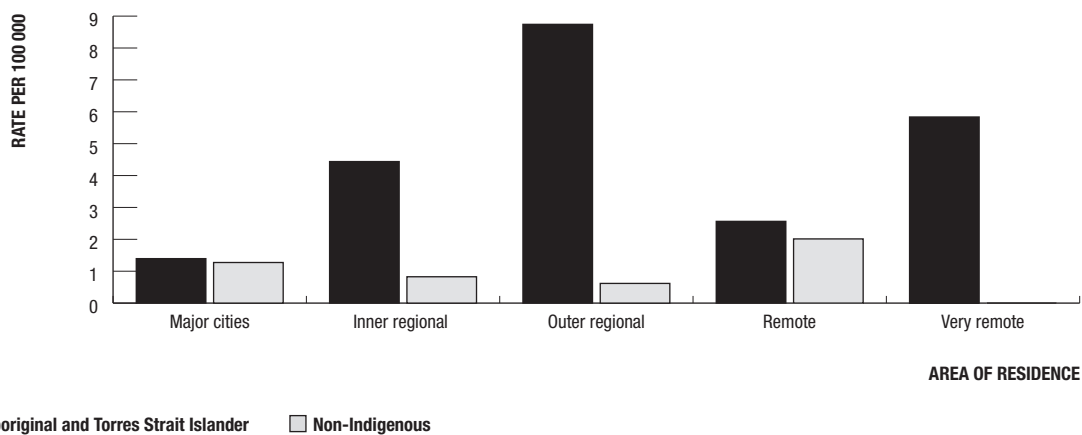
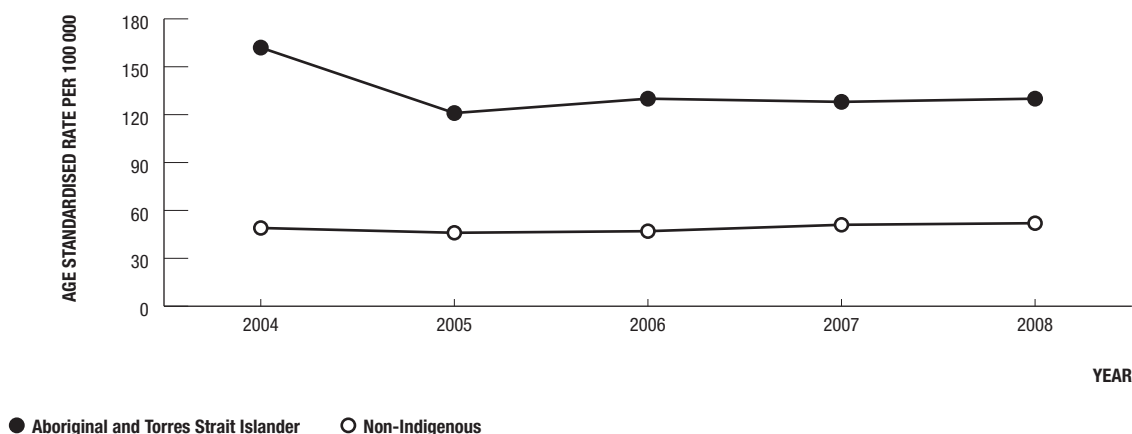
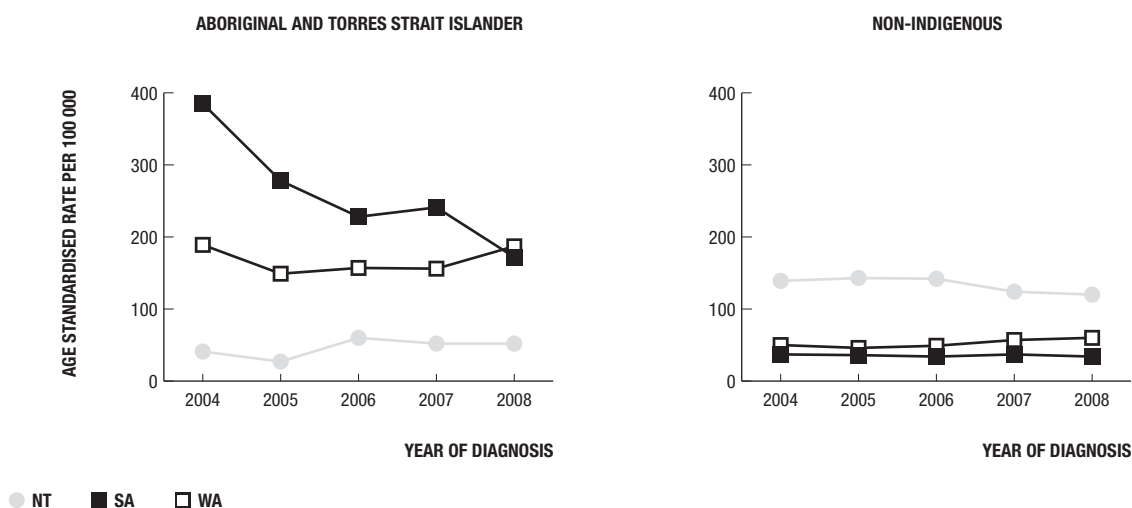


Figure 35 Hepatitis C antibody by Aboriginal and Torres Strait Islander status¹ and year



¹ Jurisdictions (NT, SA and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

Figure 36 Hepatitis C antibody by Aboriginal and Torres Strait Islander status, State/Territory¹ and year



¹ Jurisdictions (NT, SA and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

Information on Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses of hepatitis C antibody in 2008 in the Northern Territory, South Australia, Tasmania and Western Australia. In these jurisdictions, 13%, 8%, 6% and 10%, respectively, of all hepatitis C diagnoses were among Aboriginal and Torres Strait Islander people.

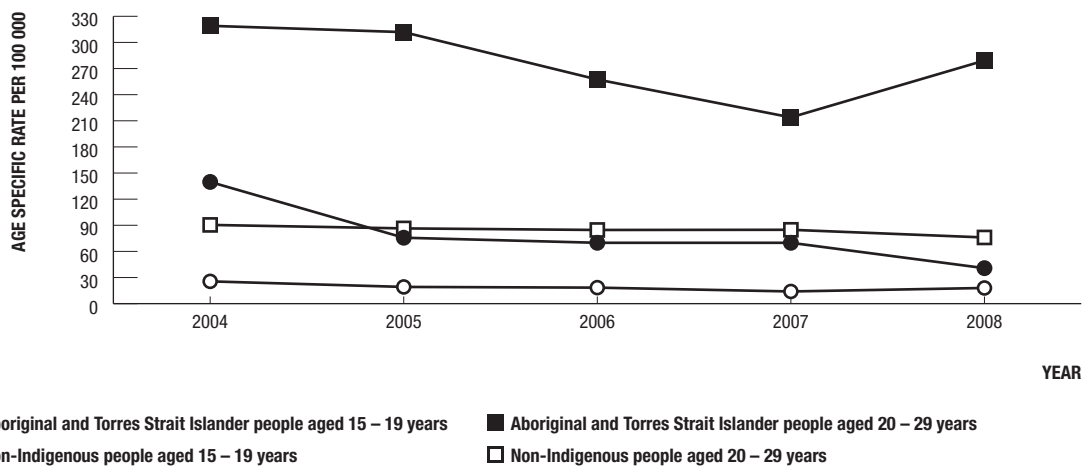
In 2008, 627 diagnoses of hepatitis C antibody were made among Aboriginal and Torres Strait Islander people, representing 5.5% of all diagnoses. In South Australia where reporting of Aboriginal and Torres Strait Islander status was at 92% complete, Aboriginal and Torres Strait Islander people accounted for 8% of all diagnoses.

Over the past five years, the rate of newly diagnosed hepatitis C in the Aboriginal and Torres Strait Islander population decreased from 162 in 2004 to 130 in 2008 whereas the rate remained stable in the non-Indigenous population at around 49 per 100 000 population (Figure 35).

In 2008, the rate of diagnosis of hepatitis C antibody in the Aboriginal and Torres Strait Islander population resident in the Northern Territory was substantially lower, at a rate of 52 per 100 000, compared to 120 per 100 000 in the non-Indigenous population. From 2004 to 2008, the rate of diagnosis of hepatitis C has increased in the Aboriginal and Torres Strait Islander population in the Northern Territory from 41 to 52 per 100 000, while in the non-Indigenous population the rate decreased from 139 to 120 per 100 000 (Figure 36). In South Australia, the rate of diagnosis of

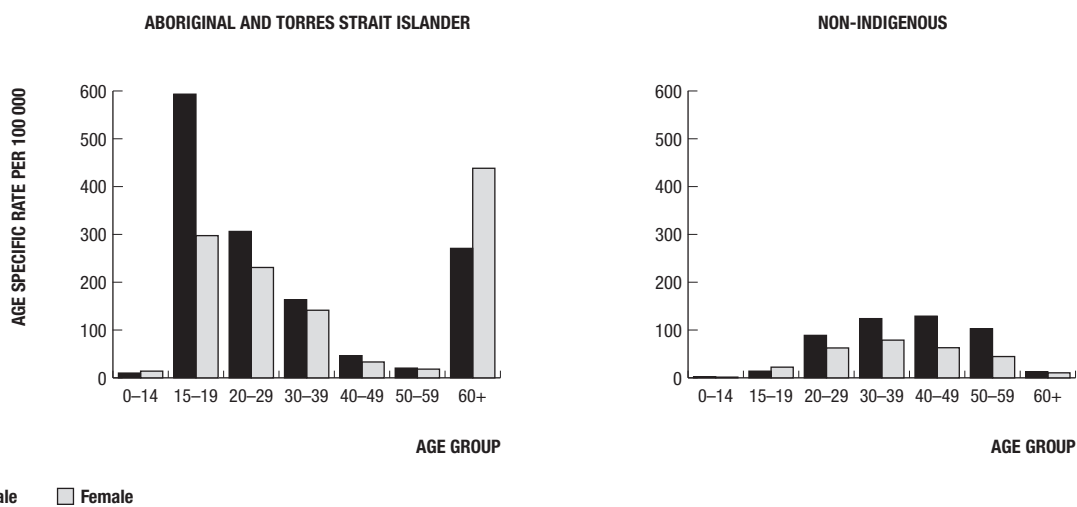
hepatitis C among Aboriginal and Torres Strait Islander people declined from 385 to 172 per 100 000 and in the non-Indigenous population the rate decreased slightly from 37 to 34 per 100 000 population. In Western Australia, the population rate remained stable at 189 in 2004 to 187 per 100 000 population in 2008. In the same state, the rate in the non-Indigenous population rose from 50 to 60 per 100 000 population.

Figure 37 Hepatitis C antibody in selected age groups by Aboriginal and Torres Strait Islander status¹ and year



¹ Jurisdictions (NT, SA and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

Figure 38 Hepatitis C antibody in 2008 by Aboriginal and Torres Strait Islander status¹, sex and age group

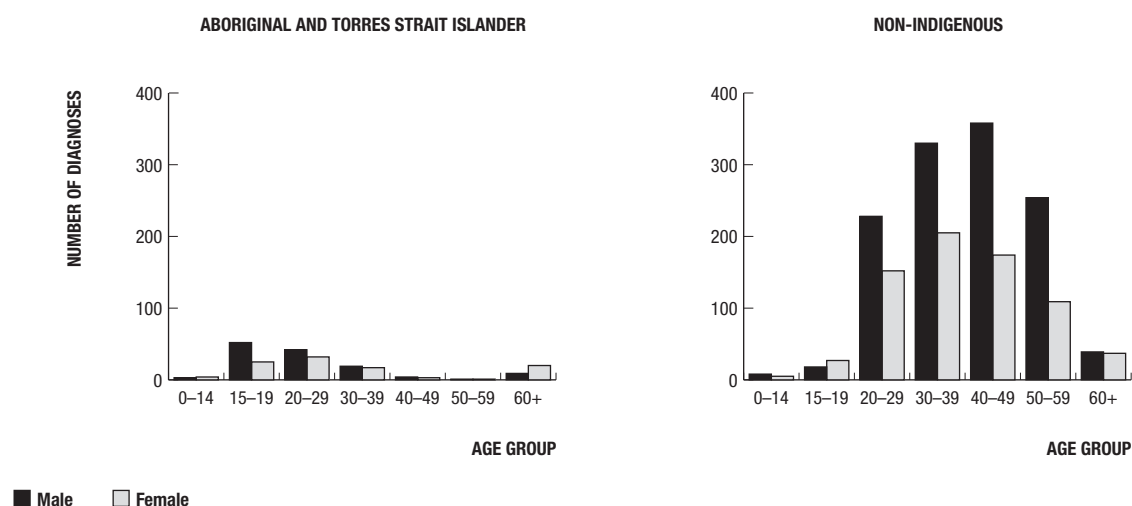


¹ Jurisdictions (NT, SA and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

In 2008, the rate of diagnosis of hepatitis C antibody in the 15 – 19 year age group among men and women in the Aboriginal and Torres Strait Islander population was 42 and 13 times the rate in the same age group in the non-Indigenous population (Figure 37). The rate of new hepatitis C diagnoses in the Aboriginal and Torres Strait Islander population in the age group 20 – 29 years was 3.4 and 3.7 times the rate in the non-Indigenous population male and female populations, respectively (Figure 38).

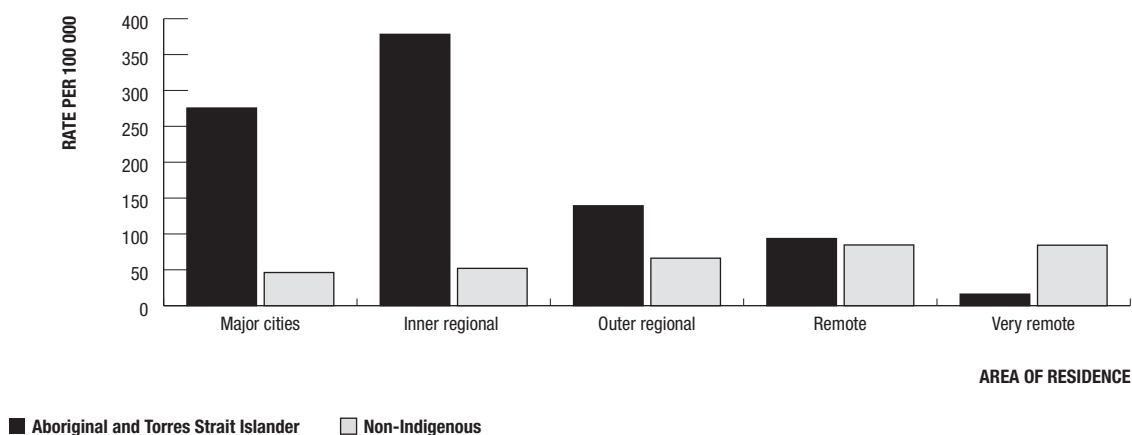
In the years from 2004 to 2008, the rate of hepatitis C diagnoses in the Aboriginal and Torres Strait Islander population resident in major cities in the Northern Territory, South Australia and Western Australia decreased from 433 to 276 per 100 000, and has remained stable or decreased slightly in outer regional, remote and very remote communities. However, in inner regional areas the rate of hepatitis C diagnoses increased from 252 to 378 per 100 000 population. In comparison in the same period the population rate of hepatitis C diagnosis among non-Indigenous people in inner regional areas increased from 37 to 52 per 100 000 (Figure 40).

Figure 39 Hepatitis C antibody by Aboriginal and Torres Strait Islander status¹, sex and age group, 2008



¹ Jurisdictions (NT, SA and WA) in which Aboriginal and Torres Strait Islander status was reported for more than 50% of diagnoses

Figure 40 Hepatitis C infection by Aboriginal and Torres Strait Islander status and area of residence, 2008



Chronic hepatitis B infection

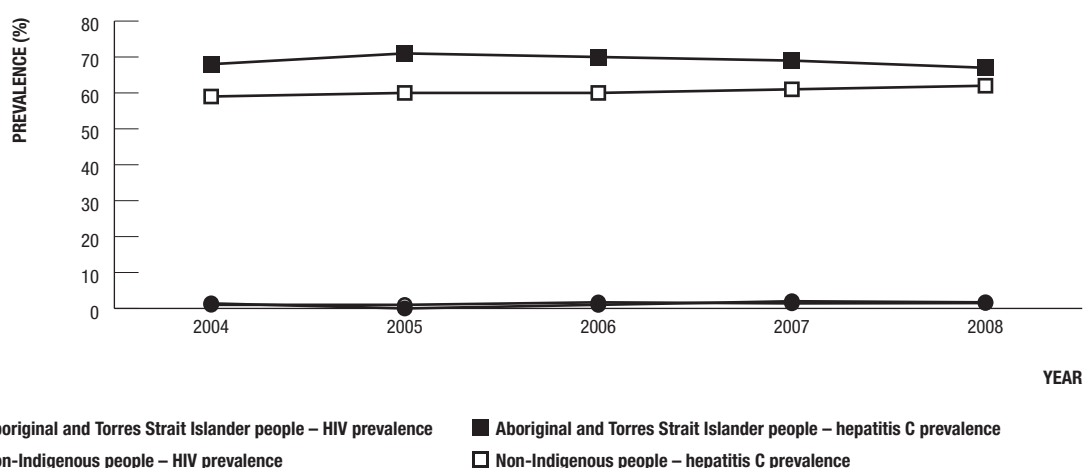
In 2007, 2.5% of the Australian population identified as Aboriginal and or Torres Strait Islander but accounted for an estimated 16% of the Australian population living with chronic hepatitis B infection. Estimated prevalence of chronic hepatitis B infection in the Aboriginal and Torres Strait Islander population ranged from 2% for urban Aboriginal and Torres Strait Islander populations to 8% in rural populations. Remote Aboriginal communities are likely to have even higher prevalence.

Hepatitis B vaccination, including universal infant vaccination, commenced in many Aboriginal and Torres Strait Islander communities in the early 1990s. Evaluation of the impact of these programs has, however, been limited. “Catch-up” hepatitis B vaccination programs were introduced for Aboriginal and Torres Strait Islander children and adolescents in the late 1990s but coverage appears to be incomplete. Following notification of hepatitis B infection in several Aboriginal and Torres Strait Islander adolescents, a survey of vaccination status among adolescents in the community was undertaken. Only 44% were fully vaccinated, and more than 90% of the incompletely vaccinated adolescents had hepatitis B infection including 26% with chronic infection. Access to hepatitis B treatment and care services is limited, partly because of overall poor access to health care services in many Aboriginal and Torres Strait Islander communities (Dore *et al* 2006).

Hepatitis C data from the 2008 Australian Needle and Syringe Program

Data routinely collected through the Australian Needle and Syringe Program provides an insight into the demographics, risk behaviour and blood-borne virus prevalence among injecting drug users attending needle and syringe program services. Hepatitis C prevalence was consistently higher among Aboriginal and Torres Strait Islander compared to non-Indigenous survey respondents (Figure 41). In the years from 2004 to 2008, hepatitis C antibody prevalence ranged from 67% to 71% in the Aboriginal and Torres Strait Islander population and increased from 59% in 2004 to 62% in 2008 in the non-Indigenous population. HIV prevalence remained low among injecting drug users seen at needle and syringe programs at less than 2% in both the Aboriginal and Torres Strait Islander population and in the non-Indigenous population.

Figure 41 HIV and hepatitis C prevalence in people participating in the needle and syringe program survey by Aboriginal and Torres Strait Islander status and year



Australian Collaboration for Chlamydia Enhanced Sentinel Surveillance

Based on data from 14 clinics that had consistent data available from 2004 to 2008 inclusive of the jurisdictions NSW (10), QLD (2), NT (1) and WA (1), the proportion of Aboriginal and Torres Strait Islander people tested for chlamydia increased slightly from 60% to 62% while in the same period the proportion of non-Indigenous people who had a chlamydia test increased from 64% to 71%. Chlamydia positivity rates among Aboriginal and Torres Strait Islander people increased from 11.1% in 2004 to 14.7% in 2008 and in the non-Indigenous population the positivity rate increased from 8.6% to 9.2%.

Figure 42 Chlamydia positivity rate among patients at ACCESS sexual health service sites by Aboriginal and Torres Strait Islander status, sex and year

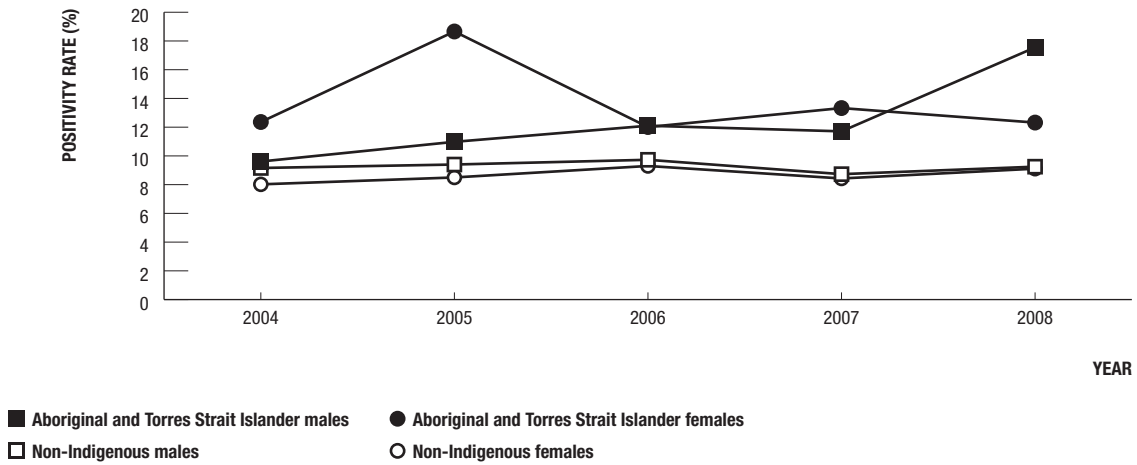


Figure 43 Chlamydia testing rate among patients at ACCESS sexual health service sites by Aboriginal and Torres Strait Islander status, sex and year

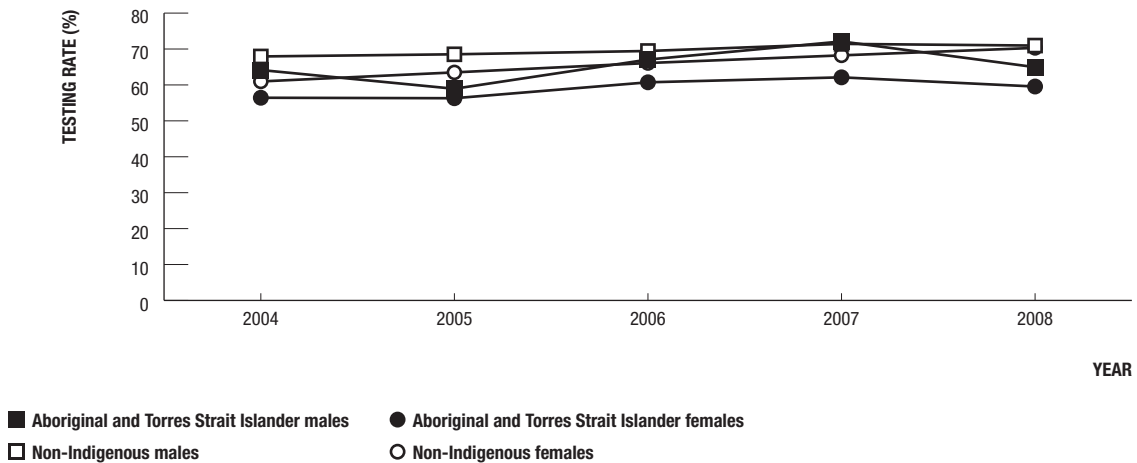


Table Chlamydia testing rate among new patients seen at ACCESS sexual health services, 2004 – 2008, by Aboriginal and Torres Strait Islander status

2004 – 2008	Number of new patients	Number tested	Testing rate	Number of new diagnoses	Positivity rate
Aboriginal and Torres Strait Islander	4 514	2 791	60 – 62%	367	11.1 – 14.7%
Non-Indigenous	89 053	60 458	64 – 71%	5 436	8.6 – 9.2%

Further information on the ACCESS project will be available from the website: www.access-study.org

Methodological notes

National surveillance for sexually transmitted infections

Notification of specific sexually transmitted infections to the National Notifiable Diseases Surveillance System

Diagnoses of specific sexually transmitted infections were notified by State/Territory health authorities to the National Notifiable Disease Surveillance System, maintained by the Australian Government Department of Health and Ageing. 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 transmitted infections were notified by the diagnosing laboratory, the medical practitioner, hospital or a combination of these sources (see Table below).

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

Diagnosis	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Gonorrhoea	Doctor Laboratory Hospital	Laboratory	Doctor Laboratory	Doctor Laboratory Hospital	Doctor Laboratory	Doctor Laboratory Hospital	Doctor Laboratory	Doctor
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

National surveillance for sexually transmitted infections among Aboriginal and Torres Strait Islander people

Information on Aboriginal and Torres Strait Islander status in diagnosed cases of chlamydia, gonorrhoea and infectious syphilis was sought through doctor notification in the Australian Capital Territory, the Northern Territory, Queensland, South Australia, Victoria and Western Australia. New South Wales and Tasmania were the only health authorities that sought information on Aboriginal and Torres Strait Islander status through laboratory notification.

Population rates of diagnosis of specific sexually transmitted infections were calculated by year and State/Territory of diagnosis using *Experimental estimates of Aboriginal and Torres Strait Islander Australians June 2006* (ABS 2008), available through the Australian Bureau of Statistics.

Rate of diagnosis of sexually transmitted infections by area of residence

The rate of diagnosis of sexually transmitted infections in Australia in 2006 by area of residence and Aboriginal and Torres Strait Islander status was calculated using the 2006 census population distribution, based on the Australian Standard Geographical Classification (ASGC) (ABS 2003; ABS 2004). The ASGC uses Aria+ methodology, which assigns each locality to one of five remoteness classifications based on its distance by road to different categories of service centre. The service centres are categorised according to population size. Hobart and Darwin are not category A service centres (service centres with a population size of 250 000 or above) and therefore are classed as “Inner Regional” and “Outer Regional” areas, respectively, based on their distance to the nearest category A service centre. The five remoteness classifications are: Major cities, Inner Regional, Outer Regional, Remote and Very Remote.

National surveillance for HIV/AIDS

National HIV Registry

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, namecode (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 (Table 1.1.4). Late HIV diagnosis was defined as newly diagnosed HIV infection with a CD4+ cell count of less than 200 cells/ μ l.

In New South Wales, information on cases of newly diagnosed HIV infection was sought only from the diagnosing doctor prior to 2008. In 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) and McDonald *et al* (1994b). The National Serology Reference Laboratory, Australia (Dax and Vandenbelt 1993), carried out monitoring of HIV antibody testing.

National surveillance for newly diagnosed HIV infection among Aboriginal and Torres Strait Islander people

Information on Aboriginal and Torres Strait Islander status was routinely sought at diagnosis of HIV infection in the Northern Territory, Queensland, South Australia, Tasmania and Western Australia from 1985. Information on Aboriginal and Torres Strait Islander status was available for cases of HIV infection newly diagnosed in New South Wales from January 1992, from June 1998 in Victoria and from January 2005 in the Australian Capital Territory. Nationally, information on Aboriginal and Torres Strait Islander status at diagnosis of HIV infection was sought prospectively from May 1995. For HIV diagnoses prior to 1995, Aboriginal and Torres Strait Islander status was obtained retrospectively through State/Territory health authorities. In 1999 – 2008, Aboriginal and Torres Strait Islander status was reported at HIV diagnosis by State/Territory health authorities other than the Australian Capital Territory prior to January 2005 and Victoria prior to June 1998 in 98% of Australian born cases. Further information is available in Guthrie *et al* (2000).

Population rates of newly diagnosed HIV infection by Aboriginal and Torres Strait Islander status were calculated using *Experimental estimates of Aboriginal and Torres Strait Islander Australians June 2006* (ABS 2008). The area of residence by Aboriginal and Torres Strait Islander status was calculated using the 2006 census population distribution, based on the Australian Standard Geographical Classification.

Global comparisons

The data in Figure 28 were obtained from the following sources:

Health Protection Agency. HIV in the United Kingdom: 2008. London: Health Protection Agency, Centre for Infections. November 2008

Joint United Nations Programme on HIV/AIDS (UNAIDS). 2008 Report on the global HIV/AIDS epidemic. UNAIDS, 2008. <http://www.unaids.org>

Joint United Nations Programme on HIV/AIDS (UNAIDS). 2.5 Million People living with HIV in India: press release. UNAIDS, 2007. <http://www.unaids.org/en>

National Center for HIV/AIDS Dermatology and STDs (NCHADS). Consensus Workshop on HIV Estimation for Cambodia. NCHADS, 2007. <http://www.nchads.org/>

National surveillance for viral hepatitis

Notification of viral hepatitis to the National Notifiable Diseases Surveillance System

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

Information on self-report of exposure to hepatitis B and hepatitis C is available in a subset of diagnoses of newly acquired infection in the health jurisdictions which monitor incident hepatitis B and C. Exposure to hepatitis C was categorised into a hierarchy of risk for infection. For example, if injecting drug use was reported as well as a history of surgery, blood transfusion or tattoos, exposure was categorised as injecting drug use. Exposure to hepatitis C was categorised as household transmission when a case reported sharing items such as a toothbrush or razor with a person with documented hepatitis C infection, in the absence of other exposures to hepatitis C.

National surveillance for viral hepatitis among Aboriginal and Torres Strait Islander people

Information was sought on Aboriginal and Torres Strait Islander status for diagnoses of hepatitis A, newly acquired hepatitis B and hepatitis C (both newly acquired and prevalent cases) notified to the National Notifiable Diseases Surveillance System. Population rates of diagnoses of viral hepatitis were calculated by year and State/Territory of diagnosis (in those jurisdictions for which Aboriginal and Torres Strait Islander status was reported in more than 50% of diagnoses in each year 2004 – 2008) using *Experimental estimates of Aboriginal and Torres Strait Islander Australians June 2006* (ABS 2008).

HIV and hepatitis C seroprevalence among people who have injected drugs

All clients attending needle and syringe program (NSP) sites during one week in 2004 (44 sites), 2005 (52 sites), 2006 (45 sites), 2007 (53 sites) and 2008 (52 sites) were asked to complete a brief, self-administered questionnaire and to provide a finger prick blood spot sample for HIV and hepatitis C antibody testing. NSP sites were selected on the basis of large numbers of clients and representation from all State/Territory health jurisdictions. Further information is available in MacDonald *et al* (1997 and 2000).

Chlamydia prevalence among people seen through the Australian Collaboration of Chlamydia Enhanced Sentinel Surveillance (ACCESS)

The Australian Collaboration of Chlamydia Enhanced Sentinel Surveillance system is a new surveillance system for monitoring the uptake and outcome of chlamydia testing in Australia, and is funded through the Australian Government Department of Health and Ageing Chlamydia Pilot Testing Program. The objectives of ACCESS are to provide enhanced data management systems at clinical sites with a view to routinely monitoring the extent of testing and test positivity rates in a range of chlamydia priority populations. The priority populations include young heterosexual men and women, men who have sex with men, Aboriginal and Torres Strait Islander people, pregnant women and women with a history of sex work.

ACCESS is a collaboration involving the Burnet Institute's Centre for Epidemiology and Population Health Research (CEPHR), the National Serology Reference Laboratory, Australia, the National Perinatal Statistics Unit and the National Centre in HIV Epidemiology and Clinical Research (NCHECR). ACCESS includes 6 networks, with each network providing unique information on test uptake and the chlamydia positivity rate. The 6 networks are (1) sexual health services (2) family planning clinics (3) antenatal clinics (4) Aboriginal Health Service clinics (5) general practitioner clinics and (6) diagnostic laboratories. CEPHR has responsibility for managing the network of family planning clinics, Aboriginal Health Service clinics and general practice clinics. NCHECR has responsibility for managing the network of sexual health services, antenatal clinics through the National Perinatal Statistics Unit, and diagnostic laboratories through the National Serology Reference Laboratory, Australia.

For clinical networks other than antenatal clinics, analyses were based on routine testing for chlamydia with no additional testing carried out due to participation in ACCESS. Routine chlamydia testing data were extracted directly from patient information management systems at each site and collated at a central location. At sexual health services, people seen for the first time ever at the clinic, defined as new patients, were included in analyses. In other networks, people seen for the first time in a reporting period, defined as unique patients, were included in analyses. Chlamydia testing rates were calculated by dividing the number of chlamydia tests by the number of new or unique patients seen, multiplied by 100. Chlamydia positivity rates were calculated by dividing the number of positive results by the number of new or unique patients tested, multiplied by 100.

Further information on ACCESS methodology and results are available at www.access-study.org

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