Government of Western Australia
Department of Health

The Epidemiology of Notifiable Sexually Transmitted Infections and Blood-Borne Viruses in Western Australia 2022

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Acknowledgments

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Disclaimer

Every endeavour has been made to ensure that the information provided in this document was accurate at the time of writing. However, infectious disease notification data are continuously updated and subject to change.

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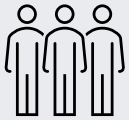
The Epidemiology of Notifiable Sexually Transmitted Infections and Blood-Borne Viruses in Western Australia 2022

Government of Western Australia
Department of Health

The epidemiology of notifiable STIs and BBVs in WA 2022

Chlamydia



- Notifications were stable from 10,941 in 2021 to 11,042 in 2022.
- Testing data suggested this was due to a combination of decreased testing and increased disease transmission.

Gonorrhoea

- Notifications reached a 10-year high of 3,929 in 2019.
- Notifications increased by 13% from 2,915 in 2021 to 3,292 in 2022.
- Testing data suggested this resulted primarily from increased testing.
- The WA notification rate was 7% lower than the national rate.

Infectious syphilis

- Notifications reached a 10-year high of 844 in 2021 and decreased to 812 in 2022.
- The increase reflected an outbreak among Aboriginal people, continuing high numbers among MSM, and an increase among heterosexual people, especially females of reproductive age.
- Testing data suggested the decrease resulted primarily from decreased disease transmission.
- The notification rate was 17-times higher among Aboriginal, compared to non-Aboriginal people.
- The WA notification rate was 21% higher than the national crude rate.
- From 2013 to 2022, there were 16 congenital syphilis notifications; 4 reported in 2022.

HIV

- Notifications increased by 5% from 56 in 2021 to 59 in 2022.
- Newly acquired HIV notifications among MSM decreased by 47% between the 2013 to 2017 and 2018 to 2022 periods, reflecting a likely decrease in HIV transmission among MSM.
- 93% of HIV cases diagnosed in 2022 were on treatment.

Hepatitis B

- Notifications remained stable from 416 in 2021 to 402 in 2022.
- Testing data suggested this was due to a combination of decreased testing and increased disease transmission.

Hepatitis C

- Notifications reached a 10-year high of 1,189 in 2016 and decreased by 16% from 943 in 2021 to 792 in 2022.
- Testing data suggested was due to a combination of decreased testing and disease transmission.
- The notification rate was 15-times higher among Aboriginal, compared to non-Aboriginal people.

Contents

List of Tables ..... **vii**
List of Figures ..... **vii**
List of Maps ..... **ix**
Abbreviations **10**
1 Introduction **11**
2 Chlamydia **12**
2.1 Trends over time 12
2.2 Distribution by age and sex 12
2.3 Notifications by Aboriginality 13
2.4 Regional distribution 13
2.5 Place of acquisition 14
2.6 Interstate comparisons 14
2.7 Outbreaks and other investigations 14
3 Gonorrhoea **15**
3.1 Trends over time 15
3.2 Distribution by age and sex 15
3.3 Notifications by Aboriginality 16
3.4 Regional distribution 16
3.5 Place of acquisition 17
3.6 Interstate comparisons 17
3.7 Enhanced gonorrhoea surveillance 17
3.8 Outbreaks and other investigations 18
4 Syphilis **21**
4.1 Congenital syphilis 21
4.1.1 Trends over time 21
4.2 Infectious syphilis 21
4.2.1 Trends over time 21
4.2.2 Distribution by age and sex 22
4.2.3 Notifications by Aboriginality 22
4.2.4 Regional distribution 22
4.2.5 Place of acquisition 22
4.2.6 Interstate comparisons 23
4.2.7 Enhanced infectious syphilis surveillance 23
4.3 Non-infectious syphilis 24
4.3.1 Trends over time 24

4.3.2 Distribution by age and sex 24
4.3.3 Notifications by Aboriginality 24
4.3.4 Regional distribution 24
4.3.5 Place of acquisition 25
4.3.6 Interstate comparisons 25
4.4 Syphilis testing 25
4.5 Outbreaks and other investigations 26
5 Donovanosis 29
5.1 Trends over time 29
6 Chancroid 29
6.1 Trends over time 29
7 HIV 30
7.1 Trends over time 30
6.2 Distribution by sex and age 30
6.3 Notifications by Aboriginality 30
6.4 Exposure category 31
6.5 Place of acquisition 31
6.6 Newly acquired HIV and late diagnosis 31
6.7 HIV testing 32
6.9 Time to treatment 32
8 Hepatitis B 35
8.1 Newly acquired hepatitis B 35
8.1.1 Trends over time 35
8.1.2 Distribution by age and sex 35
8.1.3 Notifications by Aboriginality 36
8.1.4 Regional distribution 36
8.1.5 Place of acquisition 36
8.1.6 Interstate comparisons 36
8.2 Unspecified hepatitis B 37
8.2.1 Trends over time 37
8.2.2 Distribution by age and sex 37
8.2.3 Notifications by Aboriginality 37
8.2.4 Regional distribution 37
8.2.5 Place of acquisition 38
8.2.6 Interstate comparisons 38
8.3 Enhanced hepatitis B surveillance 38

8.4 Hepatitis B testing 38
8.5 Outbreaks and other investigations 39
9 Hepatitis C 40
9.1 Newly acquired hepatitis C 40
9.1.1 Trends over time 40
9.1.2 Distribution by age and sex 40
9.1.3 Notifications by Aboriginality 41
9.1.4 Regional distribution 41
9.1.5 Place of acquisition 41
9.1.6 Interstate comparisons 41
9.2 Unspecified hepatitis C 42
9.2.1 Trends over time 42
9.2.2 Distribution by sex and age 42
9.2.3 Notifications by Aboriginality 42
9.2.4 Regional distribution 42
9.2.5 Place of acquisition 43
9.2.6 Interstate comparisons 43
9.3 Enhanced hepatitis C surveillance 43
9.4 Hepatitis C testing 44
9.5 Outbreaks and other investigations 44
8 Disease prevention and control strategies 46
8.1 Prevention and education 46
8.2 Testing and diagnosis / disease management and clinical care 47
8.3 Workforce development 48
8.4 Enabling environment 48
8.5 Data collection, research and evaluation 49
9 References 50

List of Tables

Table 3.1 Behavioural and demographic characteristics of people notified with gonorrhoea by Aboriginality, WA, 2022 19

Table 3.2 Behavioural and demographic characteristics of people notified with gonorrhoea by exposure category, WA, 2022 20

Table 4.1 Behavioural and demographic characteristics of people notified with infectious syphilis by Aboriginality, WA, 2022 27

Table 4.2 Behavioural and demographic characteristics of people notified with infectious syphilis by exposure category, WA, 2022 28

Table 7.1 Number and proportion of persons notified with HIV infection by exposure category, sex and time period, WA, 2012 to 2022 (excludes cases previously diagnosed outside WA) 33

Table 7.2 Number and proportion of persons notified with HIV infection by country/region acquired, sex and time period, WA, 2013 to 2022 (excludes cases previously diagnosed outside WA) 34

Table 9.1 Behavioural and demographic characteristics of people notified with hepatitis C by Aboriginality, WA, 2022 45

List of Figures

Figure 2.1 Number and ASR of chlamydia notifications, WA, 2013 to 2022 12

Figure 2.2 Number of chlamydia notifications by sex and overall age-specific rate, WA, 2022 13

Figure 2.3 Chlamydia testing rate, notification rate and test positivity rate by age group, WA, 2013 to 2022 13

Figure 2.4 Chlamydia testing rate, notification rate and test positivity rate by sex, WA, 2013 to 2022 13

Figure 2.5 ASR of chlamydia notifications by Aboriginality, WA, 2013 to 2022 13

Figure 2.6 Number and crude rate of chlamydia notifications, WA and Australia, 2018 to 2022 14

Figure 3.1 Number and ASR of gonorrhoea notifications, WA, 2013 to 2022 15

Figure 3.2 Number of gonorrhoea notifications by sex and overall age-specific rate, WA, 2022 16

Figure 3.3 Gonorrhoea testing rate, notification rate and test positivity rate by age group, WA, 2013 to 2022 16

Figure 3.4 Gonorrhoea testing rate, notification rate and test positivity rate by sex, WA, 2013 to 2022 16

Figure 3.5 ASR of gonorrhoea notifications by Aboriginality, WA, 2013 to 2022 16

Figure 3.6 Number and crude rate of gonorrhoea notifications, WA and Australia, 2018 to 2022 17

Figure 4.1 Number and ASR of infectious syphilis notifications, WA, 2013 to 2022 21

Figure 4.2 Number of infectious syphilis notifications by sex and overall age-specific rate, WA, 2022 22

Figure 4.3 ASR of infectious syphilis notifications by Aboriginality, WA, 2013 to 2022 22
Figure 4.4 Number and crude rate of infectious syphilis notifications, WA and Australia, 2018 to 2022 23
Figure 4.5 Number and ASR of non-infectious syphilis notifications, WA, 2013 to 2022 ... 24
Figure 4.6 Number of non-infectious syphilis notifications by sex and overall age-specific rate, WA, 2022 24
Figure 4.7 ASR of non-infectious syphilis notifications by Aboriginality, WA, 2013 to 2022 24
Figure 4.8 Number and crude rate of non-infectious notifications, WA and Australia, 2018 to 2022 25
Figure 4.9 Syphilis testing rate, notification rate and test positivity rate by age group, WA, 2013 to 2022 26
Figure 4.10 Syphilis testing rate, notification rate and test positivity rate by sex, WA, 2013 to 2022 26
Figure 7.1 Number of HIV notifications, WA, 1983 to 2022 (excludes cases previously diagnosed outside WA) 30
Figure 7.2 Number of HIV notifications by age group and sex, WA, 2022 (excludes cases previously diagnosed outside WA) 30
Figure 7.3 Proportion of HIV notifications with newly acquired infection by risk exposure and time period, WA, 2013 to 2022 (excludes cases previously diagnosed outside WA) 31
Figure 7.4 HIV testing rate, notification rate and test positivity rate by age group, WA, 2013 to 2022 32
Figure 7.5 HIV testing rate, notification rate and test positivity rate by sex, WA, 2013 to 2022 32
Figure 8.1 Number and ASR of newly acquired hepatitis B notifications, WA, 2013 to 2022 35
Figure 8.2 Number of newly acquired hepatitis B notifications by sex and overall age-specific rate, WA, 2022 36
Figure 8.3 ASR of newly acquired hepatitis B notifications by Aboriginality, WA, 2013 to 2022 36
Figure 8.4 Number and crude rate of newly acquired hepatitis B notifications, WA and Australia, 2018 to 2022 37
Figure 8.5 Number and ASR of unspecified hepatitis B notifications, WA, 2013 to 2022 ..37
Figure 8.6 Number of unspecified hepatitis B notifications by sex and overall age-specific rate, WA, 2022 37
Figure 8.7 ASR of unspecified hepatitis B notifications by Aboriginality, WA, 2013 to 2022 37
Figure 8.8 Number and crude rate of unspecified hepatitis B notifications, WA and Australia, 2018 to 2022 38
Figure 8.9 Hepatitis B testing rate, notification rate and test positivity rate by age group, WA, 2013 to 2022 39

Figure 8.10 Hepatitis B testing rate, notification rate and test positivity rate by sex, WA, 2013 to 2022 39
Figure 9.1 Number and ASR of newly acquired hepatitis C notifications, WA, 2013 to 2022 40
Figure 9.2 Number of newly acquired hepatitis C notifications by sex and overall age-specific rate, WA, 2022 40
Figure 9.3 ASR of newly acquired hepatitis C notifications by Aboriginality, WA, 2013 to 2022 41
Figure 9.4 Number and crude rate of newly acquired hepatitis C notifications, WA and Australia, 2018 to 2022 42
Figure 9.5 Number and ASR of unspecified hepatitis C notifications, WA, 2013 to 2022 42
Figure 9.6 Number of unspecified hepatitis C notifications by sex and overall age-specific rate, WA, 2022 42
Figure 9.7 ASR of unspecified hepatitis C notifications by Aboriginality, WA, 2013 to 2022 42
Figure 9.8 Number and crude rate of unspecified hepatitis C notifications, WA and Australia, 2018 to 2022 43
Figure 9.9 Hepatitis C testing rate, notification rate and test positivity rate by age group, WA, 2013 to 2022 44
Figure 9.10 Hepatitis C testing rate, notification rate and test positivity rate by sex, WA, 2013 to 2022 44

List of Maps

Map 2.1 ASR of chlamydia notifications by health region, WA, 2022 14
Map 3.1 ASR of gonorrhoea notifications by health region, WA, 2022 17
Map 4.1 ASR of infectious syphilis notifications by health region, WA, 2022 22
Map 4.2 ASR of non-infectious syphilis notifications by health region, WA, 2022 25
Map 8.1 ASR of newly acquired hepatitis B notifications by health region, WA, 2022 36
Map 8.2 ASR of unspecified hepatitis B notifications by health region, WA, 2022 38
Map 9.1 ASR of newly acquired hepatitis C notifications by health region, WA, 2022 41
Map 9.2 ASR of unspecified hepatitis C notifications by health region, WA, 2022 43

Abbreviations

ACE	Access, Care and Empowerment mobile app
ASHM Health	Formerly known as the Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine
ASR(s)	Age-standardised notification rate(s) per 100,000 population
BBV(s)	Blood-borne virus(es)
DAA(s)	Direct acting antiviral(s)
DoH	Department of Health Western Australia
GP(s)	General practitioner(s)
GtF	Get the Facts
HIV	Human immunodeficiency virus
HSS	Health Support Services
MSM	Men who have sex with men
MDR	Multi-drug resistant
NNDSS	National Notifiable Diseases Surveillance System
NPEP	Non-occupational post-exposure prophylaxis
NSEP(s)	Needle and syringe exchange program(s)
NSP(s)	Needle and syringe program(s)
NT	Northern Territory
PoC	Point-of-care
PrEP	Pre-exposure prophylaxis for HIV
QLD	Queensland
SHBBVP	Sexual Health and Blood-borne Virus Program
SiREN	WA Sexual Health and Blood-borne Viruses Applied Research and Evaluation Network
STI(s)	Sexually transmitted infection(s)
WA	Western Australia
WAAC	Formerly called the Western Australian AIDS Council
WACHS	WA Country Health Service
WA SORG	Western Australian Syphilis Outbreak Response Group

1 Introduction

This report describes the epidemiology of notifiable sexually transmitted infections (STIs) and blood-borne viruses (BBVs) in Western Australia (WA) for 2022, and trends over the ten-year period from 2013 to 2022. It is intended to be a reference document for organisations and individuals interested in the occurrence of these infectious diseases in WA.

Data presented in this report relate to notification and testing data received by the Department of Health, WA (DoH) and are likely to underestimate the true incidence of disease. These data nevertheless represent the most comprehensive information about these infections for public health surveillance in WA.

A detailed methodology and additional analyses of the notification data are available in the accompanying appendix[1].

2 Chlamydia

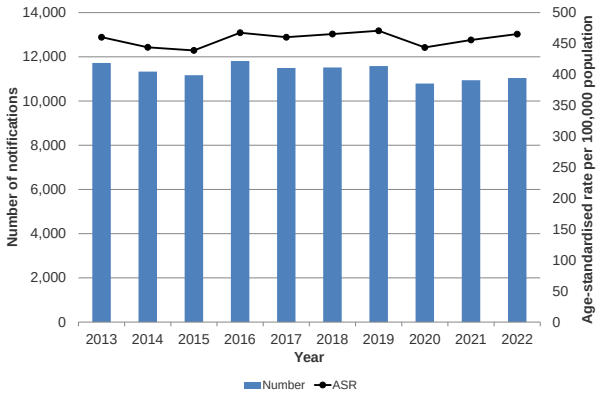
Key points

- Chlamydia was the most commonly notified STI in WA.
- The notification and testing rates were highest in people aged 15 to 24 years.
- The notification rate was higher in the Kimberley region than in other parts of the state.
- The notification rate was three-times higher among Aboriginal people compared to non-Aboriginal people.
- The WA crude notification rate was 9% higher than the national crude rate.

2.1 Trends over time

The number of chlamydia notifications in 2022 (n=11,042) was comparable to the number in 2021 (n=10,941) and the 2017 to 2021 five-year average of 11,265 notifications per year (Figure 2.1).

Figure 2.1 Number and ASR of chlamydia notifications, WA, 2013 to 2022



Between 2013 and 2021, the chlamydia testing rate increased by 44% (57 to 82/1,000 population) while the notification and test positivity rates decreased by 13% (476 to 416/100,000 population) and by 21% (4.8% to 3.8%) respectively.

This indicates that the decrease in notifications over this period may have resulted primarily from decreased disease transmission (Figure 2.4).

Between 2021 and 2022, the chlamydia testing rate decreased by 18% (to 67/1,000 population) while the notification rate remained stable (to 417/100,000 population) and the test positivity rate increased by 21% (to 4.6%). This indicates that the stability in notifications over this period may have been due to the combined effects of decreased testing and increased disease transmission (Figure 2.4).

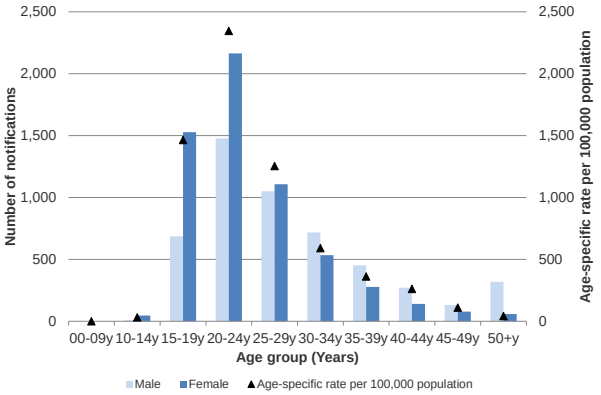
2.2 Distribution by age and sex

As in previous years, 73% of chlamydia notifications in 2022 occurred in people aged between 15 and 29 years and the highest notification rate occurred in those aged 20 to 24 years (2,345/100,000 population) (Figure 2.2). In 2022, the highest testing and test positivity rates were observed in people aged 15 to 24 years (153/1,000 population and 9.2%, respectively) and the test positivity rate in this age group increased by 10% from 2013 (Figure 2.3).

From 2013 to 2022, more females than males were notified with chlamydia each year (Appendix Figure 1[1]). The predominance of females was evident in people aged 29 years or younger, but the opposite was observed in those aged 30 years or older (Figure 2.2 and Appendix Table 2[1]).

In 2022, the testing rate among females was 79% higher than the rate among males (86 vs. 48/1,000 population), while the test positivity rate among males was 61% higher than the rate among females (6.1 vs. 3.8%) (Figure 2.4).

Figure 2.2 Number of chlamydia notifications by sex and overall age-specific rate, WA, 2022



Note: The overall age-specific rate includes one notification in a transgender person

Figure 2.3 Chlamydia testing rate, notification rate and test positivity rate by age group, WA, 2013 to 2022

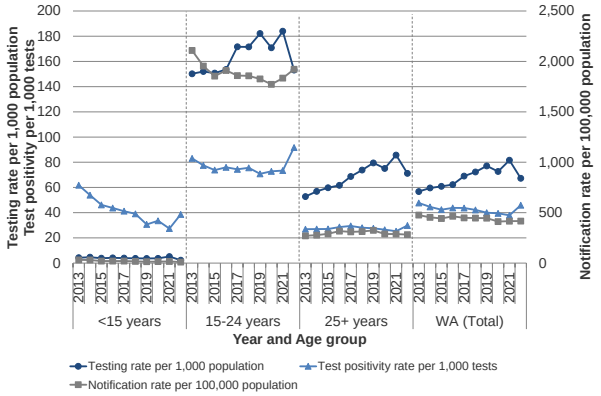
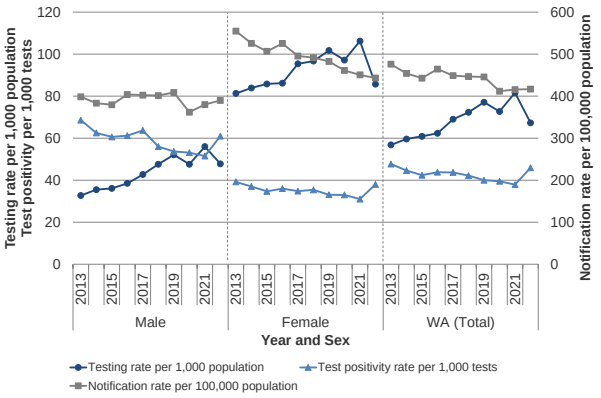


Figure 2.4 Chlamydia testing rate, notification rate and test positivity rate by sex, WA, 2013 to 2022

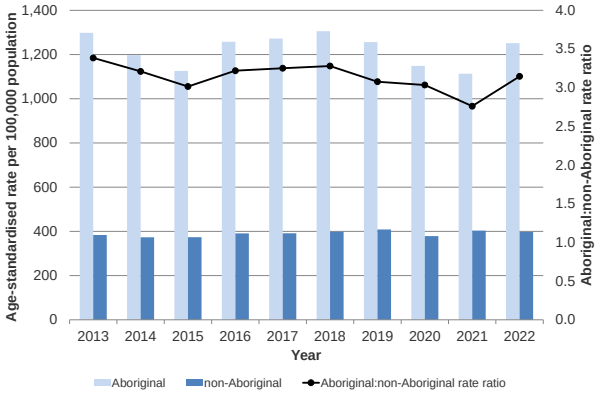


2.3 Notifications by Aboriginality

In 2022, 15% of chlamydia notifications were reported in Aboriginal people, 81% in non-Aboriginal people and 4% of notifications were of unknown Aboriginal status.

Between 2013 and 2021, the notification rate decreased by 14% among Aboriginal people, increased by 5% among non-Aboriginal people, and the Aboriginal to non-Aboriginal rate ratio decreased from 3.4:1 to 2.8:1. From 2021 to 2022, the rate increased by 12% among Aboriginal people, remained stable among non-Aboriginal people, and the Aboriginal to non-Aboriginal rate ratio increased to 3.1:1 (Figure 2.5). In 2022, the highest notification rate among Aboriginal people was reported from the Kimberley region and among non-Aboriginal people the highest notification rate was reported from the Pilbara region (2,373/100,000 and 1,821/100,000 population, respectively). (Appendix Table 5[1]).

Figure 2.5 ASR of chlamydia notifications by Aboriginality, WA, 2013 to 2022



2.4 Regional distribution

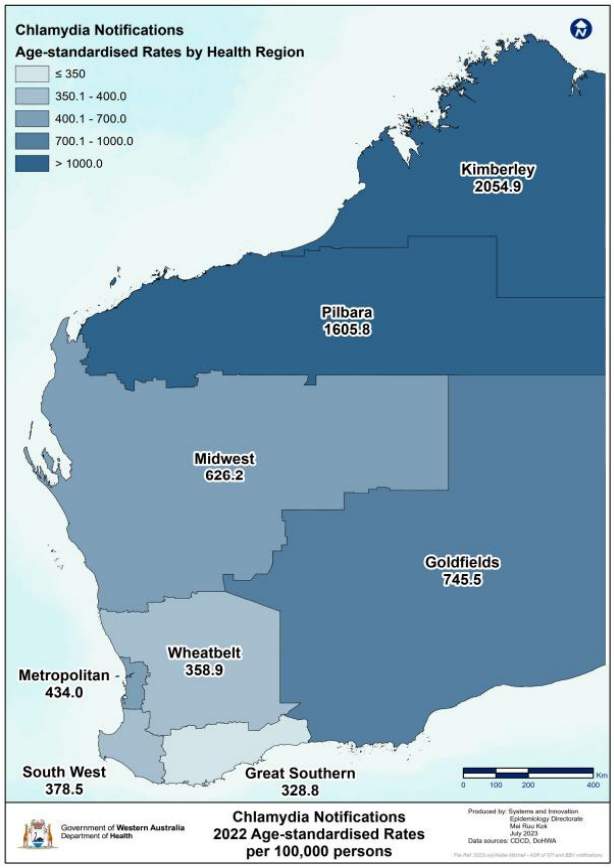
The highest chlamydia notification rate in 2022 was reported from the Kimberley region, where the rate was more than four-times greater than the WA rate (2,055 vs. 465/100,000 population) (Map 2.1 and Appendix Table 4[1]).

While the notification rate in the Kimberley region increased by 20% from 2013 to 2022 (1,707/100,000 to 2,055/100,000 population), the notification rate in the Pilbara region more than doubled (679/100,000 to 1,606/100,000 population) (Appendix Table 4[1]).

2.5 Place of acquisition

Of the 7,269 (66%) chlamydia notifications in 2022 that had place of acquisition recorded, 98% were reported as having been acquired in WA (Appendix Table 7[1]).

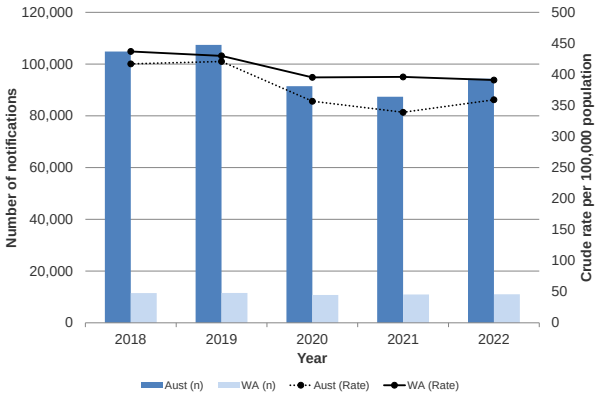
Map 2.1 ASR of chlamydia notifications by health region, WA, 2022



2.6 Interstate comparisons

In 2022, the crude chlamydia notification rate in WA (391/100,000 population) was the third highest in Australia after the Northern Territory (NT) (1,030/100,000 population) and Queensland (QLD) (434/100,000 population) and was 9% higher than that reported nationally (359/100,000 population) (Figure 2.6 and Appendix Table 8[1]).

Figure 2.6 Number and crude rate of chlamydia notifications, WA and Australia, 2018 to 2022



Note: Data sourced from NNDSS 12 September 2023

2.7 Outbreaks and other investigations

No significant outbreaks or clusters of chlamydia infections were reported in 2022, but given the generally high incidence of the disease, the likelihood of recognising subgroups of the population with temporarily increased incidence is low.

Lymphogranuloma venereum (LGV) is a rare STI caused by subtypes of the bacteria *Chlamydia trachomatis* (serovars L1 – L3). Chlamydia and LGV have very different clinical presentations. LGV causes ulcers or sores on the genital area and invades the lymph glands in the pelvis and groin. In the final stages, LGV can cause widespread scarring and deformity in the affected area. In Australia, LGV occurs mainly in men who have sex with men (MSM). A total of 48 LGV cases were reported to the DoH between 2013 and 2022 and reached a peak of 14 notifications in 2015.

3 Gonorrhoea

Key points

- Gonorrhoea was the second most commonly notified STI in WA.
- The notification and testing rates were highest in people aged 15 to 24 years.
- The notification rate was higher in the Kimberley region than in other parts of the state.
- The notification rate was almost 11-times higher among Aboriginal people compared to non-Aboriginal people.
- The WA crude notification rate was 7% lower than the national crude rate.
- Both Aboriginal and non-Aboriginal people reported similar specimen sites for gonorrhoea testing but there were marked differences in terms of clinical settings, treatment and sexual exposure.

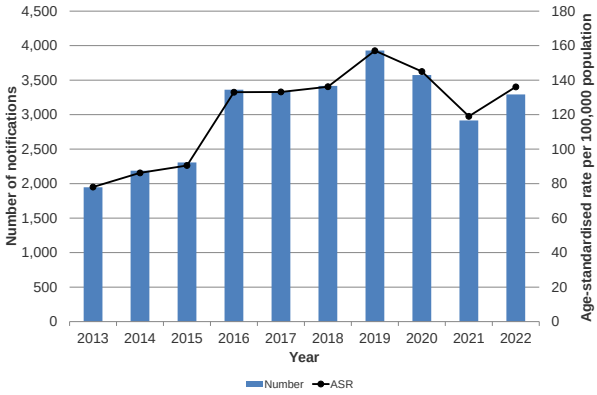
3.1 Trends over time

The number of gonorrhoea notifications reported to the DoH reached a ten-year high in 2019 (n=3,929). The number of notifications in 2022 (n=3,292) was 13% higher than the number in 2021 (n=2,915) and 4% lower than the 2017 to 2021 five-year average of 3,434 notifications per year (Figure 3.1).

Between 2013 and 2021, the gonorrhoea testing and notification rates increased by 55% (52 to 80/1,000 population) and 39% (80 to 111/100,000 population) respectively, while the test positivity rate remained stable (at 1.1%). This indicates that the increase in notifications over this period may have resulted primarily from increased testing (Figure 3.4).

Between 2021 and 2022, the gonorrhoea testing rate decreased by 17% (to 66/1,000 population) while the notification and test positivity rates increased by 12% (to 124/100,000 population) and 35% (to 1.5%) respectively. This indicates that the increase in notifications over this period may have primarily resulted from increased disease transmission (Figure 3.4).

Figure 3.1 Number and ASR of gonorrhoea notifications, WA, 2013 to 2022



3.2 Distribution by age and sex

As in previous years, 56% of gonorrhoea notifications in 2022 occurred in people aged between 20 and 34 years and the highest notification rate occurred in those aged 20 to 24 years (472/100,000 population) (Figure 3.2). In 2022, the highest testing and test positivity rates were observed in people aged 15 to 24 years (152/1,000 population and 2.2%, respectively) and the test positivity rate in this age group increased by 25% from 2013 (1.8%) (Figure 3.3).

From 2013 to 2022, more males than females were notified with gonorrhoea each year (Appendix Figure 3[1]). The predominance of males was evident in

people aged 25 years or older, but the opposite was observed in those aged less than 25 years (Figure 3.2 and Appendix Table 2[1]).

In 2022, the testing rate among females was 77% higher than the rate among males (84 vs. 48/1,000 population), while the test positivity rate among males was almost three-times higher than the rate among females (2.6 vs. 1.0%) (Figure 3.4).

Figure 3.2 Number of gonorrhoea notifications by sex and overall age-specific rate, WA, 2022

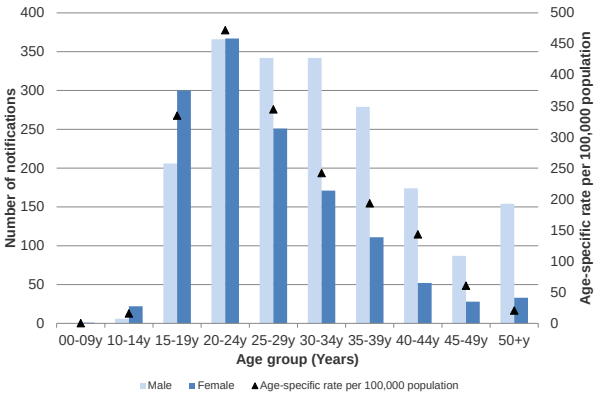


Figure 3.3 Gonorrhoea testing rate, notification rate and test positivity rate by age group, WA, 2013 to 2022

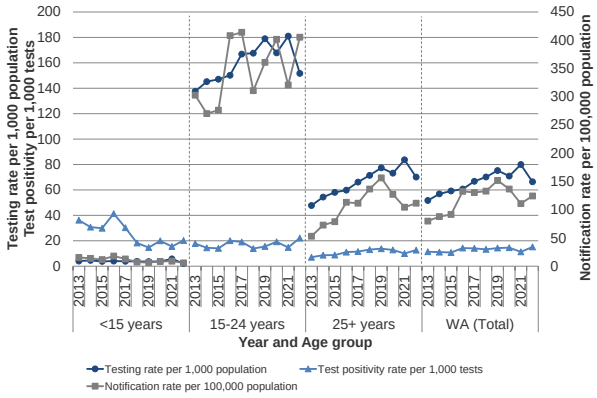
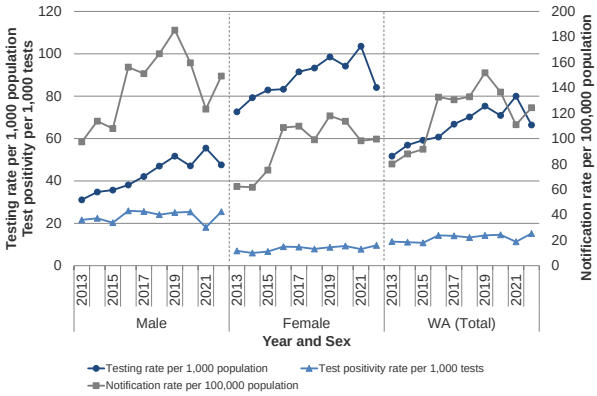


Figure 3.4 Gonorrhoea testing rate, notification rate and test positivity rate by sex, WA, 2013 to 2022

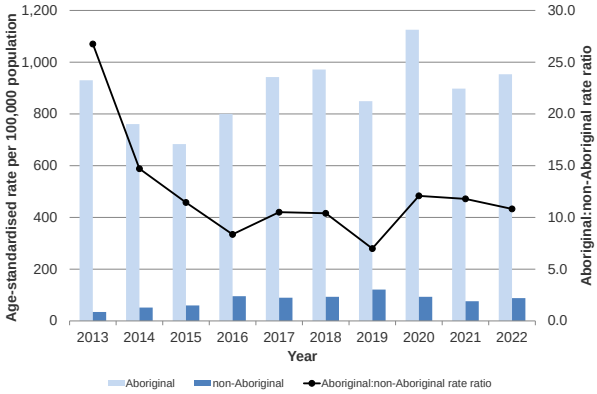


3.3 Notifications by Aboriginality

In 2022, 36% of gonorrhoea notifications were reported in Aboriginal people, 63% in non-Aboriginal people and 1% of notifications had an unknown Aboriginal status.

The Aboriginal to non-Aboriginal rate ratio decreased to a ten-year low in 2019 before increasing again to 2022 (7.0:1 and 10.8:1, respectively) (Figure 3.5). In 2022, the highest notification rate among Aboriginal people was reported from the Kimberley region and among non-Aboriginal people the highest notification rate was reported from the Pilbara region (2,451/100,000 and 185/100,000 population, respectively) (Appendix Table 13[1]).

Figure 3.5 ASR of gonorrhoea notifications by Aboriginality, WA, 2013 to 2022



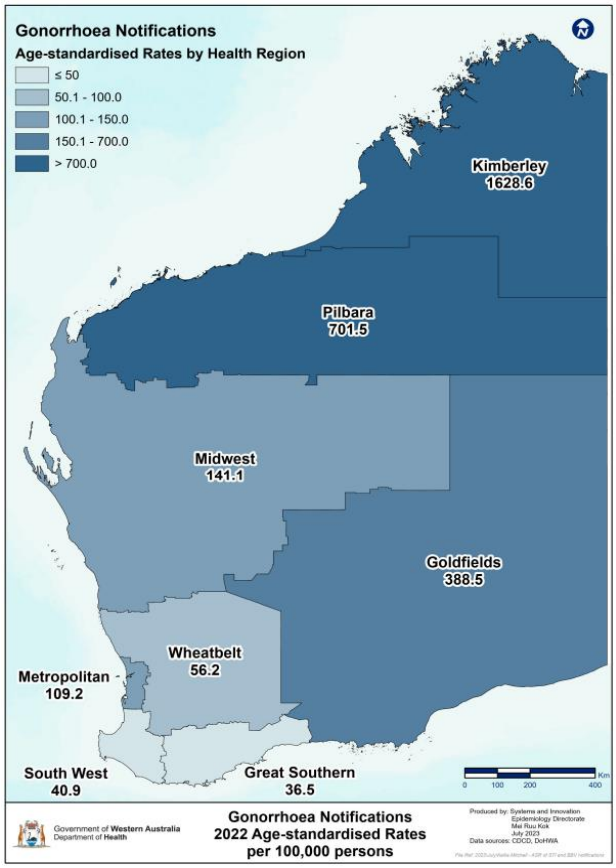
3.4 Regional distribution

The highest gonorrhoea notification rate in 2022 was reported from the Kimberley region, where the rate was almost 12-times greater than the WA rate (1,629 vs. 137/100,000 population) (Map 3.1 and

Appendix Table 12[1]).

While the notification rate in the Kimberley region increased by 20% from 2013 to 2022 (1,356/100,000 to 1,629/100,000 population), the notification rate in the South West region increased by three-fold (13/100,000 to 41/100,000 population) and more than doubled in the Perth metropolitan region (46/100,000 to 109/100,000 population) (Appendix Table 12[1]).

Map 3.1 ASR of gonorrhoea notifications by health region, WA, 2022



3.5 Place of acquisition

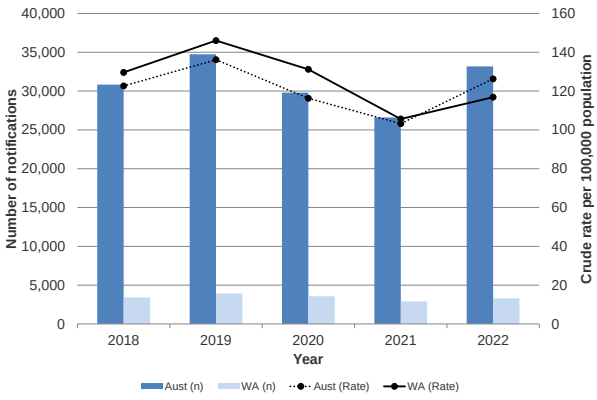
Of the 2,537 (77%) gonorrhoea notifications in 2022 that had place of acquisition recorded, 97% were reported as having been acquired in WA (Appendix Table 15[1]).

3.6 Interstate comparisons

In 2022, the crude gonorrhoea notification rate in WA (117/100,000 population) was the fourth highest in Australia and was 7% lower than the national crude rate (126/100,000 population) (

Figure 3.6 and Appendix Table 16[1]).

Figure 3.6 Number and crude rate of gonorrhoea notifications, WA and Australia, 2018 to 2022



Note: Data sourced from NNDSS 12 September 2023

3.7 Enhanced gonorrhoea surveillance

In 2022, complete enhanced surveillance data were available for 52% (n=1,704/3,292) of all gonorrhoea

notifications, representing 52% of notifications among both Aboriginal (n=621/1,195) and non-Aboriginal (n=1,074/2,059) people.

Among Aboriginal people, gonorrhoea notifications were equally distributed between the sexes. The majority of Aboriginal people were diagnosed at an Aboriginal medical service or public hospital / community health clinic on the basis of a urine sample and were treated with ceftriaxone and azithromycin, or a combination of amoxycillin/probenecid and azithromycin (46%; n=283/621). The vast majority of Aboriginal people reported acquiring gonorrhoea from a person of the opposite sex and no cases reported being a current sex worker (

Table 3.1).

Among non-Aboriginal people, more males than females were notified with gonorrhoea. While the majority also reported acquiring gonorrhoea from a person of the opposite sex, 36% reported acquiring the infection from a person of the same sex, and almost all of these cases were male. Almost half of the cases among non-Aboriginal people were diagnosed through a urine sample.

Non-Aboriginal cases were more likely to be diagnosed at a general practice or sexual health clinic on the basis of a throat or rectal swab and to be treated with a combination of ceftriaxone and azithromycin. Seventeen cases were current sex workers (

Table 3.1).

Trends for both Aboriginal and non-Aboriginal people remained stable over time.

In 2022, 25% (n=433/1,704) of completed gonorrhoea enhanced surveillance forms had an exposure category identified as MSM. Of these, the majority were born in Australia (60%; n=259/433) and reported acquiring the infection in WA. Most MSM cases were non-Aboriginal, lived in the Perth metropolitan region and were diagnosed at a sexual health clinic based on a throat or rectal swab. The majority of MSM cases were treated with a combination of ceftriaxone and azithromycin. Two MSM cases reported being a current sex worker (Table 3.2).

3.8 Outbreaks and other investigations

Antimicrobial resistance in gonorrhoea has led to an increase in the prevalence of multi-drug resistant (MDR) strains which are highly resistant to all of the antibiotics that have been in routine use to treat the infection. As MDR gonorrhoea can be difficult to treat, infection with these strains can prolong infection and increase the number of people with long-term complications.

A total of nine MDR gonorrhoea cases were reported to the DoH between 2013 and 2022: one in 2018, three in 2019, one in 2021 and four in 2022.

Of these nine cases, six were male, three were female and all were reported among non-Aboriginal people. Four cases acquired their illness in WA and four acquired their illness overseas, predominately in South-East Asia. Six cases had a heterosexual exposure, one had an MSM exposure and two had unknown exposures.

Penicillin resistance was detected in seven cases; ceftriaxone decreased susceptibility was detected in eight cases and ciprofloxacin resistance was detected in eight cases. Three cases were co-resistant to penicillin, ciprofloxacin, tetracycline, and azithromycin. All three cases were acquired in South-East Asia through a heterosexual exposure.

Table 3.1 Behavioural and demographic characteristics of people notified with gonorrhoea by Aboriginality, WA, 2022

Behavioural and demographic characteristics		Aboriginality					
		Aboriginal (n=621)		non-Aboriginal (n=1,074)		Total (n=1,704)	
		Number	Percent	Number	Percent	Number	Percent
Sex	Male	308	49.6%	745	69.4%	**1,061**	**62.3%**
	Female	313	50.4%	329	30.6%	**643**	**37.7%**
Clinical setting	Public hospital/community health clinic	229	36.9%	64	6.0%	**293**	**17.2%**
	Sexual health clinic/family planning clinic	10	1.6%	408	38.0%	**420**	**24.6%**
	Aboriginal medical service	243	39.1%	6	0.6%	**249**	**14.6%**
	General practice	74	11.9%	551	51.3%	**632**	**37.1%**
	Prison/detention centre	58	9.3%	16	1.5%	**74**	**4.3%**
	Other	1	0.2%	29	2.7%	**30**	**1.8%**
	Unknown	6	1.0%	0	0.0%	**6**	**0.4%**
Specimen site	Urine (PCR/LCR)	515	82.9%	520	48.4%	**1,039**	**61.0%**
	Urethral swab	53	8.5%	180	16.8%	**236**	**13.8%**
	Cervical/vaginal swab	97	15.6%	166	15.5%	**263**	**15.4%**
	Throat swab	6	1.0%	268	25.0%	**276**	**16.2%**
	Rectal swab	5	0.8%	218	20.3%	**224**	**13.1%**
	Other	2	0.3%	3	0.3%	**5**	**0.3%**
	Unknown	3	0.5%	4	0.4%	**7**	**0.4%**
Treatment	Ceftriaxone and Azithromycin	299	48.1%	800	74.5%	**1,107**	**65.0%**
	Amoxycillin/Probenecid	311	50.1%	15	1.4%	**326**	**19.1%**
	Ciprofloxacin	0	0.0%	34	3.2%	**34**	**2.0%**
	Other drugs	13	2.1%	35	3.3%	**48**	**2.8%**
	Unknown	0	0.0%	0	0.0%	**0**	**0.0%**
Sexual exposure	Person(s) of opposite sex only	413	66.5%	551	51.3%	**968**	**56.8%**
	Person(s) of same sex only	19	3.1%	385	35.8%	**406**	**23.8%**
	Person(s) of either sex	1	0.2%	36	3.4%	**37**	**2.2%**
	No sexual contact	0	0.0%	2	0.2%	**2**	**0.1%**
	Unknown	188	30.3%	100	9.3%	**291**	**17.1%**
Current sex worker	Yes	0	0.0%	17	1.6%	**17**	**1.0%**
	No	430	69.2%	906	84.4%	**1,341**	**78.7%**
	Unknown	191	30.8%	151	14.1%	**346**	**20.3%**

Notes: Specimen sites and treatments are not mutually exclusive
Only enhanced surveillance forms with behavioural and demographic characteristics identified were included.

Table 3.2 Behavioural and demographic characteristics of people notified with gonorrhoea by exposure category, WA, 2022

Behavioural and demographic characteristics		Exposure category							
		MSM (n=433)		Heterosexual Male (n=465)		Female (n=643)		Total (n=1,704)	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Aboriginality	Aboriginal	13	3.0%	191	41.1%	313	48.7%	**621**	**36.4%**
	non-Aboriginal	418	96.5%	271	58.3%	329	51.2%	**1,074**	**63.0%**
Area	Metropolitan	410	94.7%	269	57.8%	324	50.4%	**1,050**	**61.6%**
	non-Metropolitan	22	5.1%	192	41.3%	318	49.5%	**648**	**38.0%**
Infection acquired	Western Australia	411	94.9%	433	93.1%	619	96.3%	**1,608**	**94.4%**
	Interstate	6	1.4%	6	1.3%	5	0.8%	**18**	**1.1%**
	Overseas	11	2.5%	19	4.1%	4	0.6%	**37**	**2.2%**
	Unknown	5	1.2%	7	1.5%	15	2.3%	**41**	**2.4%**
Clinical setting	Public hospital/community health clinic	3	0.7%	98	21.1%	144	22.4%	**293**	**17.2%**
	Sexual health clinic/family planning clinic	317	73.2%	48	10.3%	51	7.9%	**420**	**24.6%**
	Aboriginal medical service	4	0.9%	53	11.4%	148	23.0%	**249**	**14.6%**
	General practice	98	22.6%	219	47.1%	261	40.6%	**632**	**37.1%**
	Prison/detention centre	3	0.7%	38	8.2%	26	4.0%	**74**	**4.3%**
	Other	7	1.6%	6	1.3%	12	1.9%	**30**	**1.8%**
	Unknown	1	0.2%	3	0.6%	1	0.2%	**6**	**0.4%**
Specimen site	Urine (PCR/LCR)	98	22.6%	393	84.5%	415	64.5%	**1,039**	**61.0%**
	Urethral swab	60	13.9%	135	29.0%	3	0.5%	**236**	**13.8%**
	Cervical/vaginal swab	N/A	N/A	N/A	N/A	262	40.7%	**263**	**15.4%**
	Throat swab	201	46.4%	29	6.2%	41	6.4%	**276**	**16.2%**
	Rectal swab	199	46.0%	8	1.7%	14	2.2%	**224**	**13.1%**
	Other	2	0.0%	0	0.0%	2	0.3%	**5**	**0.3%**
	Unknown	4	0.9%	1	0.2%	0	0.0%	**7**	**0.4%**
Treatment	Ceftriaxone and Azithromycin	257	59.4%	320	68.8%	434	67.5%	**1,107**	**65.0%**
	Amoxycillin/Probenecid	1	0.2%	2	0.4%	2	0.3%	**7**	**0.4%**
	Ciprofloxacin	28	6.5%	3	0.6%	3	0.5%	**34**	**2.0%**
	Other drugs	12	2.8%	16	3.4%	14	2.2%	**48**	**2.8%**
	Unknown	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
Sexual exposure	Person(s) of opposite sex only	6	1.4%	465	100.0%	497	77.3%	**968**	**56.8%**
	Person(s) of same sex only	395	91.2%	0	0.0%	11	1.7%	**406**	**23.8%**
	Person(s) of either sex	32	7.4%	0	0.0%	5	0.8%	**37**	**2.2%**
	No sexual contact	0	0.0%	0	0.0%	0	0.0%	**2**	**0.1%**
	Unknown	0	0.0%	0	0.0%	130	20.2%	**291**	**17.1%**
Current sex worker	Yes	2	0.5%	0	0.0%	15	2.3%	**17**	**1.0%**
	No	411	94.9%	420	90.3%	472	73.4%	**1,341**	**78.7%**
	Unknown	20	4.6%	45	9.7%	156	24.3%	**346**	**20.3%**

Notes: Specimen sites and treatments are not mutually exclusive
Only enhanced surveillance forms with behavioural and demographic characteristics identified were included.

4 Syphilis

Key points

- There was a total of 16 congenital syphilis notifications over the past ten years.
- The number of infectious syphilis and non-infectious syphilis notifications reached a ten-year peak in 2021.
- Notification rates for infectious syphilis and non-infectious syphilis were highest in the 20 to 39 year age group and 30 to 34 year age group, respectively. The testing rate was highest in the 15 to 24 year age group.
- In comparison to other parts of the state, notification rates for infectious and non-infectious syphilis were highest in the Kimberley and Pilbara regions, respectively.
- The Aboriginal to non-Aboriginal rate ratio was 16:1 for infectious syphilis and 14:1 for non-infectious syphilis.
- In comparison to national crude rates, the WA infectious syphilis crude rate was 21% higher and the non-infectious syphilis crude rate was 19% higher.
- There were marked differences between Aboriginal and non-Aboriginal people in terms of reason for presentation, sex and type of partner and mode of transmission of infectious syphilis.

Syphilis notifications have been classified into 'infectious' (primary syphilis + secondary syphilis + early latent syphilis [less than two years duration]), 'non-infectious' (more than two years or unknown duration) and 'congenital' syphilis.

4.1 Congenital syphilis

4.1.1 Trends over time

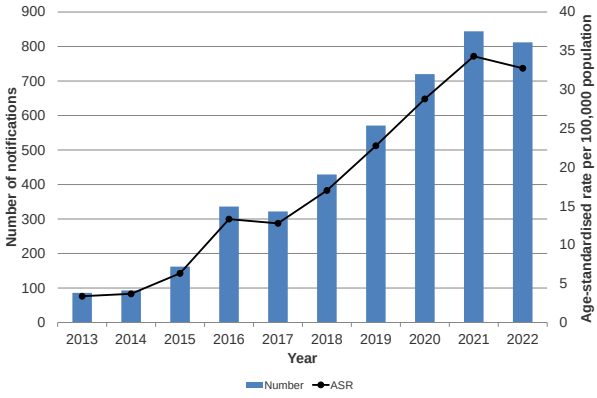
From 2013 to 2022, there were a total of 16 congenital syphilis notifications: two in 2013, one each in 2018 and 2019 and four each in 2020, 2021 and 2022. There were 10 notifications among Aboriginal children (two in the Perth metropolitan region and eight in the non-metropolitan area) and six notifications among non-Aboriginal children (all in the Perth metropolitan region). Five congenital syphilis cases resulted in stillbirth: one in an Aboriginal child in the Perth metropolitan region, three in Aboriginal children in the non-metropolitan area and one in a non-Aboriginal child in the Perth metropolitan region.

4.2 Infectious syphilis

4.2.1 Trends over time

The number of infectious syphilis notifications reached a ten-year peak in 2021 (n=844) (Figure 4.1), reflecting an outbreak among Aboriginal people across northern Australia[2] (see section 4.5), an increase among people with a heterosexual exposure in the Perth metropolitan region, and a continuing increase among MSM. Notifications decreased slightly in 2022 (n=812) (Figure 4.1).

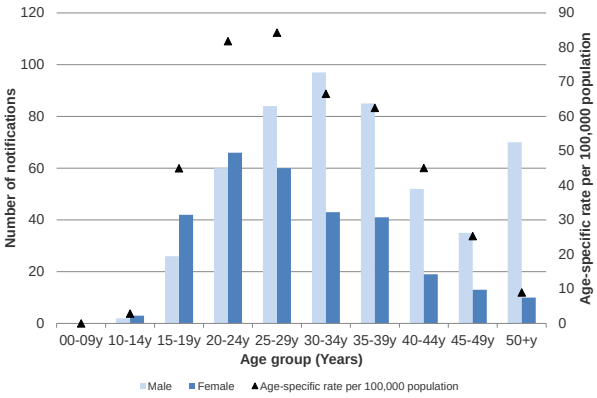
Figure 4.1 Number and ASR of infectious syphilis notifications, WA, 2013 to 2022



4.2.2 Distribution by age and sex

In 2022, 66% of infectious syphilis notifications occurred in people aged 20 to 39 years and the highest notification rate occurred in people aged 25 to 29 years (84/100,000 population). Among those aged 25 years or older, there were more notifications among males (Figure 4.2).

Figure 4.2 Number of infectious syphilis notifications by sex and overall age-specific rate, WA, 2022



Note: The overall age-specific rate includes four notifications in transgender people

4.2.3 Notifications by Aboriginality

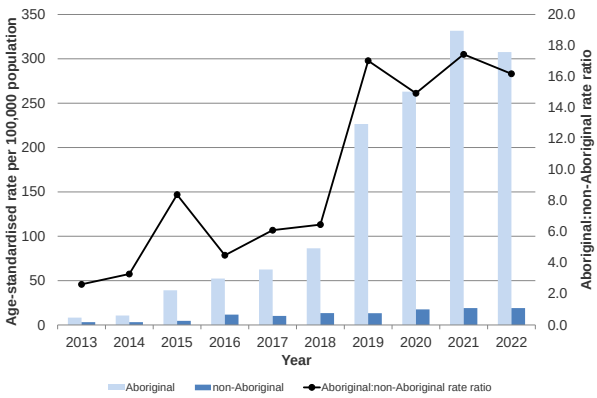
In 2022, 43% of infectious syphilis notifications occurred in Aboriginal people, 57% in non-Aboriginal people and the Aboriginal to non-Aboriginal rate ratio was 16.2:1 (

Figure 4.3). The highest notification rate among Aboriginal people was reported from the Pilbara region and among non-Aboriginal people the highest notification rate was reported from the Kimberley region (680/100,000 and 40/100,000 population, respectively). (Appendix Tables 26[1] and 28[1]).

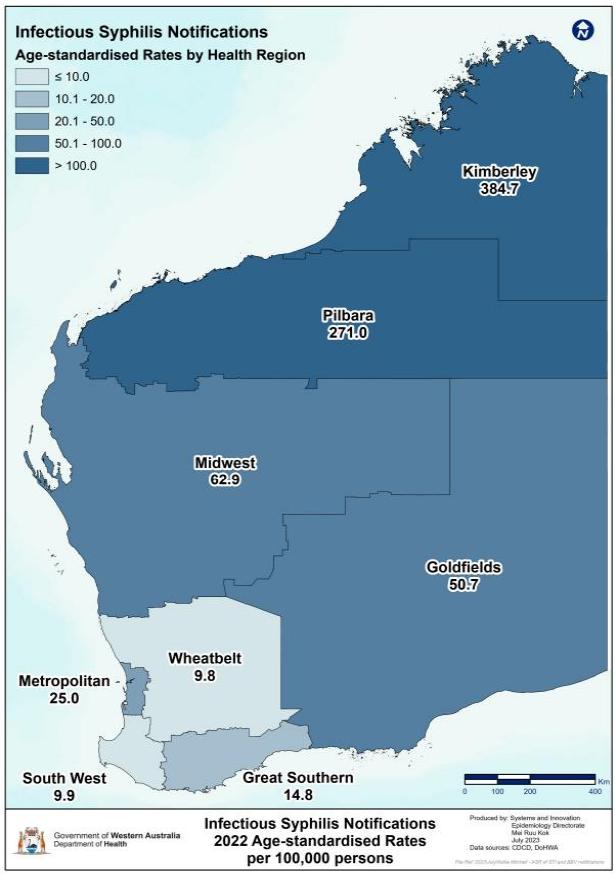
4.2.4 Regional distribution

The highest infectious syphilis notification rate in 2022 was observed in the Kimberley region, where the rate was almost 14-times the overall WA rate (385 vs. 33/100,000 population). There was also a notable increase in the notification rate in the Midwest region in comparison to 2021 (27 to 63/100,000 population) (Map 4.1, Appendix Table 19[1]).

Figure 4.3 ASR of infectious syphilis notifications by Aboriginality, WA, 2013 to 2022



Map 4.1 ASR of infectious syphilis notifications by health region, WA, 2022



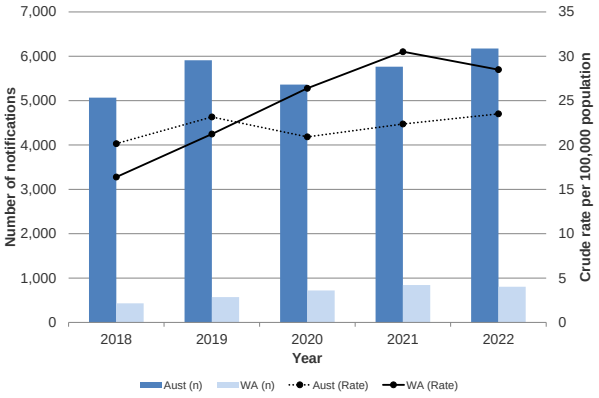
4.2.5 Place of acquisition

Of the 748 (92%) infectious syphilis notifications in 2022 that had place of acquisition recorded, 97% were reported as having been acquired in WA (Appendix Table 30[1]).

4.2.6 Interstate comparisons

In 2022, the crude infectious syphilis rate in WA (29/100,000 population) was the second highest in Australia after the NT (87/100,000 population) and was 21% higher than the national crude rate (24/100,000 population) (Figure 4.4 and Appendix Table 31[1]).

Figure 4.4 Number and crude rate of infectious syphilis notifications, WA and Australia, 2018 to 2022



Note: Data sourced from NNDSS 12 September 2023

4.2.7 Enhanced infectious syphilis surveillance

In 2022, complete enhanced surveillance data were available for 76% (n=620/812) of all infectious syphilis notifications, representing 77% (n=267/349) of notifications among Aboriginal people and 76% (n=352/462) of notifications among non-Aboriginal people.

Approximately equal proportions of completed infectious syphilis enhanced surveillance forms among Aboriginal people were for males and females. The majority were diagnosed at an Aboriginal medical service or a public health/community health clinic as part of a sexual health screen. Most reported acquiring infectious syphilis through vaginal sex with a casual partner (Table 4.1).

In contrast, the majority of non-Aboriginal cases were male and diagnosed at a general practice as a result of presenting with relevant symptoms or as part of a sexual health screen. Most reported having acquired infectious syphilis through oral and/or vaginal sex with a casual partner. Approximately equal proportions of cases reported acquiring the infection from a person of the opposite or same sex (Table 4.1).

In 2022, 26% (n=163/620) of completed infectious syphilis enhanced surveillance forms had an exposure category identified as MSM. The majority were born in Australia (63%; n=102/163) and reported acquiring the infection in WA (90%; n=146/163). Most MSM were non-Aboriginal and were diagnosed at a sexual health clinic or general practice as a result of presenting with relevant symptoms or as part of a sexual health screen. Most reported acquiring infectious syphilis through anal and/or oral sex with a casual partner of the same sex (Table 4.2).

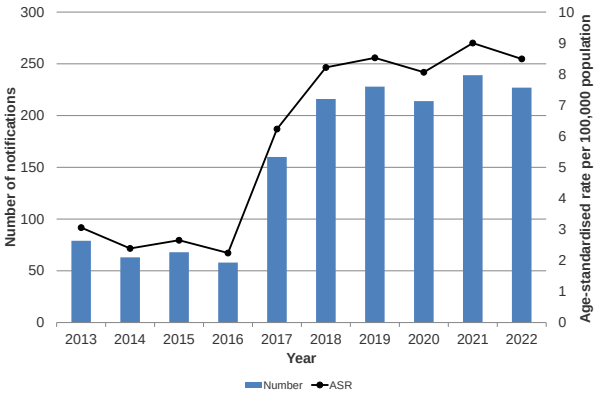
In 2022, 15% (n=40/271) of females of reproductive age were diagnosed with infectious syphilis during pregnancy. The majority of cases (85%; n=34/40) were among Aboriginal females who were diagnosed as a result of a routine antenatal screen (n=29/34) at a public hospital (n=15/34). The median gestation at diagnosis was 16 weeks (range: 4 to 35 weeks). Twenty-five percent (n=10/40) of females who were pregnant at the time of diagnosis had a previous infectious syphilis notification, with a median of 16 months between notifications (range: 7 months to six years). Two cases were also pregnant at the time of the previous infection.

4.3 Non-infectious syphilis

4.3.1 Trends over time

The number of non-infectious syphilis notifications reached a ten-year high in 2021 (n=239). The number of notifications in 2022 (n=227) was 5% lower than the number in 2021 and 7% higher than the 2017 to 2021 five-year average of 211 notifications per year (Figure 4.5).

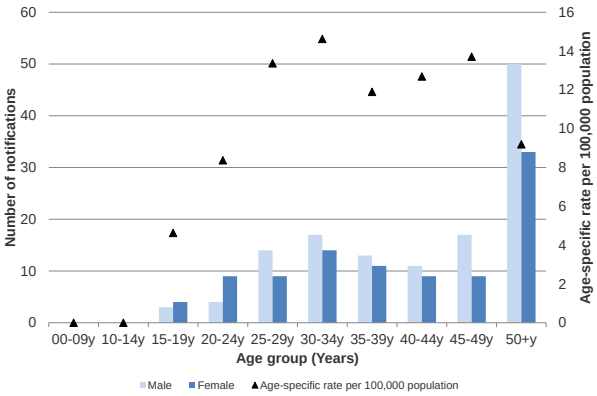
Figure 4.5 Number and ASR of non-infectious syphilis notifications, WA, 2013 to 2022



4.3.2 Distribution by age and sex

In 2022, the highest number of non-infectious syphilis notifications occurred in people aged 50 years or older while the highest notification rate occurred in those aged 30 to 34 years (15/100,000 population) (Figure 4.6). From 2013 to 2022, more males than females were notified with non-infectious syphilis each year (Appendix Figure 7[1]).

Figure 4.6 Number of non-infectious syphilis notifications by sex and overall age-specific rate, WA, 2022

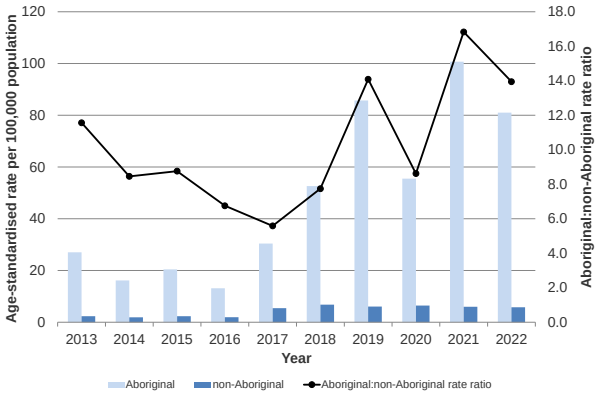


Note: The overall age-specific rate includes one notification in a transgender person

4.3.3 Notifications by Aboriginality

In 2022, 31% of non-infectious syphilis notifications were reported in Aboriginal people, 66% in non-Aboriginal people and 3% of notifications had an unknown Aboriginal status. The Aboriginal to non-Aboriginal rate ratio reached a peak of 16.8:1 in 2021 before decreasing to 13.9:1 in 2022 (Figure 4.7). In 2022, the highest non-infectious syphilis rate among Aboriginal people was reported from the Goldfields region and among non-Aboriginal people the highest rate was reported from the Pilbara region (165/100,000 and 29/100,000 population, respectively) (Appendix Table 28[1]).

Figure 4.7 ASR of non-infectious syphilis notifications by Aboriginality, WA, 2013 to 2022

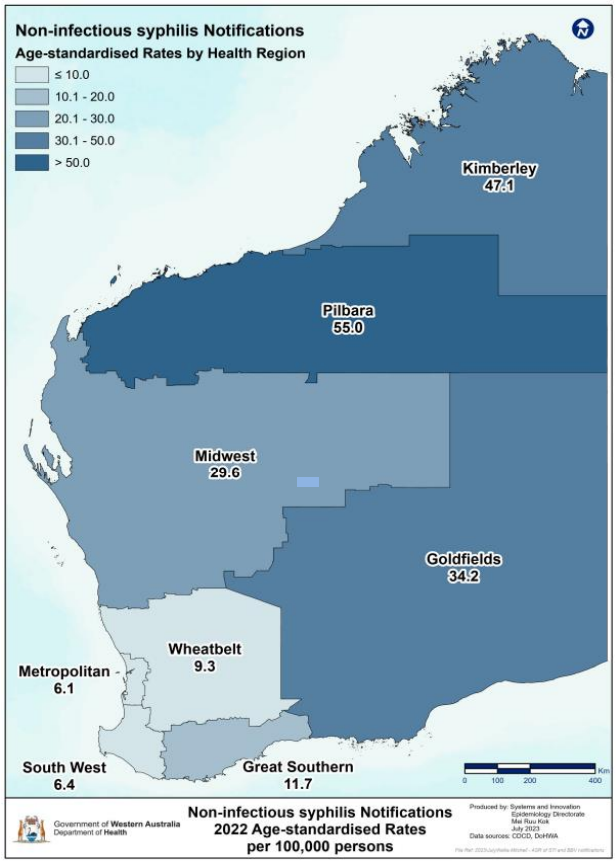


4.3.4 Regional distribution

The highest notification rate of non-infectious syphilis in 2022 was reported from the Pilbara region where the rate was more than six-times the overall WA rate (55 vs. 8/100,000 population) (

Map 4.2 and Appendix Table 21[1]).

Map 4.2 ASR of non-infectious syphilis notifications by health region, WA, 2022



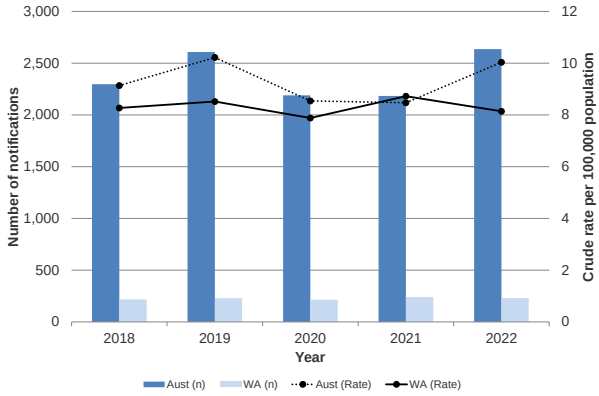
4.3.5 Place of acquisition

Of the 114 (50%) non-infectious syphilis notifications in 2022 that had place of acquisition recorded, 75% were reported as having been acquired in WA (Appendix Table 30[1]).

4.3.6 Interstate comparisons

In 2022, crude non-infectious syphilis rate in WA (8/100,000 population) was the fourth highest in Australia and was 19% lower than the national crude rate (10/100,000 population) (Figure 4.8 and Appendix Table 32[1]).

Figure 4.8 Number and crude rate of non-infectious notifications, WA and Australia, 2018 to 2022



Note: Data sourced from NNDSS 12 September 2023

4.4 Syphilis testing

Between 2013 and 2021, the syphilis testing, notification and test positivity rates increased by 34% (41 to 54/1,000 population), more than three-fold (12 to 41/100,000 population) and more than doubled (0.24% to 0.62%). This indicates that the increase in notifications over this period may have resulted primarily from increased disease transmission (Figure 4.10).

Between 2021 and 2022, the syphilis

testing rate remained stable (to 56/1,000 population) while the notification and test positivity rates decreased by 5% (to 39/100,000 population) and 7% (to 0.58%) respectively. This indicates that the decrease in notifications over this period may have primarily resulted from decreased disease transmission (Figure 4.10).

In 2022, the highest testing rate was observed in people aged 15 to 24 years (92/1,000 population) and increased by 18% from 2013 (79/1,000 population). The highest test positivity rate was among people aged younger than 15 years (1.3%) and increased nine-fold from 2013 (0.14%) (Figure 4.9).

The testing rate among females was double than the rate among males (76 vs. 49/1,000 population), while the test positivity rate among males was more than three-times higher than the rate among females (1.1 vs. 0.32%) (Figure 4.10). From 2020 to 2020, the syphilis testing and notification rates among females increased by 39% (55 to 76/1,000 population) and 27% (23 to 27/100,000 population), respectively, while the test positivity rate remained stable (0.33% to 0.32%) (Figure 4.10). The increase in notifications among females over this period is therefore likely to be the result of increased testing, reflecting the introduction in March 2021, of syphilis screening for all antenatal women at initial booking, 28 weeks and 36 weeks.

Figure 4.9 Syphilis testing rate, notification rate and test positivity rate by age group, WA, 2013 to 2022

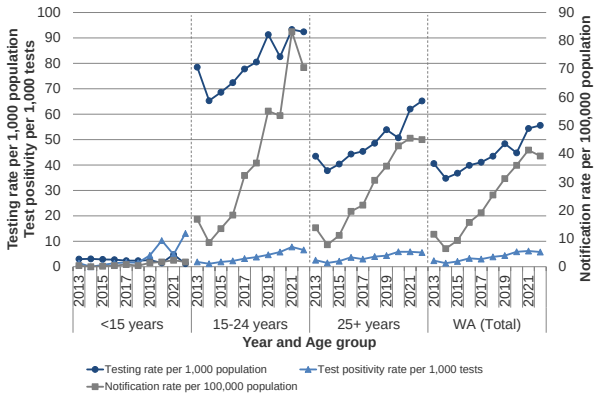
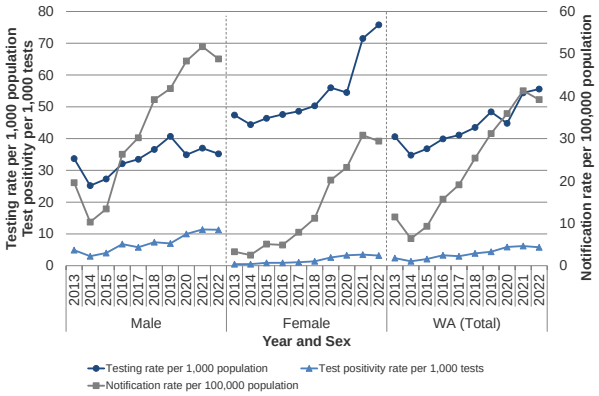


Figure 4.10 Syphilis testing rate, notification rate and test positivity rate by sex, WA, 2013 to 2022



4.5 Outbreaks and other investigations

The high infectious syphilis notification rate in the Kimberley and Pilbara regions reflects an ongoing outbreak among Aboriginal people that commenced in northern QLD in 2011, spread to nearby areas in the NT in 2013, to the Kimberley region in 2014 and then to the Pilbara region in 2018. The outbreak spread to the Goldfields region in 2019.

A total of 630 cases among Aboriginal people (281 male, 349 female) were notified in the Kimberley region since the first case was identified in June 2014, to the end of 2022. Prior to 2014, there had been no infectious syphilis notifications in the Kimberley region for two years. In the Pilbara region, a total of 430 cases among Aboriginal people (192 male, 237 female, 1 transgender) were notified since the first outbreak case was identified in February 2018. A total of 101 cases among Aboriginal people (44 male, 57 female) were notified in the Goldfields region since the first case was identified in January 2019. Almost all cases across these three regions reported heterosexual exposure. Further information about the infectious syphilis outbreak affecting Aboriginal people living in northern Australia is available elsewhere[2].

Separate outbreaks were declared in the Perth metropolitan region in August 2020 and the South West region in October 2020. The demographics and epidemiology in these outbreaks have

been different to those in the outbreak in the remote regions of WA, with continuing high numbers of notifications in the Perth metropolitan region among MSM and an increase in the number of notifications among people with a heterosexual exposure and females who were pregnant at the time of diagnosis.

Table 4.1 Behavioural and demographic characteristics of people notified with infectious syphilis by Aboriginality, WA, 2022

Behavioural and demographic characteristics		Aboriginality					
		Aboriginal (n=267)		non-Aboriginal (n=352)		Total (n=620)	
		Number	Percent	Number	Percent	Number	Percent
Sex	Male	124	46.4%	264	75.0%	**388**	**62.6%**
	Female	143	53.6%	85	24.1%	**229**	**36.9%**
Clinical setting	Public hospital/community health clinic	80	30.0%	24	6.8%	**104**	**16.8%**
	Sexual health clinic/family planning clinic	6	2.2%	91	25.9%	**97**	**15.6%**
	Aboriginal medical service	109	40.8%	0	0.0%	**109**	**17.6%**
	General practice	40	15.0%	207	58.8%	**247**	**39.8%**
	Prison/Detention centre	27	10.1%	11	3.1%	**39**	**6.3%**
	Other	4	1.5%	18	5.1%	**22**	**3.5%**
	Unknown	1	0.4%	1	0.3%	**2**	**0.3%**
Reason for presentation	Symptomatic	76	28.5%	181	51.4%	**257**	**41.5%**
	Opportunistic testing - Sexual health	113	42.3%	121	34.4%	**235**	**37.9%**
	- Antenatal/pap smear	24	9.0%	8	2.3%	**32**	**5.2%**
	Named as contact (i.e. Asymptomatic)	49	18.4%	47	13.4%	**96**	**15.5%**
	Other	11	4.1%	12	3.4%	**23**	**3.7%**
Sex of partner for this episode	Person(s) of opposite sex	219	82.0%	170	48.3%	**389**	**62.7%**
	Person(s) of same sex	11	4.1%	143	40.6%	**154**	**24.8%**
	Person(s) of either sex	2	0.7%	16	4.5%	**18**	**2.9%**
	No sexual contact	0	0.0%	0	0.0%	**0**	**0.0%**
	Unknown	35	13.1%	23	6.5%	**59**	**9.5%**
Infection acquired from	Casual partner	129	48.3%	198	56.3%	**327**	**52.7%**
	Regular partner	68	25.5%	94	26.7%	**162**	**26.1%**
	Sex worker	1	0.4%	7	2.0%	**8**	**1.3%**
	Client (i.e. patient is a sex worker)	0	0.0%	1	0.3%	**1**	**0.2%**
	Other	3	1.1%	2	0.6%	**5**	**0.8%**
	Unknown	66	24.7%	50	14.2%	**117**	**18.9%**
Partner meeting place	Brothel	1	0.4%	1	0.3%	**2**	**0.3%**
	Beat, e.g. public toilet	2	0.7%	1	0.3%	**3**	**0.5%**
	Internet	3	1.1%	67	19.0%	**70**	**11.3%**
	Sex on premises venue/sauna	1	0.4%	4	1.1%	**5**	**0.8%**
	Other	50	18.7%	104	29.5%	**154**	**24.8%**
	Unknown	210	78.7%	175	49.7%	**386**	**62.3%**
Language spoken at home	English only	204	76.4%	262	74.4%	**466**	**75.2%**
	Other	20	7.5%	11	3.1%	**31**	**5.0%**
	Unknown	43	16.1%	79	22.4%	**123**	**19.8%**
Mode of transmission	Vaginal intercourse	178	66.7%	162	46.0%	**340**	**54.8%**
	Anal intercourse	13	4.9%	116	33.0%	**129**	**20.8%**
	Oral sex	32	12.0%	181	51.4%	**213**	**34.4%**
	Other	0	0.0%	0	0.0%	**0**	**0.0%**
	Unknown	79	29.6%	83	23.6%	**163**	**26.3%**

Notes: Reasons for presentation and modes of transmission are not mutually exclusive

Only enhanced surveillance forms with behavioural and demographic characteristics identified were included
Total includes one notification in a transgender person

Table 4.2 Behavioural and demographic characteristics of people notified with infectious syphilis by exposure category, WA, 2022

Behavioural and demographic characteristics		Exposure category							
		MSM (n=163)		Heterosexual Male (n=184)		Female (n=229)		Total (n=620)	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Aboriginality	Aboriginal	11	6.7%	94	51.1%	143	62.4%	**267**	**43.1%**
	non-Aboriginal	152	93.3%	90	48.9%	85	37.1%	**352**	**56.8%**
Clinical setting	Public hospital/community health clinic	6	3.7%	33	17.9%	62	27.1%	**104**	**16.8%**
	Sexual health clinic/family planning clinic	76	46.6%	8	4.3%	10	4.4%	**97**	**15.6%**
	Aboriginal medical service	4	2.5%	39	21.2%	56	24.5%	**109**	**17.6%**
	General practice	64	39.3%	71	38.6%	86	37.6%	**247**	**39.8%**
	Prison/Detention centre	4	2.5%	26	14.1%	7	3.1%	**39**	**6.3%**
	Other	8	4.9%	7	3.8%	7	3.1%	**22**	**3.5%**
	Unknown	1	0.6%	0	0.0%	1	0.4%	**2**	**0.3%**
Reason for presentation	Symptomatic	80	49.1%	92	50.0%	68	29.7%	**257**	**41.5%**
	Opportunistic testing - Sexual health	71	43.6%	58	31.5%	88	38.4%	**235**	**37.9%**
	- Antenatal/pap smear	0	N/A	0	N/A	32	14.0%	**32**	**5.2%**
	Named as contact	16	9.8%	39	21.2%	37	16.2%	**96**	**15.5%**
	Other	4	2.5%	3	1.6%	10	4.4%	**22**	**3.5%**
Sex of partner for this episode	Person(s) of opposite sex	0	0.0%	184	100.0%	203	88.6%	**387**	**62.4%**
	Person(s) of same sex	148	90.8%	0	0.0%	4	1.7%	**152**	**24.5%**
	Person(s) of either sex	15	9.2%	0	0.0%	4	1.7%	**19**	**3.1%**
	No sexual contact	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
	Unknown	0	0.0%	0	0.0%	18	7.9%	**18**	**2.9%**
Infection acquired from	Casual partner	110	67.5%	105	57.1%	107	46.7%	**327**	**52.7%**
	Regular partner	39	23.9%	48	26.1%	74	32.3%	**162**	**26.1%**
	Sex worker	1	0.6%	6	3.3%	1	0.4%	**8**	**1.3%**
	Client (i.e. patient is a sex worker)	0	0.0%	0	0.0%	1	0.4%	**1**	**0.2%**
	Other	0	0.0%	2	1.1%	3	1.3%	**5**	**0.8%**
	Unknown	13	8.0%	23	12.5%	43	18.8%	**117**	**18.9%**
Partner meeting place	Beat, e.g. public toilet	1	0.6%	1	0.5%	1	0.4%	**3**	**0.5%**
	Internet	40	24.5%	14	7.6%	15	6.6%	**70**	**11.3%**
	Brothel	0	0.0%	2	1.1%	0	0.0%	**2**	**0.3%**
	Sex on premises venue/sauna	3	1.8%	1	0.5%	1	0.4%	**5**	**0.8%**
	Other	50	30.7%	54	29.3%	49	21.4%	**154**	**24.8%**
	Unknown	69	42.3%	112	60.9%	163	71.2%	**386**	**62.3%**
Language spoken at home	English only	116	71.2%	142	77.2%	174	76.0%	**466**	**75.2%**
	Other	7	4.3%	11	6.0%	13	5.7%	**31**	**5.0%**
	Unknown	40	24.5%	31	16.8%	42	18.3%	**123**	**19.8%**
Mode of transmission	Vaginal intercourse	14	8.6%	151	82.1%	174	76.0%	**340**	**54.8%**
	Anal intercourse	106	65.0%	10	5.4%	10	4.4%	**129**	**20.8%**
	Oral sex	97	59.5%	53	28.8%	59	25.8%	**213**	**34.4%**
	Other	0	0.0%	0	0.0%	0	0.0%	**0**	**0.0%**
	Unknown	44	27.0%	27	14.7%	53	23.1%	**163**	**26.3%**

Notes: Reasons for presentation and modes of transmission are not mutually exclusive
Only enhanced surveillance forms with behavioural and demographic characteristics identified were included
Total includes 23 males of unknown exposure category and one notification in a transsexual person

5 Donovanosis

Key points

- One donovanosis notification was reported in the period from 2013 to 2022.

5.1 Trends over time

There was one donovanosis notification in the period from 2013 to 2022. In 2014, there was one case of an Aboriginal female in the 30 to 35 year age group who resided in a remote area of WA. The infection was reported to have been acquired in WA and no source was able to be identified.

6 Chancroid

Key points

- No chancroid notifications were reported in the period from 2013 to 2022.

6.1 Trends over time

Chancroid infection is rare in WA, with the last case reported in 2009.

7 HIV

Key points

- In 2022, there were 59 HIV cases newly diagnosed in WA, a 5% increase compared to 2021.
- The number of newly acquired HIV notifications among MSM decreased by 47% between the 2013 to 2017 and 2018 to 2022 periods, reflecting a likely decrease in HIV transmission among MSM.
- 93% of HIV cases diagnosed in 2022 were on treatment.

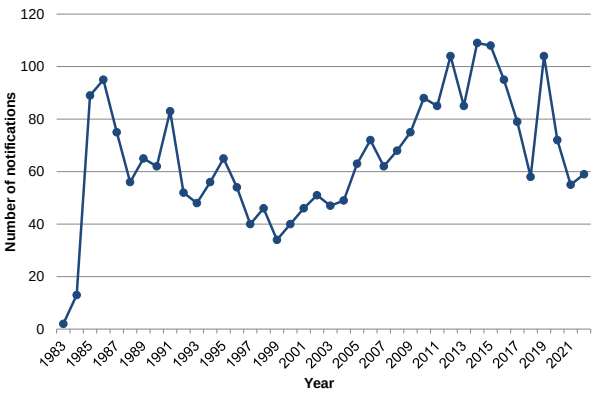
7.1 Trends over time

There were 59 newly diagnosed HIV cases in WA in 2022, which represented a 5% increase compared to 2021 (n=56) but still represented a decrease in cases of 18% since 2020 (n=72) (Figure 7.1).

In 2022, there were an additional 30 HIV notifications in people who were previously diagnosed with HIV either interstate (n=4) or overseas (n=24), and subsequently moved to WA.

In 2022 the age-standardised notification rate for HIV was 2.2/100,000 population, representing a 4% increase compared to 2021 (2.1/100,000 population) (Appendix Table 34[1]).

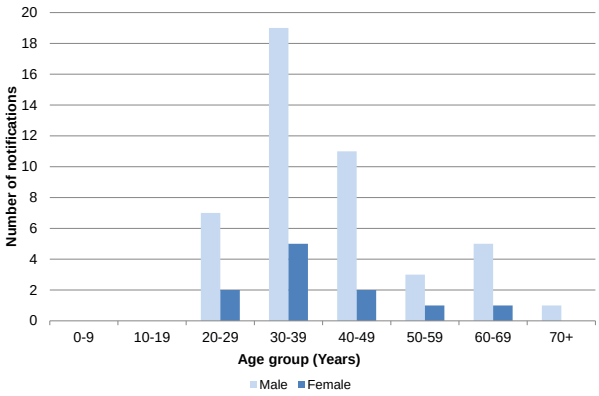
Figure 7.1 Number of HIV notifications, WA, 1983 to 2022 (excludes cases previously diagnosed outside WA)



6.2 Distribution by sex and age

Of the 59 HIV cases newly diagnosed in WA in 2022, 46 were male and 11 were female (Appendix Figure 10[1] and Appendix Table 33[1]). The age-standardised notification rate decreased for males (3.2 to 2.6/100,000 population) and increased slightly in females (0.7 to 0.8/100,000 population), compared to the previous year. In 2022, the median age of newly diagnosed HIV cases in WA was 37 years, ranging from 21 to 72 years. The median age for females was 4 years younger (34 years) than the median age for males (38 years) (Figure 7.2).

Figure 7.2 Number of HIV notifications by age group and sex, WA, 2022 (excludes cases previously diagnosed outside WA)



6.3 Notifications by Aboriginality

In 2022, there were nine HIV cases notified in Aboriginal people. In total there were 21 Aboriginal HIV notifications between 2018 and 2022, ranging between two and nine cases per year (Appendix Figure 11[1] and Appendix Table 35[1]). Between 2018 and 2022, the male to female notification ratio was 4.3:1 for Aboriginal people and 4.4:1 for non-Aboriginal people. Over the same period, most non-Aboriginal cases (87%; n=328) were Perth metropolitan residents. While Aboriginal cases have typically resided in non-metropolitan areas (2013-2017 71%; n=12), in the 2018 to 2022 period, just under half (48%, n=10) resided in the metropolitan area.

6.4 Exposure category

Between the 2013 to 2017 and 2018 to 2022 periods, the number of newly diagnosed HIV cases reporting MSM risk exposures decreased by 47% (286 to 151 cases), while new diagnoses in cases reporting heterosexual acquisition decreased by 4% (171 to 164 cases) (Table 7.1). The most commonly reported risk exposure between 2018 and 2022 was heterosexual acquisition (47%). The proportion of HIV cases reporting MSM risk exposures had decreased from 60% in the 2013 to 2017 period to just under half of all cases in the 2018 to 2022 period (43%). (Table 7.1).

6.5 Place of acquisition

Most of the recent decrease in HIV notifications was reported in Australian-acquired cases, which decreased by 42% (286 to 166 cases) between the 2013 to 2017 and 2018 to 2022 reporting periods (Table 7.2). The majority of Australian-acquired HIV cases in the 2018 to 2022 period were MSM (65%; n=103), most of whom were also born in Australia (57%; n=59).

There was also an 8% decrease in the number of cases who acquired HIV overseas over the two reporting periods (177 to 163 cases). This was mostly seen in cases who acquired HIV in Sub-Saharan Africa, which decreased by 20% (41 to 33 cases) (Table 7.2). In the 2018 to 2022 period, most cases who reported acquisition in Sub-Saharan Africa were heterosexually acquired cases born in that region (73%; n=24). This decrease may have been due to COVID-19 international travel restrictions that were in place from March 2020 until March 2022 in WA. While the overall number of overseas-acquired cases decreased over the two reporting periods, there was a 40% increase in the number of female cases reporting acquisition in South-East Asia (15 to 21) (Table 7.2). However, the majority of these cases were also born in that region (86%; n=18).

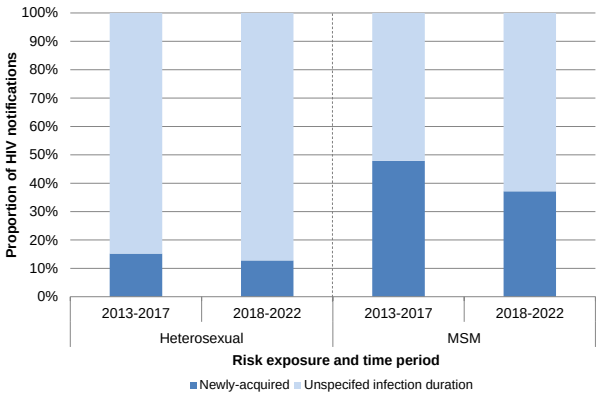
6.6 Newly acquired HIV and late diagnosis

A case is classified as a newly acquired HIV infection if a negative HIV test result or symptoms consistent with HIV seroconversion illness is reported in the 12 months prior to diagnosis. A late HIV diagnosis is a case of unknown infection duration and a CD4 count, closest to the time of diagnosis, of less than 350 cells/µL.

The recent decrease in HIV notifications among MSM was largely due to a decrease in newly acquired infections. Between the 2013 to 2017 and 2018 to 2022 reporting periods, the number of MSM HIV cases diagnosed with evidence of newly acquired infection decreased by 59% (135 to 55 cases), which may reflect a decrease in HIV transmission in recent years. The number of MSM HIV cases with evidence of late diagnosis over the two reporting periods decreased by 13% (60 to 52 cases).

In the 2018 to 2022 period, there was a small decrease in the number (26 to 21 cases) and proportion (15% to 13%) of heterosexually acquired cases reporting evidence of newly acquired HIV (Figure 7.3). However, the number of heterosexually acquired cases with a late diagnosis over increased slightly between the two reporting periods (83 to 86 cases).

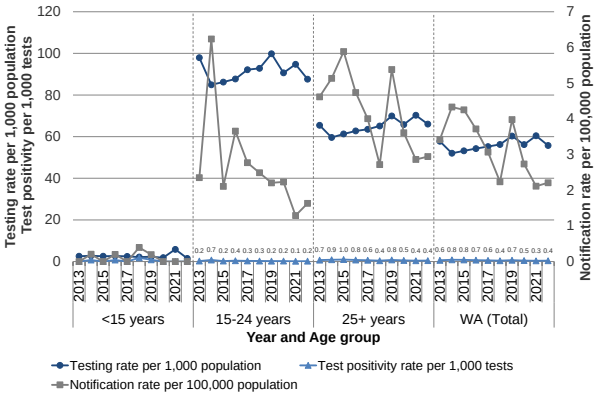
Figure 7.3 Proportion of HIV notifications with newly acquired infection by risk exposure and time period, WA, 2013 to 2022 (excludes cases previously diagnosed outside WA)



6.7 HIV testing

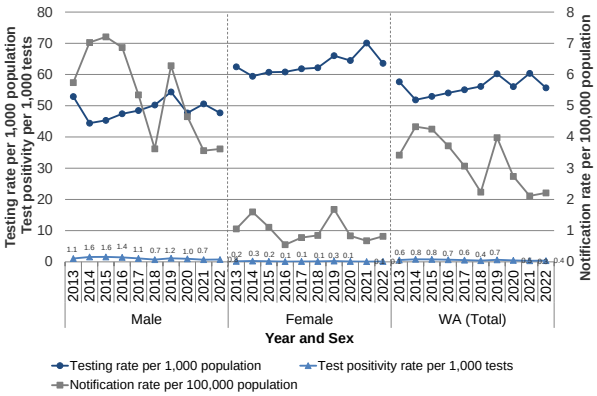
After returning to 2019 testing levels last year in 2021 (60/1,000 population), the HIV testing rate decreased 8% in 2022. The largest decrease in HIV testing in 2022 was seen in males aged 15-24 (61 to 56/1,000 population) (Figure 7.4). The test positivity rate remained stable at 0.04% in 2022.

Figure 7.4 HIV testing rate, notification rate and test positivity rate by age group, WA, 2013 to 2022



In 2022, the highest testing rate was observed in females aged 15 to 24 years (119/1,000 population) while the highest test positivity rate was observed in males aged 25 years or older (0.08%). Overall, the testing rate among females in 2022 was 34% higher than the rate among males (63 vs. 47/1,000 population), but the positivity rate among males (0.07%) was eight-times the positivity rate for females (0.01%) (Figure 7.5).

Figure 7.5 HIV testing rate, notification rate and test positivity rate by sex, WA, 2013 to 2022



6.9 Time to treatment

Ninety-three percent (n=55) of the 59 HIV cases newly diagnosed in 2022 had commenced antiretroviral therapy for HIV by March 2023. Almost all cases on antiretroviral therapy had started treatment within two months of their diagnosis (87%; n=48).

Table 7.1 Number and proportion of persons notified with HIV infection by exposure category, sex and time period, WA, 2012 to 2022 (excludes cases previously diagnosed outside WA)

Exposure category	Year							
	2013-2017			2018-2022			2022	
	Number	Percent	Average	Number	Percent	Average	Number	Percent
Male								
MSM	286	69.4%	57	151	53.0%	30	23	47.9%
Heterosexual	110	26.7%	22	108	37.9%	22	15	31.3%
IDU	7	1.7%	1	9	3.2%	2	5	10.4%
Vertical	2	0.5%	0	1	0.4%	0	0	0.0%
Recipient of blood products	1	0.2%	0	0	0.0%	0	0	0.0%
Needlestick/splash	3	0.7%	1	1	0.4%	0	0	0.0%
Unknown/other	3	0.7%	1	15	5.3%	3	5	10.4%
Male Total	**412**	**100.0%**	**82**	**285**	**100.0%**	**57**	**48**	**100.0%**
Female								
Heterosexual	61	95.3%	12	56	87.5%	11	9	81.8%
IDU	1	1.6%	0	3	4.7%	1	1	9.1%
Vertical	0	0.0%	0	2	3.1%	0	0	0.0%
Recipient of blood products	0	0.0%	0	1	1.6%	0	0	0.0%
Needlestick/splash	0	0.0%	0	1	1.6%	0	1	9.1%
Unknown/other	2	3.1%	0	1	1.6%	0	0	0.0%
Female Total	**64**	**100.0%**	**13**	**64**	**100.0%**	**13**	**11**	**100.0%**
Total notifications								
MSM	286	60.1%	57	151	43.3%	30	23	39.0%
Heterosexual	171	35.9%	34	164	47.0%	33	24	40.7%
IDU	8	1.7%	2	12	3.4%	2	6	10.2%
Vertical	2	0.4%	0	3	0.9%	1	0	0.0%
Recipient of blood products	1	0.2%	0	1	0.3%	0	0	0.0%
Needlestick/splash	3	0.6%	1	2	0.6%	0	1	1.7%
Unknown/other	5	1.1%	1	16	4.6%	3	5	8.5%
Grand Total*	**476**	**100.0%**	**95**	**349**	**100.0%**	**70**	**59**	**100.0%**

Notes: MSM includes homosexual and bisexual men who also injected drugs
Average = the average number of cases notified each year in that period and subgroup
* Includes four notifications in the 2013-2017 period and three cases in the 2018-2022 period who were transgender.

Table 7.2 Number and proportion of persons notified with HIV infection by country/region acquired, sex and time period, WA, 2013 to 2022 (excludes cases previously diagnosed outside WA)

Country/region HIV acquired	Year							
	2013-2017			2018-2022			2022	
	Number	Percent	Average	Number	Percent	Average	Number	Percent
Male								
Australia	261	63.3%	52	142	49.8%	28	25	52.1%
Overseas	138	33.5%	28	124	43.5%	25	17	35.4%
South-East Asia	82	19.9%	16	84	29.5%	17	9	18.8%
Europe	5	1.2%	1	6	2.1%	1	1	2.1%
Sub-Saharan Africa	22	5.3%	4	19	6.7%	4	2	4.2%
Other	29	7.0%	6	15	5.3%	3	5	10.4%
Not stated	13	3.2%	3	19	6.7%	4	6	12.5%
Male Total	**412**	**100.0%**	**82**	**285**	**100.0%**	**57**	**48**	**100.0%**
Female								
Australia	25	39.1%	5	24	37.5%	5	7	63.6%
Overseas	39	60.9%	8	39	60.9%	8	4	36.4%
South-East Asia	15	23.4%	3	21	32.8%	4	0	0.0%
Europe	2	3.1%	0	1	1.6%	0	0	0.0%
Sub-Saharan Africa	19	29.7%	4	14	21.9%	3	4	36.4%
Other	3	4.7%	1	3	4.7%	1	0	0.0%
Not stated	0	0.0%	0	1	1.6%	0	0	0.0%
Female Total	**64**	**100.0%**	**13**	**64**	**100.0%**	**13**	**11**	**100.0%**
Total notifications*								
Australia	286	60.1%	57	166	47.6%	33	32	54.2%
Overseas	177	37.2%	35	163	46.7%	33	21	35.6%
South-East Asia	97	20.4%	19	105	30.1%	21	9	15.3%
Europe	7	1.5%	1	7	2.0%	1	1	1.7%
Sub-Saharan Africa	41	8.6%	8	33	9.5%	7	6	10.2%
Other	32	6.7%	6	18	5.2%	4	5	8.5%
Not stated	13	2.7%	3	20	5.7%	4	6	10.2%
Grand Total*	**476**	**100.0%**	**95**	**349**	**100.0%**	**70**	**59**	**100.0%**

Notes: Average = the average number of cases notified each year in that period and subgroup
*Includes four notifications in the 2013-2017 period and three cases in the 2018-2022 period who were transgender.

8 Hepatitis B

Key points

- The number of newly acquired and unspecified hepatitis B notifications were lower in comparison to the previous five-year average.
- Notification rates for newly acquired and unspecified hepatitis B were highest in the 40 to 44 year and 35 to 39 year age groups, respectively. The testing rate was highest in the 15 to 24 year age group.
- In comparison to other parts of the state, notification rates for newly acquired and unspecified hepatitis B were highest in the South West and Kimberley regions, respectively.
- Aboriginal to non-Aboriginal rate ratios for newly acquired and unspecified hepatitis B were 2.1:1 and 2.8:1, respectively.
- The majority of newly acquired infections were acquired in WA and the majority of unspecified hepatitis B infections were acquired overseas.
- In comparison to the national crude rates, the WA newly acquired hepatitis B crude rate was slightly higher and the unspecified hepatitis B crude rate was lower.

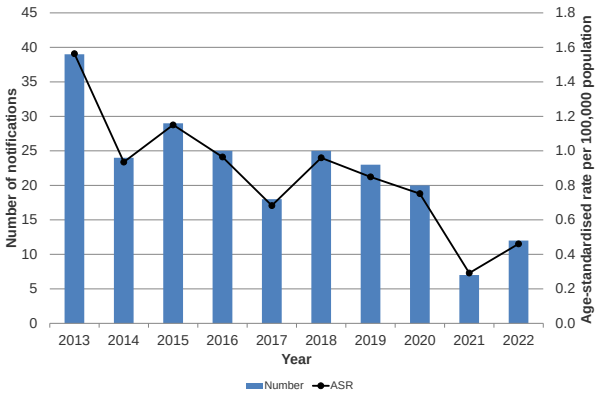
Hepatitis B notifications are classified as 'newly acquired' (evidence of infection having been acquired in the 24 months prior to diagnosis) or 'unspecified' (infections of unknown duration).

8.1 Newly acquired hepatitis B

8.1.1 Trends over time

The number of newly acquired hepatitis B notifications in the last ten years peaked in 2013 (n=39). The number of notifications in 2022 (n=12) was 71% higher than the number of notifications in 2021 (n=7) and 36% lower than the 2017 to 2021 five-year average of 19 notifications per year (Figure 8.1). Newly acquired hepatitis B notifications represented 3% of total hepatitis B notifications in 2022 (Appendix Figure 12[1]).

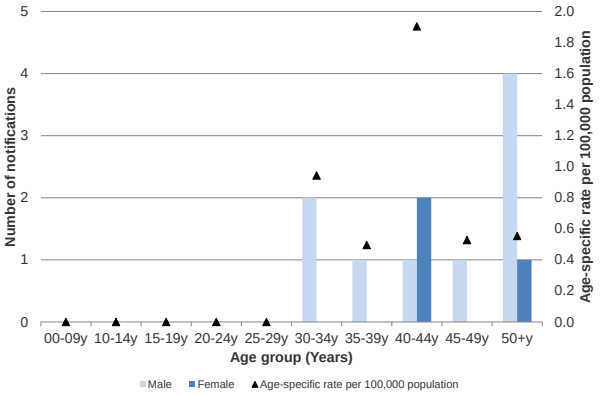
Figure 8.1 Number and ASR of newly acquired hepatitis B notifications, WA, 2013 to 2022



8.1.2 Distribution by age and sex

In 2022, 75% of newly acquired hepatitis B notifications were recorded among people aged 40 years or older and the highest notification rate occurred in people aged 40 to 44 years (2/100,000 population) (Figure 8.2). From 2013 to 2022, more males than females were notified with newly acquired hepatitis B each year (Appendix Figure 13[1]).

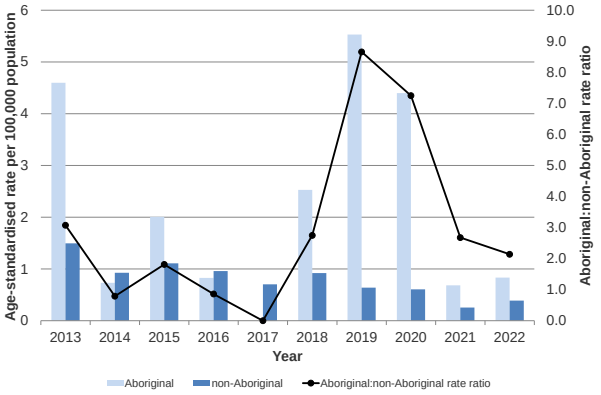
Figure 8.2 Number of newly acquired hepatitis B notifications by sex and overall age-specific rate, WA, 2022



8.1.3 Notifications by Aboriginality

In 2022, one newly acquired hepatitis B notification was reported in an Aboriginal person, ten notifications were reported in non-Aboriginal people and one notification had an unknown Aboriginal status (Appendix Figure 15[1]). Since 2013, the rates of newly acquired hepatitis B have generally been higher among Aboriginal people compared to non-Aboriginal people. The Aboriginal to non-Aboriginal rate ratio reached a peak of 8.7:1 in 2021 before decreasing to 2.1:1 in 2022 (Figure 8.3 and Appendix Table 40[1]).

Figure 8.3 ASR of newly acquired hepatitis B notifications by Aboriginality, WA, 2013 to 2022

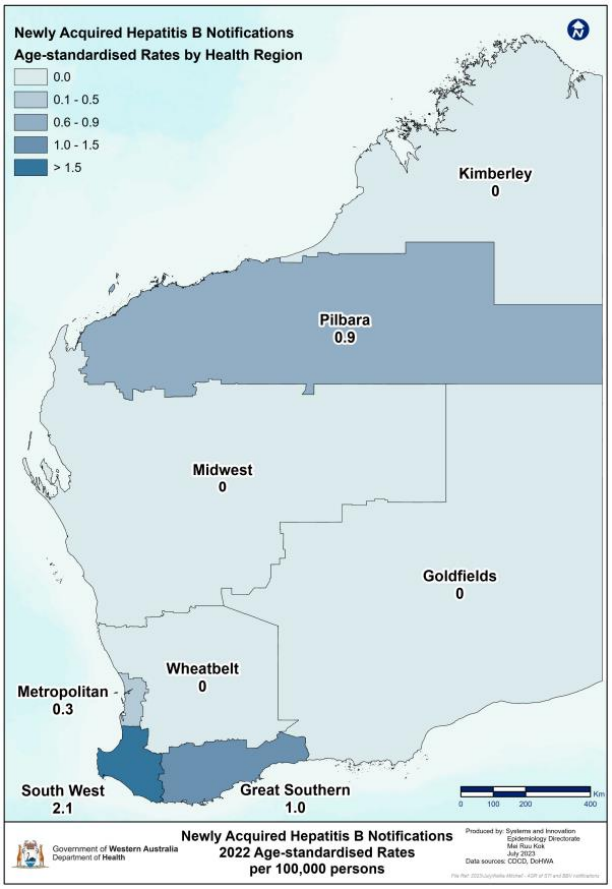


8.1.4 Regional distribution

The highest newly acquired hepatitis B notification rate in 2022 was observed in the South West region (2.1/100,000 population), although this was based on only four notifications.

No notifications were reported from the Goldfields, Kimberley, Midwest or Wheatbelt regions (Map 8.1 and Appendix Table 37[1]).

Map 8.1 ASR of newly acquired hepatitis B notifications by health region, WA, 2022



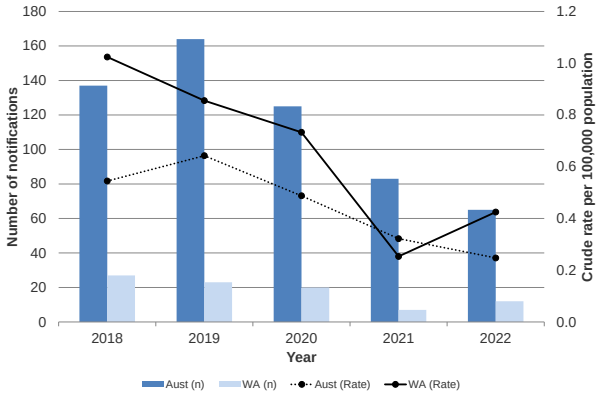
8.1.5 Place of acquisition

Of the eight (67%) newly acquired hepatitis B notifications in 2021 that had place of acquisition recorded, 88% were reported as having been acquired in WA (Appendix Table 42[1]).

8.1.6 Interstate comparisons

In 2022, crude newly acquired hepatitis B notification rates ranged from 0.0/100,000 population to 1.2/100,000 population. The crude rate for WA in 2022 was slightly higher than the national crude rate (0.4 vs. 0.2/100,000 population) (Figure 8.4 and Appendix Table 43[1]).

Figure 8.4 Number and crude rate of newly acquired hepatitis B notifications, WA and Australia, 2018 to 2022



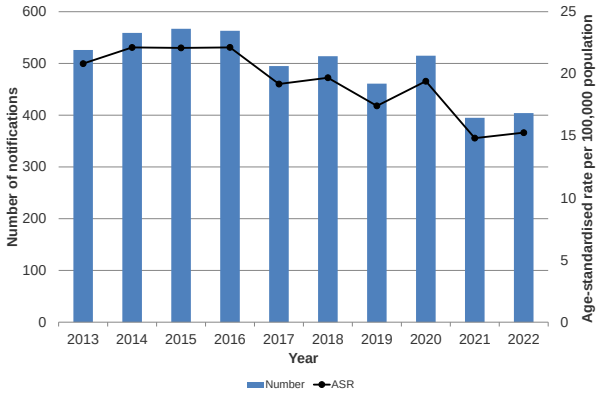
Note: Data sourced from NNDSS 12 September 2023

8.2 Unspecified hepatitis B

8.2.1 Trends over time

Unspecified hepatitis B notifications in WA reached a peak of 567 in 2015. The number of notifications in 2022 (n=404) was comparable to that reported in 2021 (n=395) and was 15% lower than the 2017 to 2021 five-year average of 476 notifications per year (Figure 8.5 and Appendix Figure 12[1]).

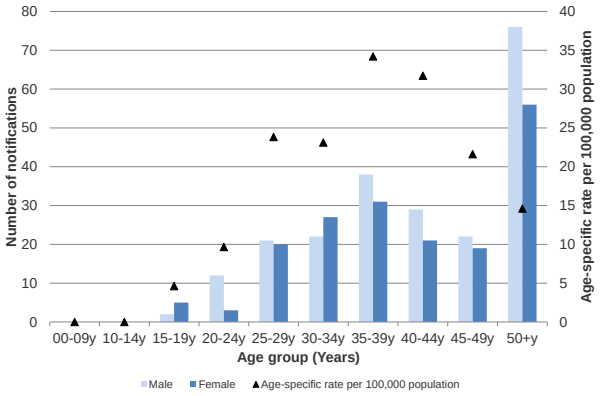
Figure 8.5 Number and ASR of unspecified hepatitis B notifications, WA, 2013 to 2022



8.2.2 Distribution by age and sex

While the highest number of unspecified hepatitis B notifications in 2022 occurred in people aged 50 years or over, the highest rate was observed in people aged 35 to 39 years (34/100,000 population). More males than females were notified each year except for 2016 and 2020, when more females than males were notified (Figure 8.6 and Appendix Figure 14[1]).

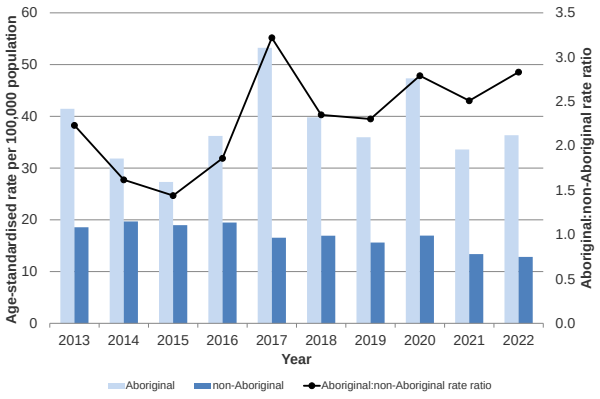
Figure 8.6 Number of unspecified hepatitis B notifications by sex and overall age-specific rate, WA, 2022



8.2.3 Notifications by Aboriginality

In 2022, 8% of unspecified hepatitis B notifications were reported in Aboriginal people, 81% in non-Aboriginal people and 11% of notifications were of unknown Aboriginal status. The Aboriginal to non-Aboriginal rate ratio reached a peak of 3.2:1 in 2017 and fluctuated to 2.8:1 in 2022 (Figure 8.7). In 2022, the highest unspecified hepatitis B rate among Aboriginal people was reported from the Midwest region and among non-Aboriginal people the highest rate was reported from the Perth metropolitan region (98/100,000 and 14/100,000 population, respectively) (Appendix Table 40[1]).

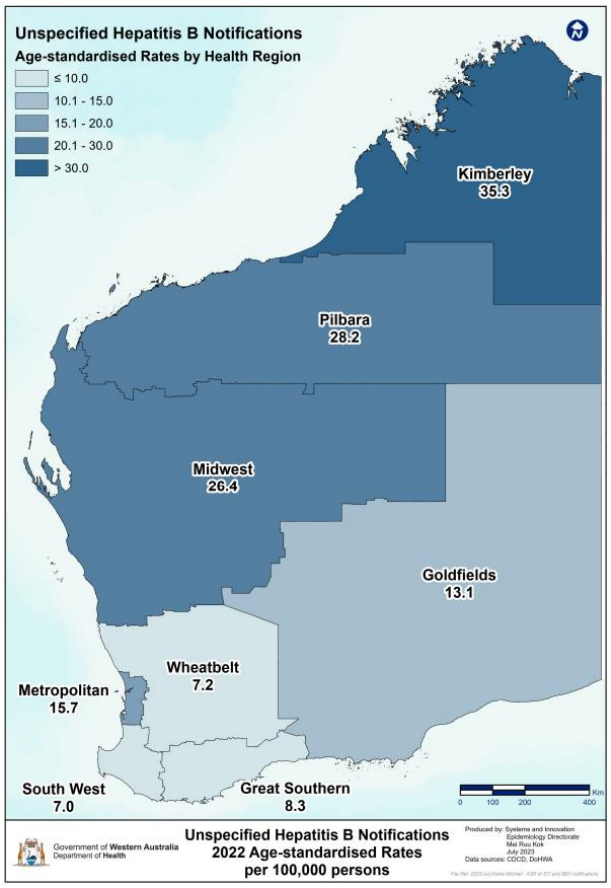
Figure 8.7 ASR of unspecified hepatitis B notifications by Aboriginality, WA, 2013 to 2022



8.2.4 Regional distribution

The highest unspecified hepatitis B notification rate in 2022 was reported from the Kimberley region, where the rate was more than double the overall WA rate (35 vs. 15/100,000 population) (Map 8.2).

Map 8.2 ASR of unspecified hepatitis B notifications by health region, WA, 2022



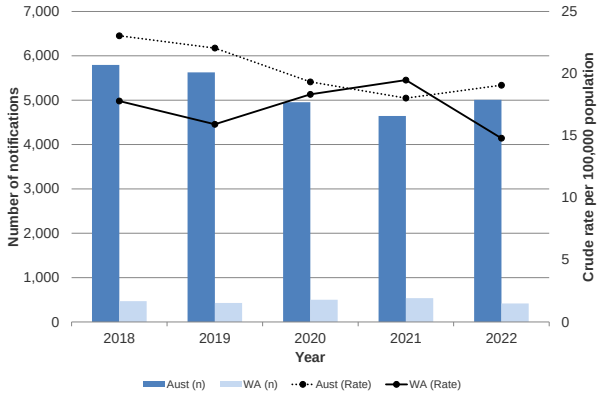
8.2.5 Place of acquisition

Of the 104 (26%) unspecified hepatitis B notifications in 2022 that had place of acquisition recorded, 86% were reported as having been acquired overseas, predominately in North-East Asia and South-East Asia, and 13% in WA (Appendix Table 42[1]).

8.2.6 Interstate comparisons

In 2022, crude unspecified hepatitis B notification rates ranged from 10.5/100,000 population to 24.9/100,000 population. The crude rate for WA was 22% lower than the national crude rate (14.8 vs. 19.1/100,000 population) (Figure 8.8 and Appendix Table 44[1]).

Figure 8.8 Number and crude rate of unspecified hepatitis B notifications, WA and Australia, 2018 to 2022



Note: Data sourced from NNDSS 12 September 2023

8.3 Enhanced hepatitis B surveillance

In 2022, enhanced surveillance forms were sent to the diagnosing doctors of all newly acquired hepatitis B infections in WA. As only four forms were completed for the seven newly acquired hepatitis B notifications, no additional detail will be reported.

8.4 Hepatitis B testing

Between 2013 and 2021, the hepatitis B testing rate increased by 28% (48 to 62/1,000 population) while the notification and test positivity rates decreased by 59% (38 to 16/100,000 population) and 64% (0.56% to 0.20%). This indicates that the decrease in notifications over this period may have resulted primarily from decreased disease transmission (Figure 8.10).

Between 2021 and 2022, the hepatitis B testing rate decreased by 6% (to 58/1,000 population) while the notification rate remained stable (at 16/100,000 population) and the test positivity rate increased by 10% (to 0.22%). This indicates that the stability in notifications over this period may have been due to the combined effects of decreased testing and increased disease transmission (Figure 8.10).

In 2022, the highest testing rate was observed in people aged 15 to 24 years (87/1,000 population) and increased by 21% from 2013 (72/1,000 population). The highest test positivity rate was in people aged 25 years or older (0.26%) and decreased by 52% from 2013 (0.54%) (Figure 8.9).

In 2022, the testing rate among females was 48% higher than the rate among males (69 vs. 46/1,000 population), while the test positivity rate among males was 76% higher than the rate among females (0.30 vs. 0.17%) (Figure 8.10).

Figure 8.9 Hepatitis B testing rate, notification rate and test positivity rate by age group, WA, 2013 to 2022

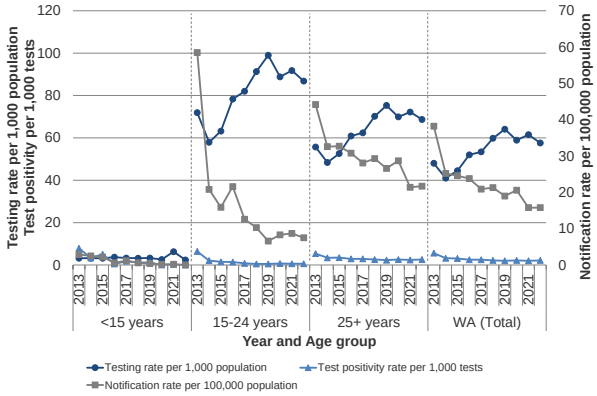
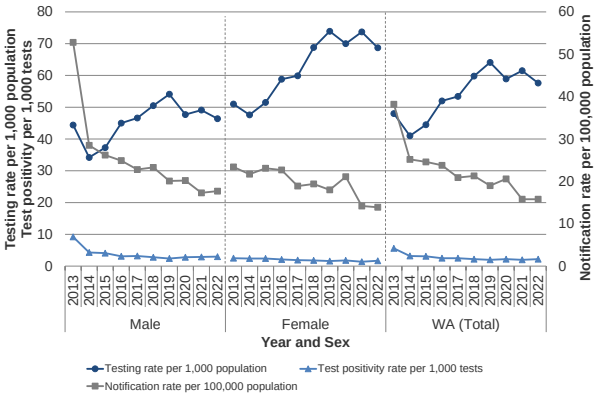


Figure 8.10 Hepatitis B testing rate, notification rate and test positivity rate by sex, WA, 2013 to 2022



8.5 Outbreaks and other investigations

No significant outbreaks or clusters of hepatitis B infections were reported in 2022.

9 Hepatitis C

Key points

- The number of newly acquired and unspecified hepatitis C notifications both reached a ten-year low in 2022.
- Notification rates for newly acquired and unspecified hepatitis C were highest in the 20 to 24 year and 25 to 29 year age groups, respectively. The testing rate was highest in the 15 to 24 year age group.
- In comparison to other parts of the state, notification rates for newly acquired and unspecified hepatitis C were higher in the Great Southern and Midwest regions, respectively.
- Aboriginal to non-Aboriginal rate ratios for newly acquired and unspecified infections were 20:1 and 14:1, respectively.
- The majority of newly acquired and unspecified hepatitis C infections were acquired in WA.
- In comparison to the national crude rates, the WA newly acquired hepatitis C crude rate was comparable and the unspecified hepatitis C crude rate was 10% higher.
- There were marked differences between Aboriginal and non-Aboriginal people in terms of reasons for testing and risk factors for hepatitis C.

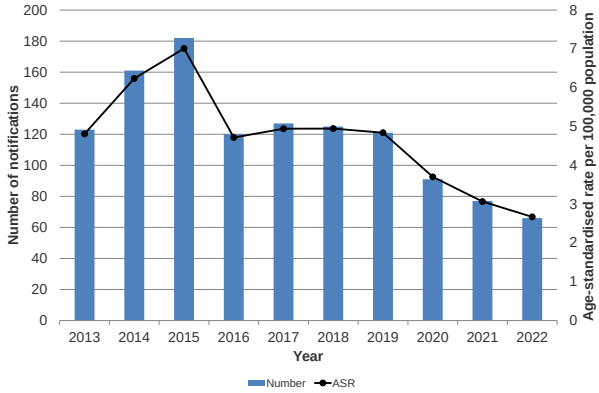
Hepatitis C notifications are classified as 'newly acquired' (evidence of infection having been acquired in the 24 months prior to diagnosis) or 'unspecified' (infections of unknown duration).

9.1 Newly acquired hepatitis C

9.1.1 Trends over time

The number of newly acquired hepatitis C notifications peaked at 182 in 2015 before decreasing to a ten-year low of 66 in 2022 (Figure 9.1). Newly acquired hepatitis C notifications represented 8% of total hepatitis C notifications in 2022 (Appendix Figure 17[1]).

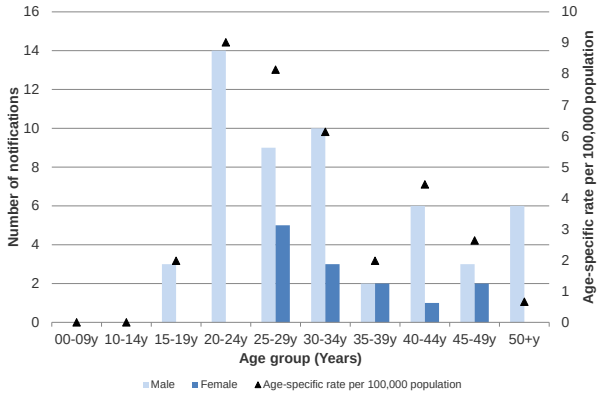
Figure 9.1 Number and ASR of newly acquired hepatitis C notifications, WA, 2013 to 2022



9.1.2 Distribution by age and sex

In 2022, the highest rate of newly acquired hepatitis C notifications occurred in people aged 20 to 24 years (Figure 9.2). From 2013 to 2022, more males than females were notified with newly acquired hepatitis C each year (Appendix Figure 18[1]).

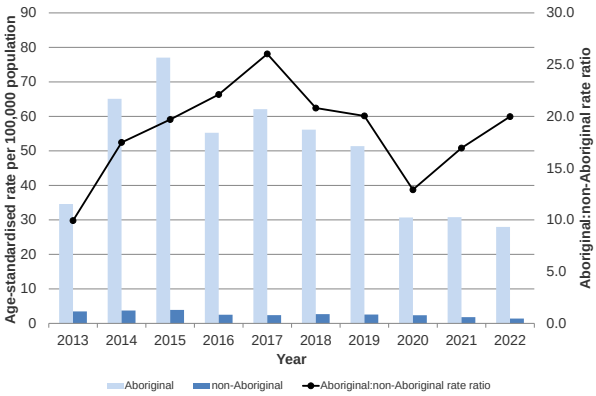
Figure 9.2 Number of newly acquired hepatitis C notifications by sex and overall age-specific rate, WA, 2022



9.1.3 Notifications by Aboriginality

The Aboriginality of all newly acquired hepatitis C notifications has been known since 2013 (Appendix Figure 20[1]). The Aboriginal to non-Aboriginal rate ratio reached a ten-year high of 26.0:1 in 2017 before halving to 12.9:1 in 2020 and increasing again to 20.0:1 in 2022 (Figure 9.3). In 2022, the highest notification rate among both Aboriginal and non-Aboriginal people was observed in the Great Southern region (101 and 7/100,000 population), although this was based on only three notifications each (Appendix Table 49[1]).

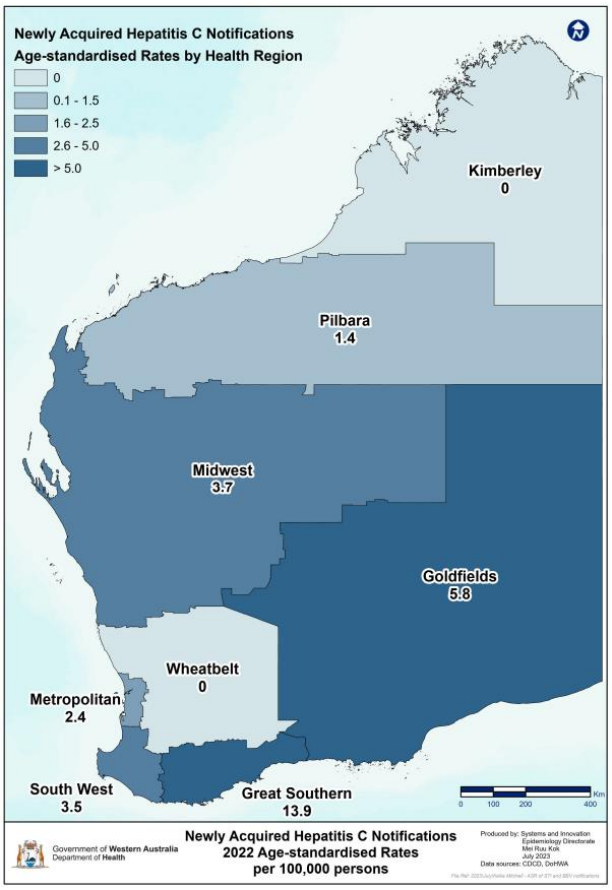
Figure 9.3 ASR of newly acquired hepatitis C notifications by Aboriginality, WA, 2013 to 2022



9.1.4 Regional distribution

The highest rate of newly acquired hepatitis C notifications in 2022 was reported from the Great Southern region (14/100,0000 population), although this was based on only six notifications. No notifications were reported from the Kimberley or Wheatbelt regions (Map 9.1 and Appendix Table 46[1]).

Map 9.1 ASR of newly acquired hepatitis C notifications by health region, WA, 2022



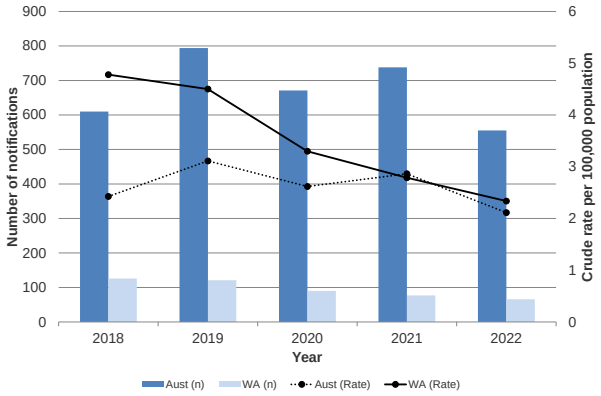
9.1.5 Place of acquisition

Of the 50 (76%) newly acquired hepatitis C notifications in 2022 that had place of acquisition recorded, 98% were reported as having been acquired in WA (Appendix Table 51[1]).

9.1.6 Interstate comparisons

In 2022, the crude newly acquired hepatitis C notification rate in WA was comparable to the national crude rate (2.3 vs. 2.1/100,000 population) (Figure 9.4 and Appendix Table 52[1]).

Figure 9.4 Number and crude rate of newly acquired hepatitis C notifications, WA and Australia, 2018 to 2022



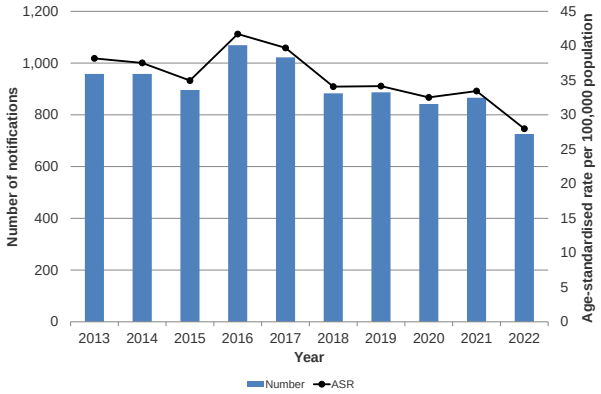
Note: Data sourced from NNDSS 12 September 2023

9.2 Unspecified hepatitis C

9.2.1 Trends over time

The number of unspecified hepatitis C notifications peaked at 1,069 in 2016 before reaching a ten-year low of 726 in 2022 (Figure 9.5).

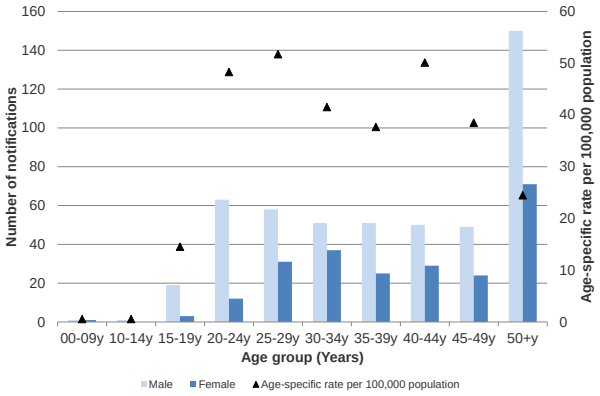
Figure 9.5 Number and ASR of unspecified hepatitis C notifications, WA, 2013 to 2022



9.2.2 Distribution by sex and age

While the highest number of unspecified hepatitis C notifications in 2022 occurred in people aged 50 years or over, the highest rate was observed in people aged 25 to 29 years (Figure 9.6). From 2013 to 2022, more males than females were notified each year (Appendix Figure 19[1]).

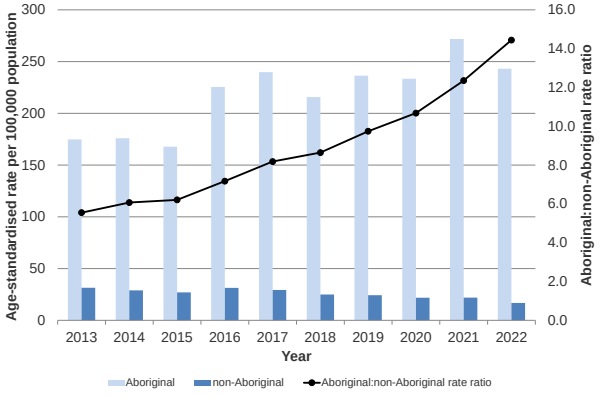
Figure 9.6 Number of unspecified hepatitis C notifications by sex and overall age-specific rate, WA, 2022



9.2.3 Notifications by Aboriginality

In 2022, 35% of unspecified hepatitis C notifications were reported in Aboriginal people, 60% in non-Aboriginal people and 6% of notifications were of unknown Aboriginal status. The Aboriginal to non-Aboriginal rate ratio increased from 5.6:1 in 2013 to a ten-year high of 14.4:1 in 2022 (Figure 9.7). In 2022, the highest unspecified hepatitis C rate among Aboriginal people was reported from the Great Southern region, and among non-Aboriginal people the highest rate was reported from the Kimberley region (411/100,000 and 51/100,000 population, respectively) (Appendix Table 49[1]).

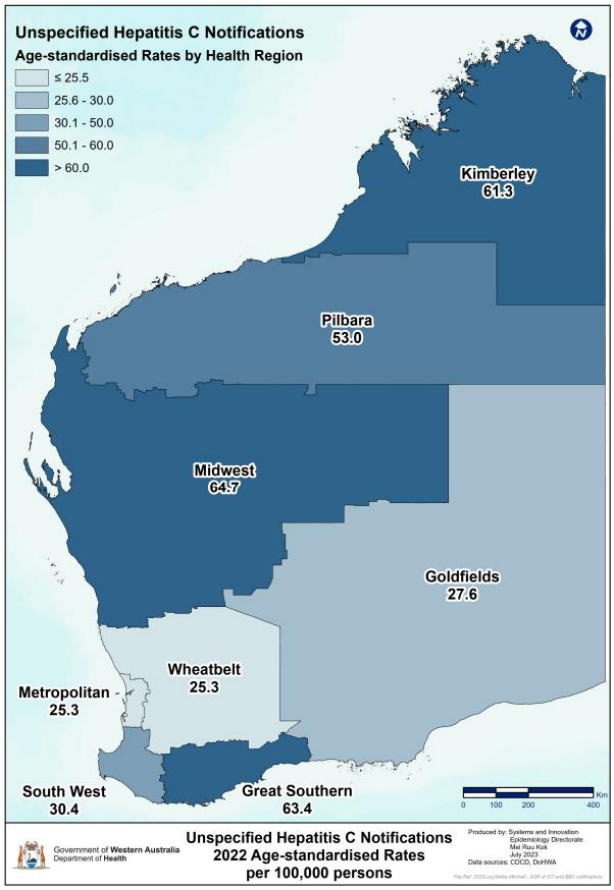
Figure 9.7 ASR of unspecified hepatitis C notifications by Aboriginality, WA, 2013 to 2022



9.2.4 Regional distribution

The highest unspecified hepatitis C notification rate in 2022 was reported from the Midwest region (Map 9.2 and Appendix Table 47[1]).

Map 9.2 ASR of unspecified hepatitis C notifications by health region, WA, 2022



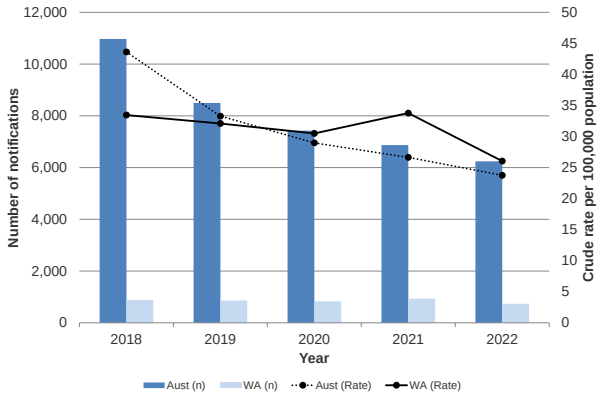
9.2.5 Place of acquisition

Of the 112 (15%) unspecified hepatitis C notifications in 2022 that had place of acquisition recorded, 79% were reported as having been acquired in WA, 13% overseas and 9% interstate (Appendix Table 51[1]).

9.2.6 Interstate comparisons

In 2022, the crude unspecified hepatitis C notification rate in WA was 10% higher than the national crude rate (26.1 vs. 23.8/100,000 population) (Figure 9.8 and Appendix Table 53[1]).

Figure 9.8 Number and crude rate of unspecified hepatitis C notifications, WA and Australia, 2018 to 2022



Note: Data sourced from NNDSS 12 September 2023

9.3 Enhanced hepatitis C surveillance

In 2022, enhanced surveillance forms were sent to the diagnosing doctors of all newly acquired hepatitis C infections and a randomly selected one-third of unspecified hepatitis C infections in WA. Forms were completed for 65% (n=43/66) of newly acquired infections and 46% (n=92/198) of applicable unspecified infections. A completed form was received for 56% (n=62/110) of applicable Aboriginal and 50% (n=72/145) of applicable non-Aboriginal notifications (Table 9.1).

Overall, having a history of risk factors was the most common reason for hepatitis C testing among both Aboriginal and non-Aboriginal people. A greater proportion of Aboriginal people were diagnosed with hepatitis C as part of voluntary prison entry testing while a greater proportion of non-Aboriginal people were diagnosed as a result of an abnormal liver test. Injecting drug use was the most common hepatitis C risk factor for both Aboriginal and non-

Aboriginal people. Overall, when the data were analysed for those people with at least one risk factor identified, 56% reported injecting drug use. However, when the data were limited to only those with 'yes' and 'no' responses to that question, 63% of cases reported a history of injecting drug use. A greater proportion of Aboriginal people had a history of imprisonment as a risk factor for hepatitis C (Table 9.1).

9.4 Hepatitis C testing

Between 2013 and 2021, the hepatitis C testing rate remained stable (55 to 56/1,000 population) while the notification and test positivity rates decreased by 30% (52 to 36/100,000 population) and 14% (0.64% to 0.55%). This indicates that the decrease in notifications over this period may have resulted primarily from decreased disease transmission (Figure 9.10).

Between 2021 and 2022, the hepatitis C testing, notification and test positivity rates decreased by 8% (to 52/1,000 population), 16% (to 30/100,000 population), and 11% (to 0.49%) respectively. This indicates that the decrease in notifications over this period may have been due to the combined effects of decreased testing and disease transmission (Figure 9.10).

In 2022, the highest testing rate was observed in people aged 15 to 24 years (73/1,000 population) and decreased by 15% from 2013 (86/1,000 population). The highest test positivity rate was in people aged 25 years or older (0.49%) and decreased by 28% from 2013 (0.68%) (

Figure 9.9).

In 2022, the testing rate among females was 42% higher than the rate among males (61 vs. 43/1,000 population), while the test positivity rate among males was more than three-times higher than the rate among females (0.85 vs. 0.24%) (Figure 9.10).

Figure 9.9 Hepatitis C testing rate, notification rate and test positivity rate by age group, WA, 2013 to 2022

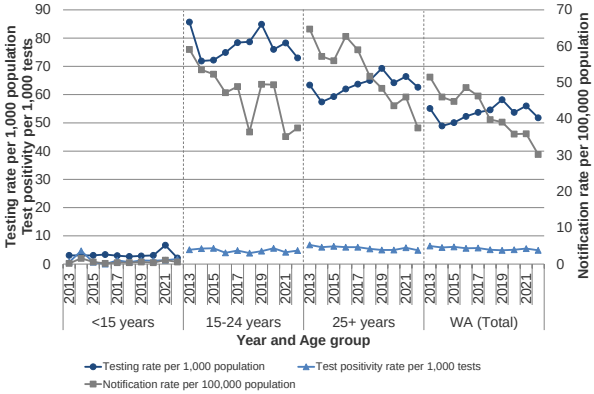
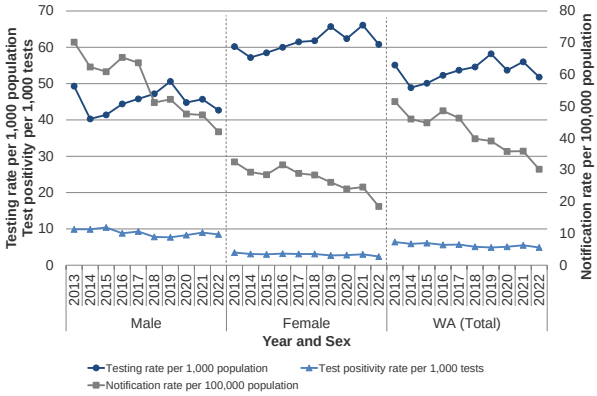


Figure 9.10 Hepatitis C testing rate, notification rate and test positivity rate by sex, WA, 2013 to 2022



9.5 Outbreaks and other investigations

No significant outbreaks or clusters of hepatitis C infections were reported in

2022.

Table 9.1 Behavioural and demographic characteristics of people notified with hepatitis C by Aboriginality, WA, 2022

Behavioural and demographic characteristics		Aboriginality					
		Aboriginal (n=62)		non-Aboriginal (n=72)		Total (n=135)	
		Number	Percent	Number	Percent	Number	Percent
Sex	Male	47	75.8%	52	72.2%	**100**	**74.1%**
	Female	15	24.2%	20	27.8%	**35**	**25.9%**
Reason for testing	History of risk factors	42	67.7%	32	44.4%	**75**	**55.6%**
	Signs/symptoms of hepatitis	1	1.6%	5	6.9%	**6**	**4.4%**
	Abnormal liver test	4	6.5%	25	34.7%	**29**	**21.5%**
	Prison screen	36	58.1%	21	29.2%	**58**	**43.0%**
	Antenatal screen	5	8.1%	3	4.2%	**8**	**5.9%**
	Sexual health screen	4	6.5%	4	5.6%	**8**	**5.9%**
	Employment screen	0	0.0%	0	0.0%	**0**	**0.0%**
	Blood or organ donor	0	0.0%	0	0.0%	**0**	**0.0%**
	Drug/alcohol program screen	1	1.6%	3	4.2%	**4**	**3.0%**
	Migrant/refugee screen	0	0.0%	0	0.0%	**0**	**0.0%**
	Occupational exposure - exposed	0	0.0%	0	0.0%	**0**	**0.0%**
	Occupational exposure - source	0	0.0%	0	0.0%	**0**	**0.0%**
	Patient request	3	4.8%	7	9.7%	**10**	**7.4%**
	Other	8	12.9%	7	9.7%	**15**	**11.1%**
Risk factors	Injecting drug use	42	67.7%	33	45.8%	**76**	**56.3%**
	Blood products/tissues in Australia	1	1.6%	0	0.0%	**1**	**0.7%**
	Blood products/tissues overseas	0	0.0%	0	0.0%	**0**	**0.0%**
	Organ transplant	0	0.0%	1	1.4%	**1**	**0.7%**
	Dialysis	0	0.0%	1	1.4%	**1**	**0.7%**
	Needlestick/biohazardous injury in healthcare worker	0	0.0%	0	0.0%	**0**	**0.0%**
	Needlestick/biohazardous injury in non-healthcare worker	0	0.0%	1	1.4%	**1**	**0.7%**
	Surgical/endoscopy procedure	2	3.2%	2	2.8%	**4**	**3.0%**
	Major dental work	0	0.0%	3	4.2%	**3**	**2.2%**
	Tattoos	9	14.5%	11	15.3%	**20**	**14.8%**
	Acupuncture	0	0.0%	5	6.9%	**5**	**3.7%**
	Ear piercing	4	6.5%	5	6.9%	**9**	**6.7%**
	Body piercing	3	4.8%	3	4.2%	**6**	**4.4%**
	Perinatal transmission	2	3.2%	0	0.0%	**2**	**1.5%**
	Same sex partner with HCV	0	0.0%	1	1.4%	**1**	**0.7%**
	Opposite sex partner with HCV	8	12.9%	6	8.3%	**14**	**10.4%**
	Imprisonment	34	54.8%	24	33.3%	**59**	**43.7%**
	Health care worker with no documented exposure	1	1.6%	0	0.0%	**1**	**0.7%**
	Household contact with HCV	5	8.1%	2	2.8%	**7**	**5.2%**
	Other risk factor	2	3.2%	3	4.2%	**5**	**3.7%**

Notes: Enhanced surveillance forms were sent to the diagnosing doctors of all newly acquired hepatitis C infections and a randomly selected one-third of unspecified hepatitis C infections in WA
Reasons for testing and risk factors are not mutually exclusive
Only enhanced surveillance forms with behavioural and demographic characteristics identified were included

8 Disease prevention and control strategies

The WA Sexual Health and Blood-borne Virus Strategies 2019-2023[3], and the WA Syphilis Action Plan[4], provided the policy, planning and program framework for the comprehensive prevention and control of STIs and BBVs in 2022.

Education, training, health promotion, harm reduction programs and BBV and STI testing and clinical services targeting priority risk groups were provided through non-government agencies supported and funded by the DoH, included:

- Magenta
- Sexual Health Quarters
- Youth Affairs Council of WA
- Sexuality Education Counselling and Consultancy Agency
- Waalitj Foundation
- Aboriginal Health Council of WA
- HepatitisWA
- Peer Based Harm Reduction WA
- Palmerston
- Next Step
- Kimberley Aboriginal Medical Services
- Mawarnkarra Health Service
- Derbarl Yerrigan Aboriginal Health Service
- Street Doctor
- Homeless Health Care
- Southwest Aboriginal Medical Service
- Palmerston
- GP Down South
- WAAC (formerly called the WA AIDS Council).

The DoH also purchased services from WA Country Health Services (WACHS) to support the state-wide Needle and Syringe Program (NSP) and syphilis public health response. The North Metropolitan Health Service was also funded under the WA syphilis response to provide contact tracing and workforce development for general practitioners in the Perth metropolitan area.

8.1 Prevention and education

Comprehensive relationships and sexuality education is supported by online curriculum support materials for schools and young people, teacher training, and a suite of resources for parents and young people. In 2022, there were 14,864 WA users of the Growing and Developing Healthy Relationships website[5] for schools, 28,276 WA users of the Get the Facts (GtF) website[6] for teens, 1,491 WA users of the Let's Yarn website[7] for people working with young Aboriginal people and 2,593 users of the Talk Soon. Talk Often. website[8] for parents that was launched in April 2022. Curtin University provided training to 29 undergraduates and 71 school staff trained in 2022.

Free hepatitis B vaccine has been provided to infants in accordance with the National Immunisation Program Schedule since 2000. The hepatitis B vaccination coverage in one-year-old children in 2022 was 94%. DoH-funded hepatitis B vaccination is available through GPs for people diagnosed with hepatitis C. Community-based services such as sexual health clinics, HepatitisWA, Peer Based Harm Reduction WA, and WAAC provide vaccination services for at-risk adults. In 2022, 16,187 individuals aged over 20 years received hepatitis B vaccination. The Human Papilloma Virus vaccine continues to be provided through the school-based immunisation program to students in Year 7 and in 2022 the WA vaccination coverage was 77.2%.

HIV pre-exposure prophylaxis (PrEP) is a highly effective evidence-based HIV prevention intervention, whereby HIV negative people at high risk of HIV infection take medication to prevent acquiring HIV. In 2022, 9,666 people in WA accessed PrEP.

NSPs are an integral evidence-based public health strategy to reduce the transmission of BBVs. In 2022, 5,321,421 needles and syringes were distributed in WA as part of the state-wide NSP through non-government organisations and WACHS. This was a 3% increase compared to 2021. However, total annual distribution was still below pre-COVID-19 levels, with the 2022 total a 21% decrease compared to the 2019 total annual distribution. Similar to previous years, just under 70% of needles and syringes distributed in 2022 were from Needle and Syringe Exchange Program (NSEP) sites and mobile NSEPs. At the end of 2022, there were 728 NSP outlets: 594 pharmacy, 107 secondary and 19 primary sites, and 8 sites providing needle and syringe vending/dispensing machines.

State-wide sexual health and BBV social marketing campaigns were rolled-out in 2022 using television, radio, cinema, social media, outdoor, print, and online media. Campaigns included the general population 'Healthysexual' campaign, general population syphilis campaign, syphilis in pregnancy campaign and the BBV campaign specific to Aboriginal people, titled 'Look After Your Blood'. The 'Healthysexual' campaign page had 27k views, 22k users, in 2022 with the top two visited pages (after the home page) being the 'Test' page and 'Syphilis" page.

Free condom provision is funded via non-government organisations and free condom dispensers. The new 'find a free condom' feature was added to GtF highlighting locations across the state offering free condoms. In 2022, DoH provided 51 condom dispensers to 13 locations with 80% located in regional areas.

The Access, Care and Empowerment app for people who inject drugs was released in 2021 to help reduce harm to themselves and others by providing access to needle and syringe programs and services, information and referrals. At the end of 2022, there were 686 downloads of the app.

8.2 Testing and diagnosis / disease management and clinical care

A free online STI testing program continues to be offered through the 'Healthysexual' website (healthysexual.com.au). In 2022, there were 801 downloads of the PathWest form, 282 tests conducted, and 14 cases of chlamydia notified as a result.

The Silver Book[9] is an online set of clinical guidelines which are continually updated to promote best practice principles and care for the diagnosis and treatment of STIs and BBVs. In 2022, there were 25,316 sessions of use and 21,883 visitors to the Silver Book webpages.

GPs who are approved by the DoH are now able to prescribe medicines for the treatment of hepatitis B and HIV. As of 31 December 2022, there were 68 authorised hepatitis B community prescribers in WA (including 21 in regional WA), and 24 authorised HIV community prescribers in WA (including 2 in regional WA).

In 2022, an estimated 89% of people living with HIV in WA were dispensed HIV treatment. Of the cases newly diagnosed with HIV in 2020, 90% achieved an undetectable viral load by the end of 2022.

From March 2016 to the end of December 2022, an estimated 9,500 people in WA had initiated direct acting antiviral (DAA) treatment through the Pharmaceutical Benefits Scheme listing. The proportion of individuals initiated on DAA treatment by GPs was highest in WA (61%) compared to all other jurisdictions[10].

The WA Syphilis Outbreak Response Group (WA SORG) continued to coordinate the collaborative state-wide response to syphilis with funding for: localised syphilis initiatives to increase testing; point-of-care (PoC) testing programs; regular training and opportunities; and resource development.

Congenital syphilis cases continued to be of great concern, with DoH undertaking three public health reviews of cases to identify how to improve systems and prevent further cases. Common recommendations include increasing access to culturally safe antenatal care for women in regional WA, increasing knowledge of health professionals to include syphilis in antenatal blood requests and activate programs to engage and encourage vulnerable pregnant people to engage in antenatal care. In 2021, guidelines for antenatal STI testing were updated to include an additional two syphilis tests during pregnancy to help address this issue.

At the end of December 2022, there were 23 hubs and an additional 21 spoke testing sites offering syphilis PoC testing, with a total of 385 people trained to do syphilis PoC client testing. At the end of December 2022, a total of 2853 syphilis PoC tests were performed, with 148 (5.2%) returning a reactive result.

8.3 Workforce development

ASHM Health (previously known as the Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine) was commissioned by the DoH to provide a range of BBV and STI workforce development for GPs and other healthcare providers and developed and implemented online training options in response to the COVID-19 pandemic. Training delivered in 2022 included: 'Sexual Health Update: Clinical and public management of syphilis in Western Australia - webinar (course 1); 'Viral Hepatitis for Midwives 90-minute webinar'; and 'Culturally Responsive Care and Hepatitis B'. There were approximately 186 healthcare providers trained in 2022.

NSP workers can access an online orientation and training package, and a specific pharmacy NSP package[11]. In 2022, 100 participants completed the Needle and Syringe Program Online Orientation and Training Package, while 63 pharmacists and pharmacy staff completed the pharmacy NSP online training.

Beginning in the later part of 2020, the Sexual Health and Blood-borne Virus Program (SHBBVP) collaborated with a working group of people with lived experience of BBVs, people in the BBV sector, Health Support Services (HSS) and the Health Consumers' Council to create a workforce development online module designed to increase health workforce knowledge of the stigma and discrimination faced by people living with BBVs, and the impacts this can have on health outcomes. The WA Health eLearning Package: Understanding and Reducing Blood-Borne Virus Stigma and Discrimination was launched to all WA Health staff on December 1 2022[12].

Workforce development programs for GPs and other healthcare providers, and for the non-clinical workforce, were also provided by non-government and hospital-based clinical services.

8.4 Enabling environment

The DoH continues to host quarterly STI and BBV forums to enable the sector to share knowledge, research, new initiatives, and emerging issues. The forum is held in person and online and enables equitable access to participants and attendees across WA. In 2022, there were 4 forums with 24 presentations from 17 organisations. Due to COVID-19 restrictions, 1 forum was held exclusively online with 71 participants attending. The other 3 forums were held as a hybrid model with, on average, 23 participants attending in person and 66 participants online. Each forum opened with an epidemiology update across a range of notifiable infections relevant to Western Australia, followed by various presentations showcasing WA-specific and national topics, such as WA syphilis PoC testing, results from the Migrant Blood-borne Virus Sexual Health Survey [13], an update on Mpox and the La Trobe's Australia Secondary Survey and Sexual Health: WA Report 2022.

The DoH published the following guidelines in 2022 to support health service providers in relation to blood-borne virus prevention and control:

- Guideline for the Mandatory Testing of a Suspected Transferor for an Infectious Disease (Blood-borne Viruses)[14]
- Guideline for Non-Occupational Post-Exposure Prophylaxis (NPEP) to Prevent HIV in Western Australia[15].

8.5 Data collection, research and evaluation

The DoH continued to support the WA Sexual Health and Blood-borne Virus Applied Research and Evaluation Network coordinated by Curtin University. Some of the research conducted by SiREN and other DoH funded organisations in 2022 include:

- A scoping review protocol on sexual health service access for people with disabilities
- PrEP in Practice - Research Summary Report: A Qualitative Study Investigating the Perspectives of Clinicians who Prescribe PrEP in Australia[16]
- Exploring the intersections of migration, gender, and sexual health with Indonesian women in Perth, Western Australia[17]
- Making your materials work: A quick guide to developing culturally appropriate and effective HIV resource content[18].

In collaboration with non-government agencies and university research centres, WA organisations continued to participate in key national surveillance research projects, including the GBQ+ Community Periodic Survey[19], Australian Needle and Syringe Program Survey [20], and NSP National Minimum Data Collection[21].

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