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HIV, viral hepatitis and sexually transmissible infections in Australia Annual surveillance report 2022

Sexually Transmissible Infections

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HIV, viral hepatitis and sexually transmissible infections in Australia
Annual Surveillance report 2022

Kirby Institute, UNSW Sydney

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

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1 Summary data

Chlamydia

Chlamydia notifications

- In 2021, chlamydia was the most frequently notified sexually transmissible infection (STI) in Australia, with a total of 86 916 notifications. Around two-thirds (60 563, 70%) were among people aged 15 to 29 years. Half (44 547, 51%) were among females.
- The chlamydia notification rate remained relatively stable between 2012 and 2015, gradually increased from 316.3 per 100 000 population in 2015 to 435.1 per 100 000 population in 2019 and then declined to 362.7 per 100 000 population in 2021. The decline in the notification rate between 2019 and 2021 is likely due the impact of the ongoing COVID-19 pandemic and may not be reflective of the trend in new chlamydia infections.
- The notification rate has been higher among females than males in each of the past 10 years and in 2021 was 383.7 and 344.0 per 100 000, respectively.
- In 2021, chlamydia notification rates were highest among people aged 20 to 24 years (1748.0 per 100 000), 25 to 29 years (1014.6 per 100 000), and 15 to 19 years (926.2 per 100 000).
- The chlamydia notification rate among Aboriginal and Torres Strait Islander peoples remained steady between 2017 and 2021 but was more than three times as high as among non-Indigenous people in 2021 (1161.8 vs 365.7 per 100 000).
- The chlamydia notification rate was highest in remote areas for each of the ten years from 2012 to 2021. In 2021, the chlamydia notification rate was 916.7 per 100 000 in remote areas, 370.7 in regional areas, and 344.2 in major cities

Testing

- The number of Medicare-rebated chlamydia tests in Australia increased by 39% between 2012 and 2019, from 579 807 in 2012 to 764 303, respectively. Between 2019 and 2021, the number of tests declined by 14% to 659 444, likely related to the impact of the COVID-19 pandemic on STI testing.
- The proportion of general practice attendees aged 15 to 29 years who had a Medicare-rebated chlamydia test in 2021 was 17%, the highest proportion tested since before 2012. The overall low number of tests conducted suggests that the number of people aged 15 to 29 years seeking health care declined in 2021.
- The amount of testing in a population can influence notification trends. In 2021, the number of chlamydia notifications per 100 Medicare-rebated chlamydia tests declined and was 9.5 for males, 4.5 for females and 6.1 overall.

Incidence

- In 2021, chlamydia incidence among HIV-positive gay and bisexual men (49.4 new infections per 100 person-years) was 1.5 times as high as among HIV-negative gay and bisexual men (32.9 per 100 person-years).
- In 2021, there was a 59% increase in chlamydia incidence among HIV-positive gay and bisexual men and 59% increase in HIV-negative gay and bisexual men since 2012.
- Among female sex workers, chlamydia incidence increased by 62% between 2012 and 2021 (from 7.5 to 12.1 per 100 person-years).

Testing and care cascade

- In 2021, there were an estimated 219 200 (137 980 in men, 81 220 in women) new chlamydia infections in people aged 15–29 years. Of those, an estimated 64 970 (28% overall, 18% men, 45% women) were diagnosed, 57 860 (93% of those diagnosed, 93% for both men and women) received treatment, and 10 430 (18% of those treated, 14% men, 21% women) had a retest between six weeks and six months after diagnosis.

Gonorrhoea

Gonorrhoea notifications

- In 2021 there were 26 577 gonorrhoea notifications in Australia, with over two-thirds of all notifications in males (18 261, 69%).
- Between 2012 and 2019 there was a 127% increase in the gonorrhoea notification rate (from 62.3 to 141.4 per 100 000), followed by a 23% decrease between 2019 and 2021 (109.4 per 100 000 in 2021). The decline in the notification rate between 2019 and 2021 is likely related to the ongoing COVID-19 pandemic and may not be reflective of the trend in new gonorrhoea infections.
- Similar trends were observed among males and females. The gonorrhoea notification rate has been higher among males than females in each year since 2012 and was 149.1 per 100 000 males and 69.4 per 100 000 females in 2021.
- The gonorrhoea notification rate among Aboriginal and Torres Strait Islander peoples in 2021 was more than five times as high as among non-Indigenous people (484.1 per 100 000 and 93.1 per 100 000, respectively). These data are from all states and territories.
- Between 2012 and 2019, gonorrhoea notification rates increased in major cities (179% increase) and regional areas (68% increase). The notification rate declined in these areas between 2019 and 2021. The gonorrhoea notification rate remained stable in remote areas between 2012 and 2021.
- In 2021, gonorrhoea notification rates were highest in remote areas (641.5 per 100 000), followed by major cities (108.5 per 100 000) and regional areas (64.9 per 100 000).

Testing

- Between 2012 and 2021, the number of gonorrhoea notifications per 100 Medicare-rebated gonorrhoea tests increased by 57% (from 1.4 to 1.9), with increases in both males (39%) and females (57%). These data suggest that the increases observed in notifications cannot be fully explained by more testing. The ratio was higher in males (4.5 in 2021) than in females (1.0 in 2021) for each reported year.

Incidence

- In 2021, the gonorrhoea incidence rate among HIV-positive gay and bisexual men (38.2 new infections per 100 person-years) and was 59% higher than among HIV-negative gay and bisexual men (24.0 per 100 person-years).
- Among female sex workers, the incidence of gonorrhoea increased by 132%, from 3.4 per 100 person-years in 2012, to 7.9 per 100 person-years in 2021.

Testing and care cascade

- In 2021, there were an estimated 57 770 new gonorrhoea infections among gay and bisexual men. Of those, an estimated 11 620 (20%) were diagnosed, 8830 (76% of those diagnosed) received treatment, and 6860 (78% of those treated) had a retest between six weeks and six months after diagnosis.

Infectious Syphilis

Infectious Syphilis notifications

- In 2021 there were 5570 infectious syphilis notifications (infections of less than two years' duration) in Australia. The majority (4533, 81%) of these notifications were among males.
- Between 2012 and 2019, the infectious syphilis notification rate more than tripled from 6.7 to 23.9 per 100 000, followed by a 5% decline between 2019 and 2021 to 22.7 per 100 000, with similar trends seen among males and females. The decline in notification rates between 2019 and 2021 is likely due to a decrease in testing rates related to the ongoing COVID-19 pandemic and may not be reflective of the trend in new infectious syphilis infections.
- The notification rate of infectious syphilis in 2021 was more than four times as high among males (37.0 per 100 000) than among females (8.5 per 100 000).
- In 2021, infectious syphilis notification rates were highest among people aged 25 to 29 years (52.9 per 100 000), 30 to 39 years (52.6 per 100 000), and 20 to 24 years (35.7 per 100 000).
- The notification rate among Aboriginal and Torres Strait Islander peoples in 2021 was 5.5 times as high as among non-Indigenous people (107.2 per 100 000, compared to 19.3 per 100 000).
- In 2021, notification rates were highest in remote areas (137.8 per 100 000), followed by major cities (23.0 per 100 000), and regional areas (10.8 per 100 000).
- Between 2012 and 2021, around half (37, 54%) of the 68 congenital syphilis notifications were among Aboriginal and Torres Strait Islander peoples.
- In 2021, the congenital syphilis notification rate among Aboriginal and Torres Strait Islander peoples was more than 18 times as high as among non-Indigenous people (38.3 and 2.1 per 100 000 live births, respectively). Overall, there were 15 congenital syphilis cases in 2021, nine among Aboriginal and Torres Strait Islander peoples and six among non-Indigenous people.

Testing

- Among gay and bisexual men attending sexual health clinics in the Australian Collaboration for Coordinated Enhanced Sentinel Surveillance network, the average number of syphilis tests per person network fluctuated between 2012 and 2021 and was 1.4 tests per year in 2021.
- Results from the Gay Community Periodic Surveys show comprehensive STI testing, defined as at least four samples from separate body sites, in the past 12 months among gay and bisexual men increased from 37% in 2012 to 47% in 2021.

Incidence

- In 2021, the incidence of infectious syphilis among HIV-positive gay and bisexual men and HIV-negative gay and bisexual men attending sexual health clinics was 8.1 and 5.5 new infections per 100 person-years, respectively. Between 2012 and 2021, infectious syphilis incidence increased among HIV-negative gay and bisexual men by 53% (up from 3.6 per 100 person-years), and by 33% among HIV-positive gay and bisexual men (up from 6.3 per 100 person-years). In 2021, the incidence of infectious syphilis among female sex workers was 0.2 per 100 person-years.

Testing and care cascade

- In 2021, there were an estimated 13 490 new syphilis infections among gay and bisexual men. Of those, an estimated 3530 (26%) were diagnosed, 2990 (86% of those diagnosed) received treatment, and 1440 (48% of those treated) had a retest between six weeks and six months after diagnosis.

Other sexually transmissible infections

- Among non-Indigenous females aged under 21 years attending sexual health clinics for the first time, the proportion diagnosed with genital warts has fallen from 13.0% in 2006 to 0.7% in 2021.
- Among non-Indigenous Australian-born heterosexual males under 21 years attending sexual health clinics for the first time, the proportion diagnosed with genital warts has fallen from 9.8% in 2007 to 0.0% in 2021.
- Among Aboriginal and Torres Strait Islander females aged under 21 years, the proportion diagnosed with genital warts at first visit declined from 5.0% in 2006 to 0.0% in 2021.
- Among Aboriginal and Torres Strait Islander males aged under 21 years, the proportion diagnosed with genital warts at first declined from 5.4% in 2006 to 0.0% in 2021.
- Donovanosis, once a commonly diagnosed STI among remote Aboriginal and Torres Strait Islander peoples, is now close to elimination, with only two cases notified since 2012, with the last case notified in 2015.

Interpretation

In 2021, in-person health care access and sexual activity continued to be strongly influenced by the COVID-19 pandemic with corresponding declines in new diagnoses of chlamydia, gonorrhoea, and infectious syphilis occurring between 2019 and 2021. Most infections among people between the ages of 15 and 29 years remain undiagnosed and untreated, highlighting the need for testing to be routinely offered to sexually active adolescents and young adults. Increased efforts to support partner notification and treatment of sexual partners are also needed to reduce the incidence of chlamydia.

Based on the interpretation of the ratio of diagnoses by gender, gonorrhoea, and infectious syphilis have been diagnosed more frequently in the past five years among gay and bisexual men. Explanations for this trend among gay and bisexual men include more comprehensive screening and greater availability and awareness of highly effective HIV prevention strategies and in turn a decrease in the use of condoms and greater sexual mixing. Efforts to improve health promotion, testing and treatment among gay and bisexual men need to be strengthened.

Gonorrhoea and infectious syphilis diagnoses also occur more frequently among young heterosexual Aboriginal and Torres Strait Islander people in remote areas, while gonorrhoea and infectious syphilis notification rates among women in urban settings continue to increase. Well promoted, convenient, and culturally acceptable testing services must be made available to these populations.

The decline in the number of Medicare-rebated tests for chlamydia and gonorrhoea among both men and women between 2019 and 2021 is likely due to the ongoing impacts of the COVID-19 pandemic. This decline highlights the need for health promotion, enhanced testing, and partner notifications. In gay and bisexual men, the rise in chlamydia and gonorrhoea incidence in recent years highlights the need for a focus on prevention strategies.

Among Aboriginal and Torres Strait Islander peoples, notification rates of STIs remain higher than among non-Indigenous people, with gonorrhoea and infectious syphilis more than five times as high, and chlamydia almost three times as high. The increases in infectious syphilis among young Aboriginal and Torres Strait Islander people in regional and remote areas, along with a considerable increase in the number of congenital syphilis cases, emphasise the need to enhance culturally appropriate and co-designed health promotion, testing and treatment strategies in this population.

2 Chlamydia

See page 3 for summary.

2.1 Chlamydia notifications

Chlamydia (*Chlamydia trachomatis* infection) remains the most frequently notified STI in Australia with 86 916 notifications reported in 2021. Of these, just over half (44 547, 51%) were among females, and two-thirds (60 563, 70%) were among people aged 15 to 29 years. Just under three quarters (62 914, 72%) were among people residing in major cities (Table 1). Of all chlamydia notification reported in 2021, 7241 (8%) were among Aboriginal and Torres Strait Islander peoples, 37 992 (44%) were among non-Indigenous people, and 41 683 (48%) were among people for whom Aboriginal and Torres Strait Islander status was not reported (Table 1). See *Bloodborne viral and sexually transmissible infections in Aboriginal and Torres Strait Islander people: annual surveillance report 2022* for further details [1].

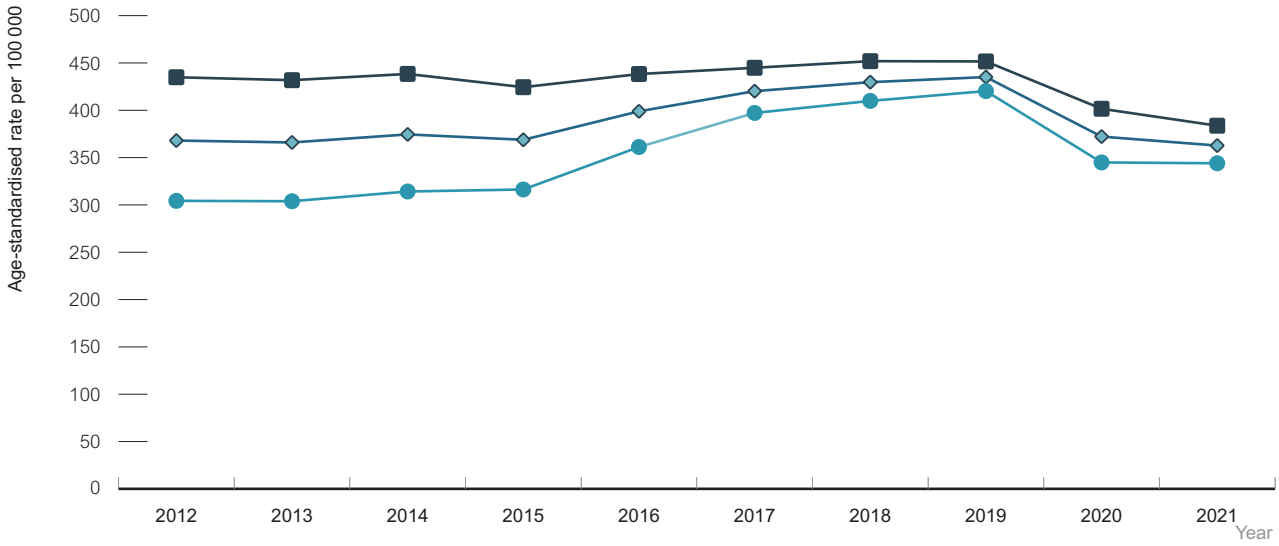
Table 1 Characteristics of chlamydia notifications, 2012–2021

	Year of diagnosis									
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Characteristic										
Total cases	83 192	83 828	86 802	86 401	94 730	101 226	104 775	107 248	91 362	86 916
Gender										
Male	35 046	35 450	37 021	37 623	43 402	48 420	50 618	52 500	43 095	42 127
Female	48 031	48 334	49 711	48 716	51 069	52 534	53 924	54 377	47 990	44 547
Missing	115	44	70	62	259	272	233	371	277	242
Age group										
0–14	813	747	689	514	448	427	421	414	322	304
15–19	21 113	19 917	19 165	17 492	16 799	16 771	16 471	15 772	13 945	13 703
20–24	30 484	30 508	31 694	30 694	32 830	34 418	35 027	35 085	30 462	28 374
25–29	14 839	16 009	17 139	17 790	20 481	22 312	23 052	23 718	20 260	18 486
30-34	6 777	7 079	7 834	8 718	10 340	11 548	12 483	13 185	11 124	11 007
35–39	3 511	3 674	3 827	4 246	5 268	5 967	6 840	7 645	6 451	6 289
40+	5 612	5 893	6 450	6 933	8 548	9 761	10 469	11 418	8 785	8 746
Missing age	43	1	4	14	16	22	12	11	13	7
Remoteness										
Major cities	55 750	56 332	59 086	59 895	66 896	73 301	76 126	77 603	66 721	62 914
Regional	21 898	21 421	21 789	20 827	21 567	21 481	22 057	22 212	19 663	19 459
Remote	4 214	4 279	4 192	3 995	3 968	3 879	4 105	3 999	3 480	3 586
Missing	1 330	1 796	1 735	1 684	2 299	2 565	2 487	3 434	1 498	957
Aboriginal and Torres Strait Islander status										
Aboriginal and/or Torres Strait Islander	7 701	7 661	7 498	7 413	7 669	7 849	8 269	8 358	7 674	7 241
Non-Indigenous	41 359	32 730	33 621	33 610	37 001	40 246	42 636	46 956	40 916	37 992
Not reported	34 132	43 437	45 683	45 378	50 060	53 131	53 870	51 934	42 772	41 683
State/Territory										
ACT	1 283	1 270	1 197	1 266	1 362	1 465	1 579	1 650	1 447	1 321
NSW	21 260	20 815	22 900	22 552	25 982	28 958	31 073	32 618	27 113	25 073
NT	2 722	3 004	2 997	2 737	2 630	2 667	2 780	3 054	2 647	2 606
QLD	18 830	20 326	21 139	21 185	22 914	23 942	23 812	24 292	22 522	22 887
SA	5 066	5 531	5 495	5 384	5 487	5 915	6 267	6 430	5 656	5 476
TAS	1 781	1 538	1 776	1 666	1 688	1 584	1 563	1 532	1 290	1 452
VIC	20 452	19 602	19 956	20 441	22 856	25 198	26 180	26 113	19 907	17 282
WA	11 798	11 742	11 342	11 170	11 811	11 497	11 521	11 559	10 780	10 819

Source: Australian National Notifiable Diseases Surveillance System.

The chlamydia notification rate remained relatively stable between 2012 and 2015, gradually increased between 2015 and 2019, and then declined between 2019 and 2021. In 2021 the chlamydia notification rate was 362.7 notifications per 100 000 population. Similar trends were seen among both males and females (Figure 1). The chlamydia notification rate was higher among females than males every year from 2012 to 2021, and was 383.7 and 344.0 per 100 000 in 2021, respectively. The decline in the notification rate between 2019 and 2021 was likely due to a decrease in testing rates related to the ongoing COVID-19 pandemic and may not be reflective of the trend in new chlamydia infections.

Figure 1 Chlamydia notification rate per 100 000 population by gender, 2012–2021



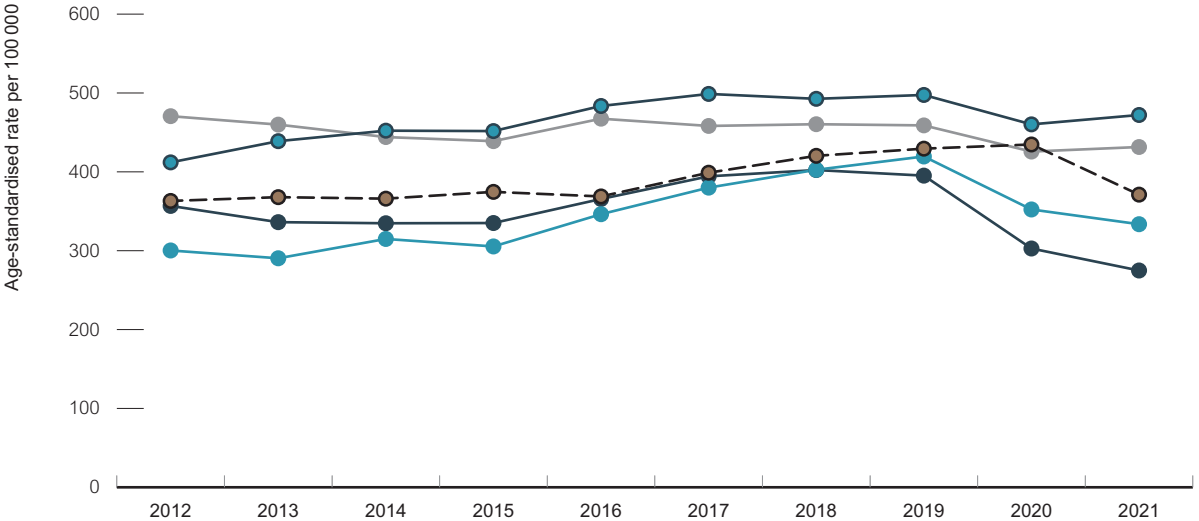
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Males	304.3	303.9	314.2	316.3	361.2	397.2	409.9	420.3	344.9	344.0
Females	434.9	431.8	438.4	424.4	438.3	444.9	451.9	451.6	401.6	383.7
Total	368.0	366.0	374.5	368.8	398.9	420.2	429.7	435.1	372.2	362.7

Source: Australian National Notifiable Diseases Surveillance System.

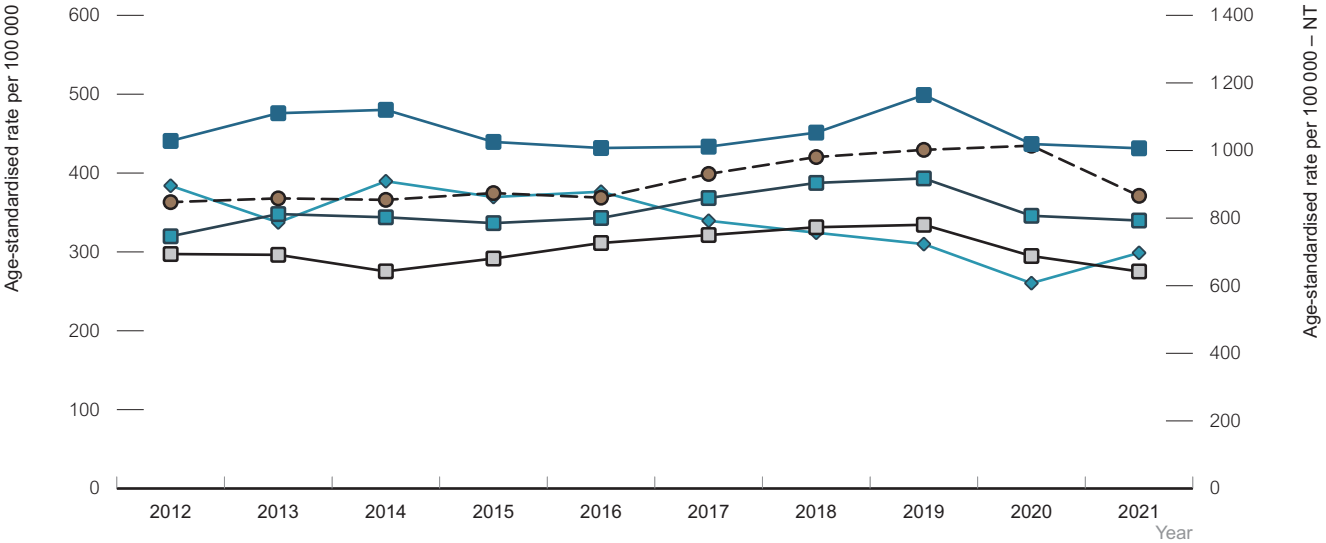
The trends in chlamydia notification rates varied by age group. Aside from the decline in notification rates between 2019 and 2021, notification rates increased between 2012 and 2019 for those aged 25 to 29 years (from 873.0 to 1251.7 per 100 000) and 30 to 39 years (from 326.9 to 567.1 per 100 000). However, for those aged 15 to 19 years, there was a steady decline from 1445.4 to 1055.0 per 100 000. In 2021 the notification rate was 926.2 per 100 000 for those aged 15 to 19 years, 1748.0 per 100 000 for those aged 20 to 24 years and 1014.6 per 100 000 for those aged 25 to 29 years. Similar patterns were seen among males and females. Breakdowns of chlamydia notification rates by age and gender can be found on the Kirby Institute data site.

By state and territory, the chlamydia notification rate was highest every year from 2012 to 2021 in the Northern Territory and was 1006.6 per 100 000 in 2021. The chlamydia notification rate fluctuated during this period in every state and territory (Figure 2).

Figure 2 Chlamydia notification rate per 100 000 population by state/territory, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
NSW	300.3	290.4	314.9	305.4	346.3	380.0	402.6	419.5	352.3	333.6
QLD	412.0	438.9	452.2	451.7	483.5	498.8	492.6	497.5	460.2	472.1
VIC	356.8	336.2	334.8	335.1	365.6	394.3	402.3	395.2	302.8	274.9
WA	470.6	459.9	444.1	438.9	467.4	458.2	460.4	458.9	425.7	431.5
Australia	363.1	367.9	366.0	374.6	368.8	398.9	420.3	429.4	434.7	371.1



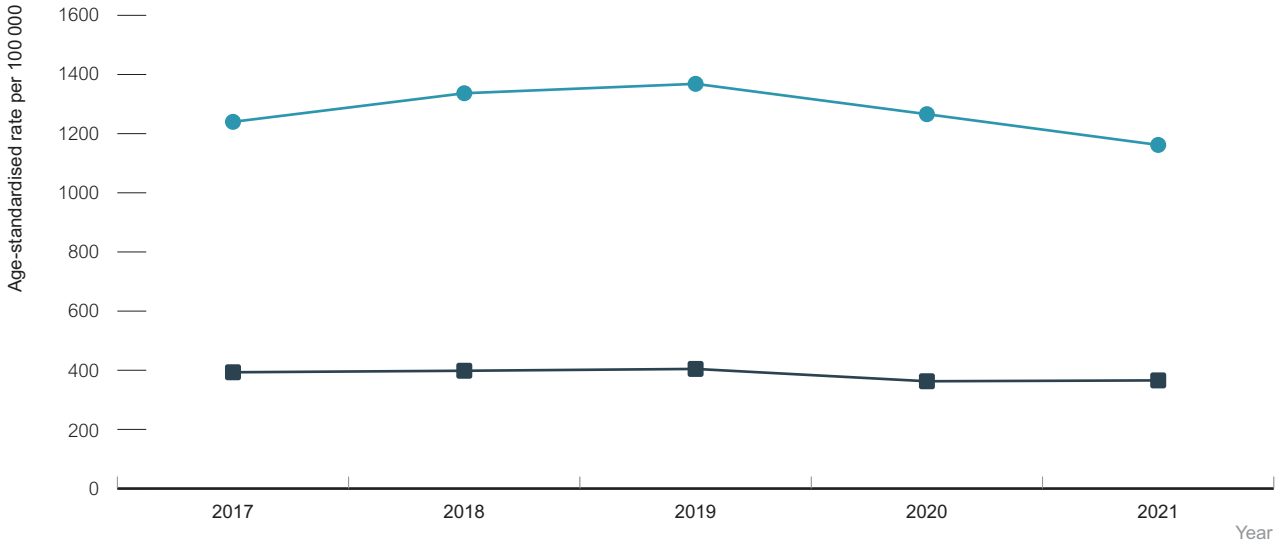
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ACT	297.3	296.3	275.3	291.6	311.3	321.4	331.3	334.4	294.8	275.2
SA	319.8	348.0	343.9	336.5	343.0	368.3	387.5	393.2	345.8	339.8
TAS	383.9	337.4	389.6	369.6	376.3	339.5	324.3	309.9	260.4	298.8
Australia	363.1	367.9	366.0	374.6	368.8	398.9	420.3	429.4	434.7	371.1
NT	1028.3	1110.4	1120.4	1025.4	1007.4	1011.4	1053.0	1164.2	1019.2	1006.6

Source: Australian National Notifiable Diseases Surveillance System.

The chlamydia notification rate among Aboriginal and Torres Strait Islander peoples is based on data from four jurisdictions (the Australian Capital Territory, the Northern Territory, South Australia, and Western Australia), where Aboriginal and Torres Strait Islander status was ≥50% complete each of the past five years (2017–2021). Less than a third (28%) of Aboriginal and Torres Strait Islander peoples reside in these jurisdictions, so it is important to note that the notification rates may not be nationally representative.

The chlamydia notification rate among Aboriginal and Torres Strait Islander peoples increased between 2017 and 2019 from 1239.9 to 1368.4 per 100 000, then declined to 1161.8 per 100 000 in 2021. In 2021 the chlamydia notification rate among Aboriginal and Torres Strait Islander peoples was more than three times as high as among non-Indigenous people in 2021 (1161.8 vs 365.7 per 100 000) (Figure 3).

Figure 3 Chlamydia notification rate per 100 000 by Aboriginal and Torres Strait Islander status, 2017–2021

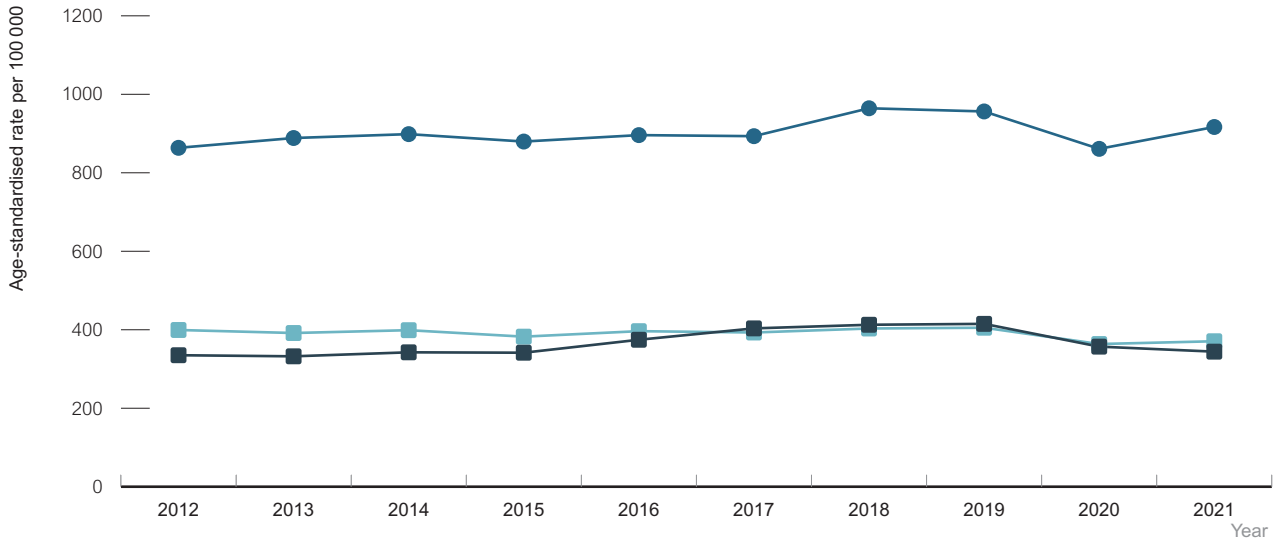


	2017	2018	2019	2020	2021
Non-Indigenous	393.2	398.3	404.5	362.8	365.7
Aboriginal and Torres Strait Islander	1239.9	1336.6	1368.4	1265.8	1161.8

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

The chlamydia notification rate was highest in remote areas for each of the ten years from 2012 to 2021 (Figure 4). In 2021, the chlamydia notification rate was 916.7 per 100 000 in remote areas, 370.7 in regional areas, and 344.2 in major cities. This pattern also occurred among males and females. For a full breakdown of notification rates by remoteness classification, please see the Kirby Institute data site.

Figure 4 Chlamydia notification rate per 100 000 population by region of residence, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Major cities	335.1	332.3	342.5	341.5	374.5	403.5	412.7	415.0	357.0	344.2
Regional areas	399.4	391.7	398.9	382.4	396.4	393.0	403.2	405.2	363.6	370.7
Remote areas	863.6	888.6	898.5	879.6	896.0	893.3	964.4	956.3	861.0	916.7

Source: Australian National Notifiable Diseases Surveillance System.

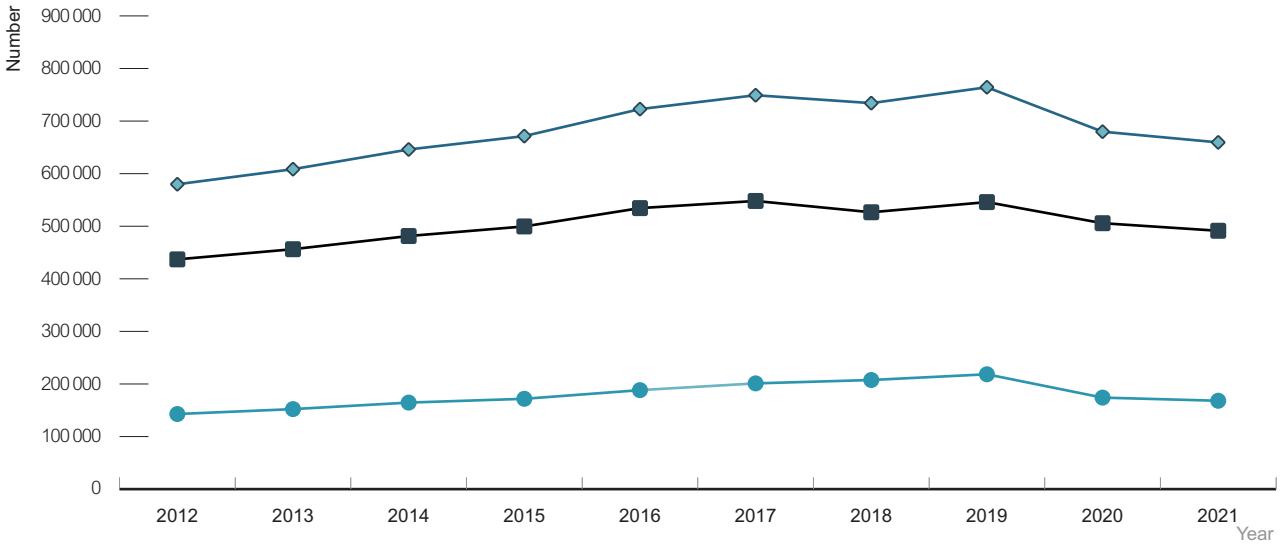
2.2 Chlamydia testing

Clinical guidelines recommend the opportunistic offer of chlamydia screening to all young people at least annually, including offering self-collected samples when appropriate, and regular testing for sex workers. Annual testing is recommended for sexually active gay and bisexual men and testing every three months for higher risk men based on behavioural criteria and those taking pre-exposure prophylaxis (PrEP) [2]. Chlamydia testing data are included in this report from a number of sources including Medicare, sexual health clinics and high-caseload general practice clinics.

Medicare-rebated chlamydia tests

Between 2012 and 2019, the number of Medicare-rebated chlamydia tests among those aged 15 to 29 years increased by 31%, from 579 807 in 2012, to 764 303 in 2019, with increases in both females (25% increase) and males (53% increase) (Figure 5). Between 2019 and 2021, the number of tests declined by 14%, with a greater decline in the number of tests seen among males (23%) than females (10%). The decline in the number of chlamydia tests was likely related to the challenges accessing healthcare because of the ongoing COVID-19 pandemic. Declines in testing also likely influenced the decline in notification rates seen between 2019 and 2021. It is important to note that these tests capture Medicare-rebated tests and that testing conducted in government hospitals and sexual health services are usually not included. Therefore, the numbers given here underestimate all chlamydia tests conducted in Australia.

Figure 5 Number of Medicare-rebated chlamydia tests among people aged 15 to 24 years by gender, 2012–2021

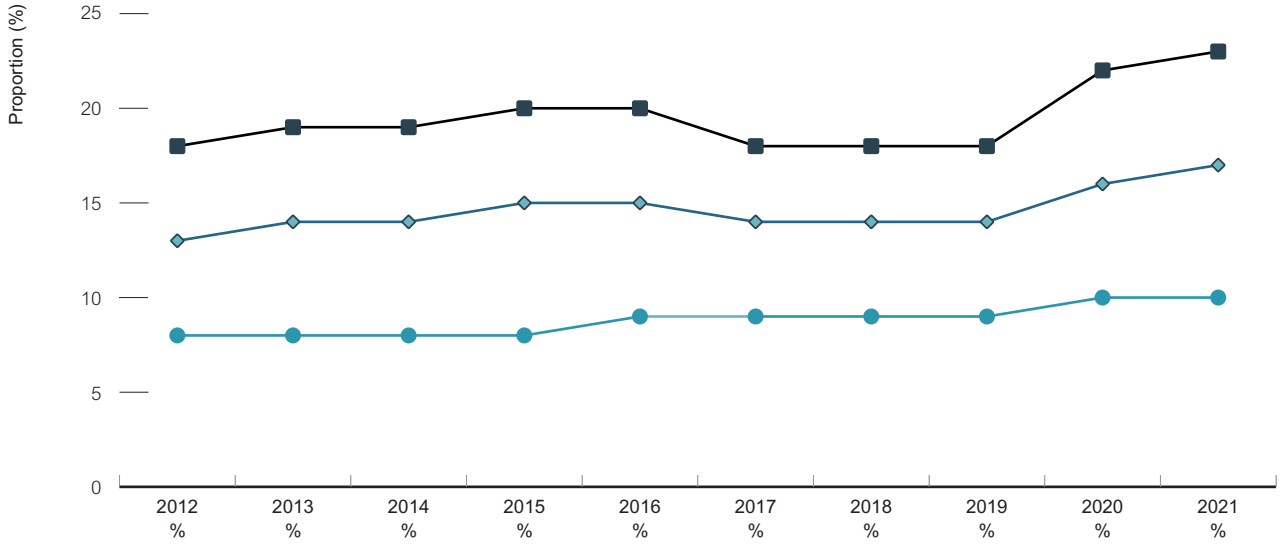


	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Men	436 973	456 315	481 392	499 629	534 469	548 054	526 573	545 889	505 765	491 369
Women	142 834	152 188	164 571	171 800	188 258	201 118	207 536	218 414	174 060	168 075
Total	579 807	608 503	645 963	671 429	722 727	749 172	734 109	764 303	679 824	659 444

Source: Medicare.

In 2021, 17% of people aged 15–29 years attending general practice had a Medicare-rebated chlamydia test in the previous 12 months (23% of women and 10% men), the highest proportion since prior to 2012 (Figure 6). Despite the high proportion of people getting tested for chlamydia at their general practice, the lower number of tests conducted in 2021 overall suggests that the number of people seeking health care at their general practice declined in 2021. Across all populations, the number of face-to-face Medicare-rebated General Practice appointments declined by 21% between 2019 and 2021 [3].

Figure 6 Proportion of general practice attendees aged 15–29 years who had a Medicare-rebated chlamydia test in a year, by gender, 2012–2021

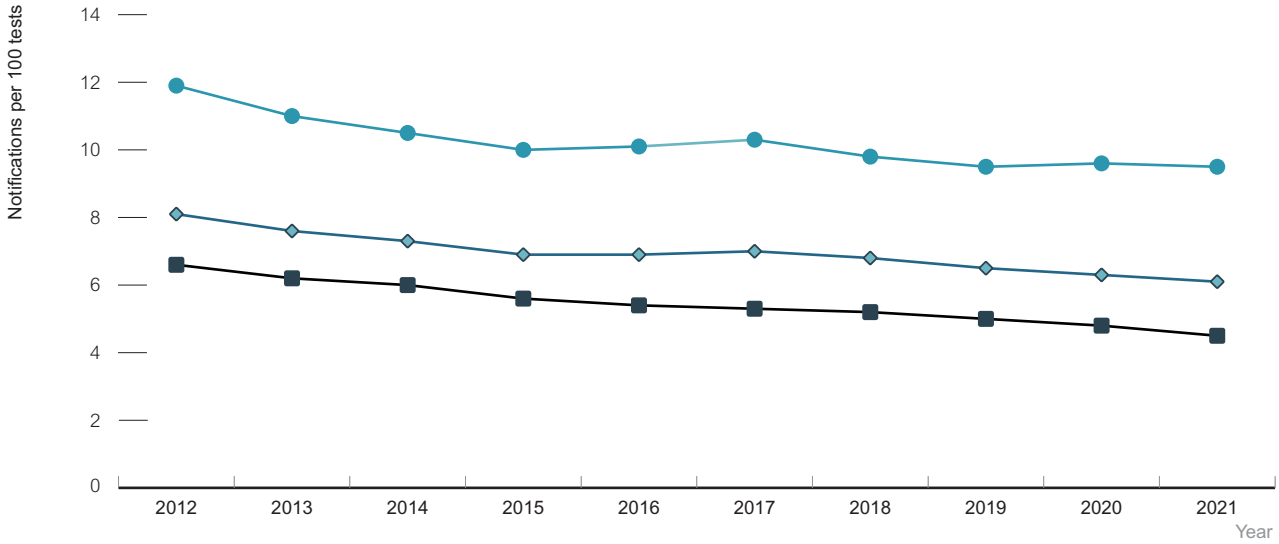


	2012 %	2013 %	2014 %	2015 %	2016 %	2017 %	2018 %	2019 %	2020 %	2021 %
Men	8	8	8	8	9	9	9	9	10	10
Women	18	19	19	20	20	18	18	18	22	23
Overall	13	14	14	15	15	14	14	14	16	17

Source: Medicare.

It is important to consider trends in chlamydia notifications in the context of patterns of testing, as changes in notification rates can be an indication of changes in testing, changes in incidence, or both. In 2021, the number of chlamydia notifications per 100 Medicare-rebated chlamydia tests was 6.1, the lowest since before 2012. By gender, the number of chlamydia notifications per 100 Medicare-rebated chlamydia tests was 9.5 for males and 4.5 for females (Figure 7). Males had a higher number of notifications per 100 tests than females each year from 2012 to 2021. Given the likely decline in the number of people accessing health care from 2020, these numbers should be interpreted with caution. Further breakdowns by age and gender are available on the Kirby Institute data site.

Figure 7 Number of chlamydia notifications per 100 Medicare-rebated chlamydia tests by gender, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Men	11.9	11.0	10.5	10.0	10.1	10.3	9.8	9.5	9.6	9.5
Women	6.6	6.2	6.0	5.6	5.4	5.3	5.2	5.0	4.8	4.5
Overall	8.1	7.6	7.3	6.9	6.9	7.0	6.8	6.5	6.3	6.1

Source: Medicare; Australian National Notifiable Diseases Surveillance System.

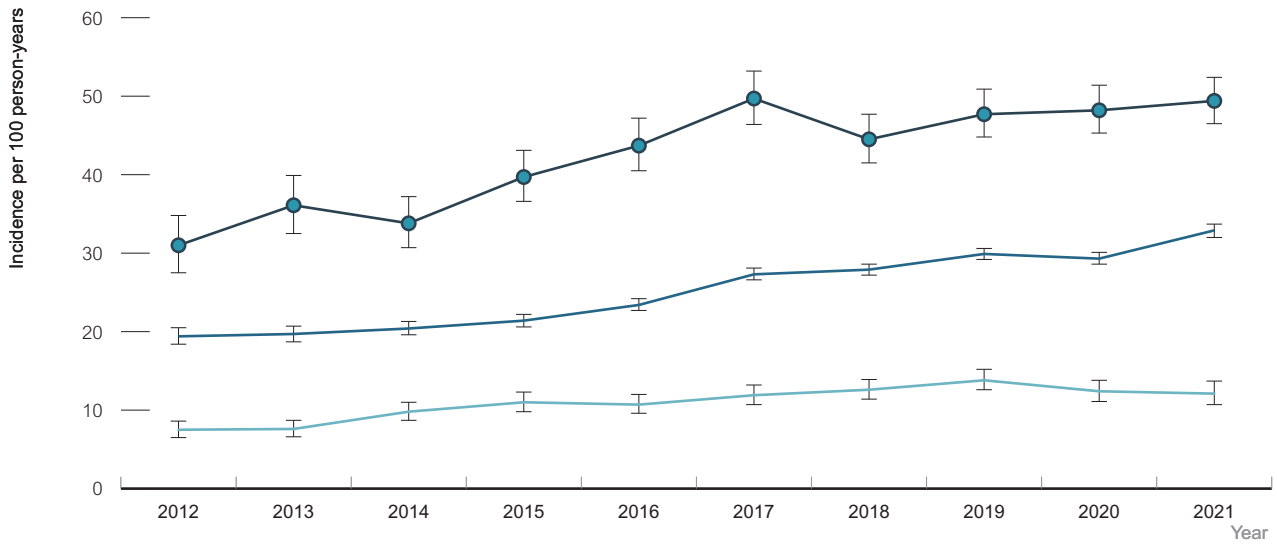
2.3 Chlamydia incidence

Chlamydia incidence is an important indicator of new transmissions and can reflect the impact of prevention programs, whereas prevalence reflects the burden of disease. Chlamydia incidence is available from the ACCESS (Australian Collaboration for Coordinated Enhanced Sentinel Surveillance) network [4,5] and is calculated by dividing the number of incident infections (negative test followed by a positive test) among people undergoing repeat chlamydia testing at sexual health services by the person's time at risk (determined by the time between repeat chlamydia tests) [6]. These incidence estimates represent populations attending sexual health clinics and may not be generalisable to the broader priority populations.

In 2021, chlamydia incidence among HIV-positive gay and bisexual men was 49.4 new infections per 100 person-years, which was higher than among HIV-negative gay and bisexual men (32.9 per 100 person-years). There was a 59% increase in chlamydia incidence among HIV-positive gay and bisexual men since 2012 (from 30.3 per 100 person-years) and a 70% increase in HIV-negative gay and bisexual men since 2012 (from 19.4 per 100 person-years) (Figure 8). Among female sex workers, chlamydia incidence increased by 61% between 2012 and 2021 (from 7.5 to 12.1 per 100 person-years) (Figure 8).

Caution should be taken with interpretation as some confidence intervals overlap, indicating that these between-year differences are not statistically significant.

Figure 8 Chlamydia incidence in sexual health clinic attendees by select population, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
HIV-negative gay and bisexual men	19.4	19.7	20.4	21.4	23.4	27.3	27.9	29.9	29.3	32.9
HIV-positive gay and bisexual men	31.0	36.1	33.8	39.7	43.7	49.7	44.5	47.7	48.2	49.4
Female sex workers	7.5	7.6	9.8	11.0	10.7	11.9	12.6	13.8	12.4	12.1

Source: ACCESS (Australian Collaboration for Coordinated Enhanced Sentinel Surveillance).

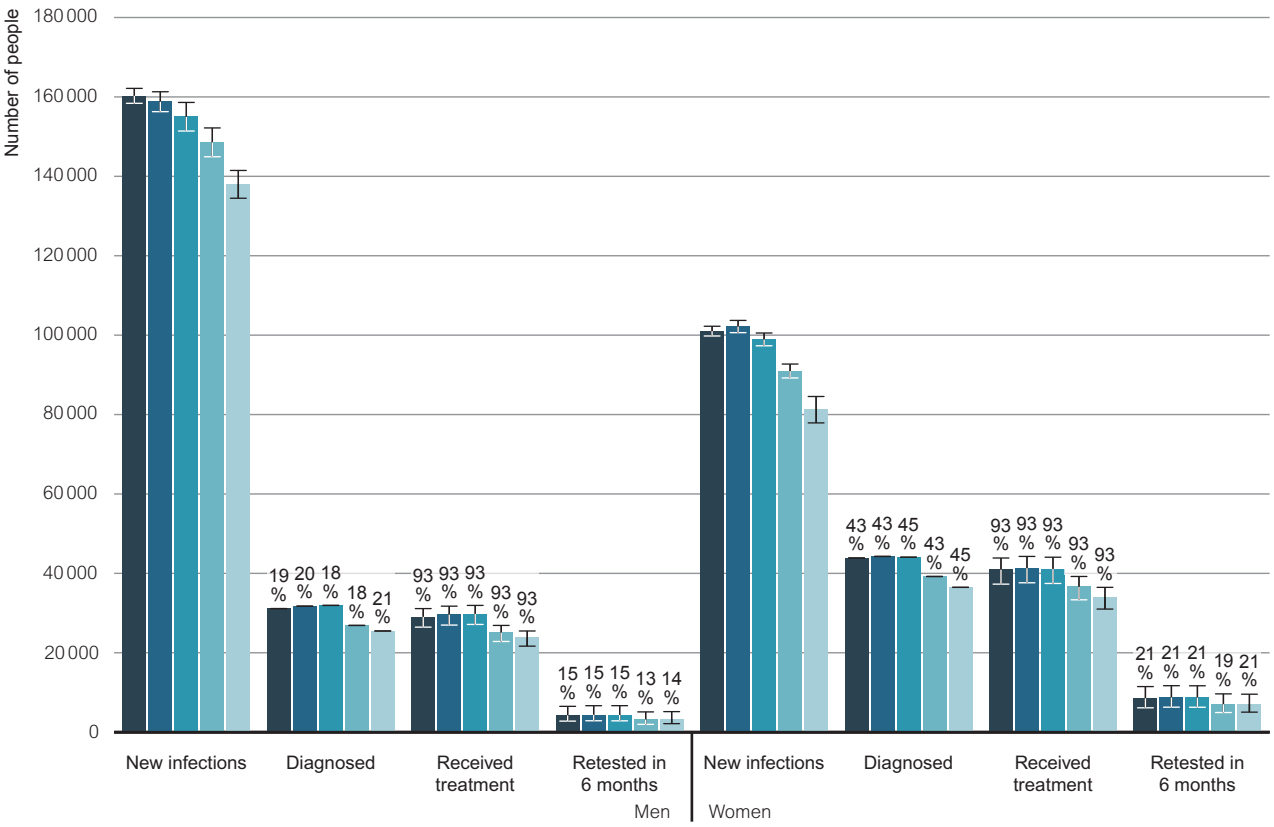
2.4 Chlamydia diagnosis and care cascade

This report includes the chlamydia diagnosis and care 'cascade' for people aged 15–29 years, which estimates the number and proportion of people with new chlamydia infections in Australia, and the number and proportion who were notified, received treatment and had a retest at three months post-treatment, as recommended in clinical guidelines [2]. These estimates are used to support the improvement of delivery of services to people with chlamydia across the entire continuum of care—from diagnosis of infection, uptake of treatment, and management (retesting). Using available data and accounting for uncertainties, the proportions of people in each stage of the cascade in Australia were estimated (Figure 9). Methods and the associated uncertainties are described in detail in the Methodology. The approach was informed by recommendations from a national stakeholder reference group (see Acknowledgements). The cascade focuses on people aged 15–29 years, as guidelines recommend annual testing in this group and most chlamydia diagnoses occur in this age group. The cascade includes estimates for both men and women.

In 2021, there were an estimated 219 200 (137 980 in men, 81 220 in women) new chlamydia infections in the 15–29 age group, including reinfections, down from 261 280 (160 270 in men, 101 010 in women) new infections in 2017. Of new infections in 2021, an estimated 64 970 (28% overall, 18% men, 45% women) were diagnosed, 57 860 (93% of those diagnosed, 93% for both men and women) received treatment, and 10 430 (18% of those treated, 14% men, 21% women) had a retest between six weeks and six months after diagnosis (Figure 9).

The cascade shows that there was a higher estimated number of new infections in men than women aged 15–29 years in 2021. This reflects the fact that infections in men are acquired both by heterosexual men and by gay and bisexual men, among whom reinfection rates are higher [7]. However, it is estimated that a lower proportion of men than women are diagnosed (18% vs 45% in 2021). The proportion treated was similar for men and women, but the proportion in 2021 who had a retest following treatment was higher in women than men (21% vs 14%). The greatest gaps in the cascade were therefore at the diagnosis and retesting steps. Similar trends in the gaps were observed between 2017 and 2021.

Figure 9 The chlamydia diagnosis and care cascade in people aged 15–29 years by gender, 2019–2021



	Men				Women			
	New infections	Diagnosed	Received treatment	Retested in 6 months	New infections	Diagnosed	Received treatment	Retested in 6 months
2017	160 270	31 130	29 060	4 250	101 010	43 870	40 950	8 550
2018	158 800	31 740	29 620	4 370	102 170	44 270	41 320	8 750
2019	155 010	31 930	29 800	4 360	98 930	44 070	41 140	8 720
2020	148 560	26 890	25 100	3 190	90 970	39 220	36 620	7 050
2021	137 980	25 490	23 800	3 340	81 220	36 480	34 060	7 090

Source: See Methodology for further details of mathematical modelling used to generate estimates.

3 Gonorrhoea

See page 4 for summary.

3.1 Gonorrhoea notifications

There were 26 577 gonorrhoea (*Neisseria gonorrhoeae*) notifications in Australia in 2021, a 91% increase from 13 947 notifications in 2012, but a decrease of 24% from 34 765 notifications in 2019. In 2021, 69% of notifications were among males (18 261 of notifications), 71% were among people aged 20 to 39 years (18 846 notifications) and 76% were among people residing in major cities (20 080 notifications) (Table 2).

Of the 26 577 notifications in 2021, 4653 (18%) were among Aboriginal and Torres Strait Islander peoples, 15 251 (57%) were among non-Indigenous peoples, and there were a further 9226 (25%) notifications for whom Aboriginal and Torres Strait Islander status was not reported (Table 2).

The ratio of male to female notifications among Aboriginal and Torres Strait Islander peoples in 2021 was 0.9:1 compared with 2.8:1 among non-Indigenous people suggesting greater transmission attributed to male-to-male sex among non-Indigenous people. In 2021, almost a quarter (22%) of gonorrhoea notifications among Aboriginal and Torres Strait Islander peoples were among people aged 15 to 19 years, compared to less than 5% among non-Indigenous people aged 15 to 19 years. See *Bloodborne viral and sexually transmissible infections in Aboriginal and Torres Strait Islander people: annual surveillance report 2022* for further details [1].

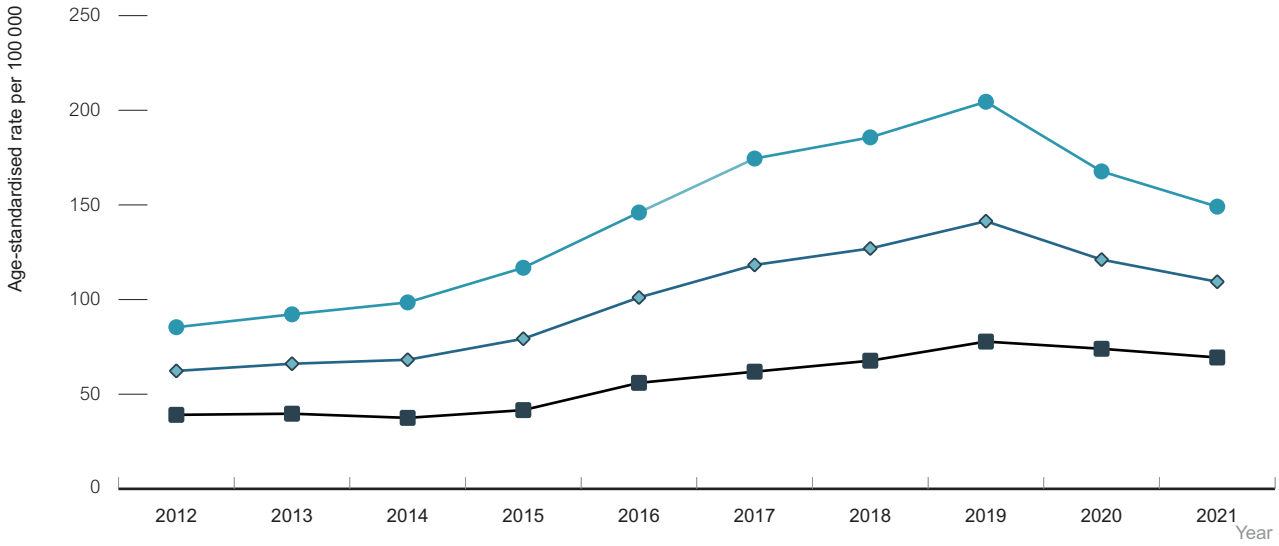
Table 2 Characteristics of gonorrhoea notifications, 2012–2021

	Year of diagnosis									
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Characteristic										
Total cases	13 947	15 012	15 674	18 465	23 852	28 356	30 843	34 765	29 830	26 577
Gender										
Male	9 667	10 583	11 421	13 692	17 293	20 992	22 622	25 217	20 780	18 261
Female	4 269	4 402	4 205	4 745	6 495	7 291	8 093	9 414	8 928	8 217
Missing	11	27	48	28	64	73	128	134	122	99
Age group										
0–14	275	234	262	278	278	191	195	189	161	155
15–19	2 354	2 245	2 043	2 007	2 311	2 485	2 324	2 401	2 259	2 012
20–24	3 287	3 442	3 669	4 111	4 969	5 904	5 924	6 364	5 296	4 695
25–29	2 623	3 007	3 259	4 045	5 354	6 431	6 886	7 887	6 630	5 746
30-34	1 788	2 078	2 200	2 813	3 874	4 811	5 501	6 411	5 605	4 952
35–39	1 143	1 261	1 349	1 746	2 434	3 042	3 633	4 333	3 897	3 453
40+	2 471	2 745	2 892	3 464	4 625	5 492	6 378	7 178	5 969	5 562
Missing age	6	0	0	1	7	0	2	2	13	2
Remoteness										
Major cities	8 334	9 169	10 460	13 005	17 822	21 061	22 878	26 392	22 901	20 080
Regional	2 327	2 236	2 191	2 223	2 668	3 164	3 451	3 897	3 783	3 457
Remote	2 885	2 838	2 400	2 517	2 570	2 531	2 857	2 232	2 315	2 548
Missing	401	769	623	720	792	1 600	1 657	2 244	831	492
Aboriginal and Torres Strait Islander status										
Aboriginal and/or Torres Strait Islander	4 293	4 251	3 596	3 637	3 856	4 222	4 745	4 166	4 402	4 653
Non-Indigenous	5 909	7 121	7 939	9 649	13 050	16 998	18 834	21 342	17 361	15 251
Not reported	3 745	3 640	4 139	5 179	6 946	7 136	7 264	9 257	8 067	6 673
State/Territory										
ACT	92	114	120	141	201	250	329	334	284	326
NSW	4 111	4 181	4 840	5 405	6 979	9 198	10 535	11 696	9 853	7 526
NT	1 822	1 955	1 742	1 829	1 769	1 755	2 130	1 346	1 342	1 648
QLD	2 690	2 727	2 724	3 032	4 033	5 078	4 908	5 980	6 356	5 637
SA	543	807	736	794	1 110	1 272	1 289	2 093	1 663	1 427
TAS	35	69	65	57	83	117	150	157	150	183
VIC	2 544	3 187	3 253	4 899	6 316	7 342	8 085	9 234	6 604	6 953
WA	2 110	1 972	2 194	2 308	3 361	3 344	3 417	3 925	3 578	2 877

Source: Australian National Notifiable Diseases Surveillance System.

Between 2012 and 2019 there was a 127% increase in the gonorrhoea notification rate (from 62.3 to 141.4 per 100 000), followed by a 23% decline from 2019 to 2021 (to 109.4 per 100 000) (Figure 10). The decline in the notification rate to 2021 is likely in part due to a decrease in testing rates related to the ongoing COVID-19 pandemic and may not be reflective of the trend in new gonorrhoea infections. Similar trends were observed among males and females. The gonorrhoea notification rate has been higher among males than females in each year since 2012 and was 149.1 per 100 000 among males and 69.4 per 100 000 among females in 2021.

Figure 10 Gonorrhoea notification rate per 100 000 population by gender, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Males	85.4	92.2	98.5	116.8	146.0	174.5	185.7	204.5	167.7	149.1
Females	39.1	39.7	37.5	41.6	56.0	61.9	67.7	77.8	74.0	69.4
Total	62.3	66.1	68.2	79.3	101.1	118.3	127.0	141.4	121.1	109.4

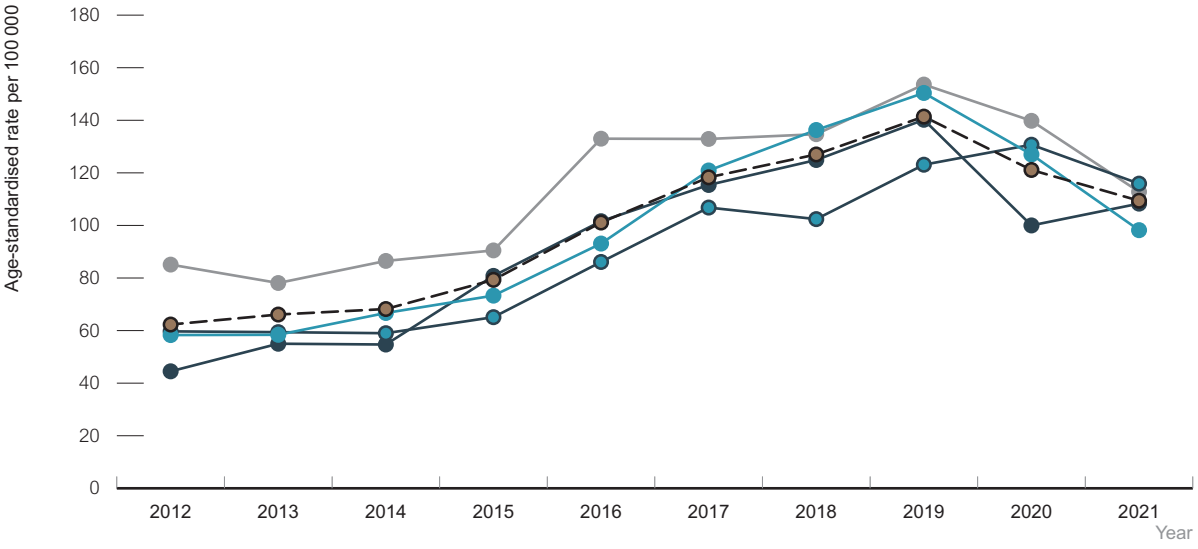
Source: Australian National Notifiable Diseases Surveillance System.

Between 2012 and 2019, the gonorrhoea notification rate increased for all age groups aged 25 years and older, with the largest increases among those aged 30 to 39 (214% increase) In 2021, the highest notification rates were among those aged 25 to 29 years (315.4 per 100 000), 20 to 24 years (289.3 per 100 000), and 30 to 39 years (223.2 per 100 000). Similar trends were seen among men and women.

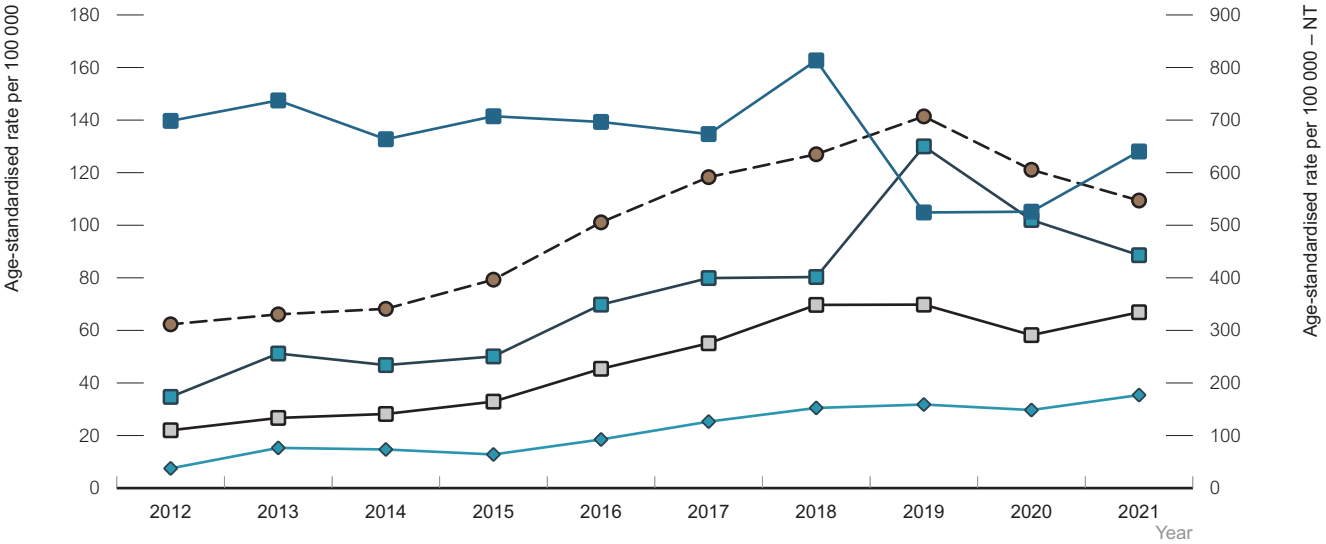
Among males in 2021, the highest notification rates were among those aged 25 to 29 years (434.4 per 100 000), 30 to 39 years (340.4 per 100 000), and 20 to 24 years (312.2 per 100 000). Among females in 2021, the highest notification rates were among those aged 20 to 24 years (261.9 per 100 000), 25 to 29 years (191.5 per 100 000), and 15 to 19 years (164.0 per 100 000). For full notifications data by age, please see the Kirby Institute data site.

By state and territory, the gonorrhoea notification rate was highest every year from 2012 to 2021 in the Northern Territory and was 640.3 per 100 000 in 2021. Between 2012 and 2019, gonorrhoea notification rates increased in every state and territory apart from the Northern Territory. Between 2019 and 2021 notification rates declined in New South Wales, Queensland, South Australia, Victoria, and Western Australia (Figure 11).

Figure 11 Gonorrhoea notification rate per 100 000 population by state/territory, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
NSW	58.3	58.4	66.7	73.3	93.1	120.9	136.3	150.4	127.0	98.2
QLD	59.7	59.4	59.0	65.1	86.1	106.8	102.4	123.1	130.7	115.9
VIC	44.5	55.0	54.7	80.8	101.6	115.4	124.9	140.2	100.0	108.3
WA	85.1	78.1	86.5	90.5	133.0	132.9	134.7	153.6	139.8	112.8
Australia	62.3	66.1	68.2	79.3	101.1	118.3	127.0	141.4	121.1	109.4

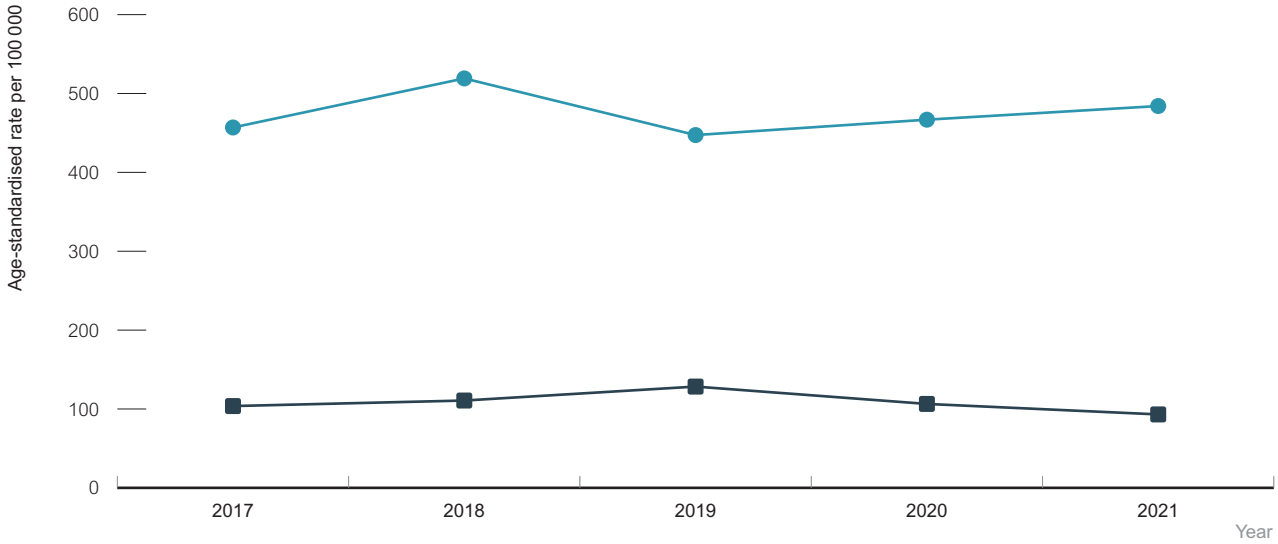


	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ACT	22.0	26.7	28.2	32.9	45.4	55.1	69.7	69.8	58.2	66.9
SA	34.7	51.2	46.8	50.1	69.8	79.9	80.3	130.0	102.0	88.6
TAS	7.5	15.3	14.7	12.8	18.5	25.3	30.5	31.8	29.7	35.4
Australia	62.3	66.1	68.2	79.3	101.1	118.3	127.0	141.4	121.1	109.4
NT	698.5	737.4	663.6	707.3	696.5	673.4	813.5	524.3	525.8	640.3

Source: Australian National Notifiable Diseases Surveillance System.

Between 2017 and 2021, the gonorrhoea notification rate among Aboriginal and Torres Strait Islander peoples fluctuated between 447.3 and 519.1 per 100 000. In 2021, the notification rate among Aboriginal and Torres Strait Islander peoples was 484.1 per 100 000. By comparison, there was a steady increase in the notification rate among non-Indigenous people from 103.7 per 100 000 in 2017 to 128.4 per 100 000 in 2019, followed by a decline to 93.1 per 100 000 in 2021 (Figure 12). In 2021 the notification rate among Aboriginal and Torres Strait Islander peoples was more than five times as high as among non-Indigenous people (Figure 12).

Figure 12 Gonorrhoea notification rate per 100 000 population by Aboriginal and Torres Strait Islander status, 2017–2021

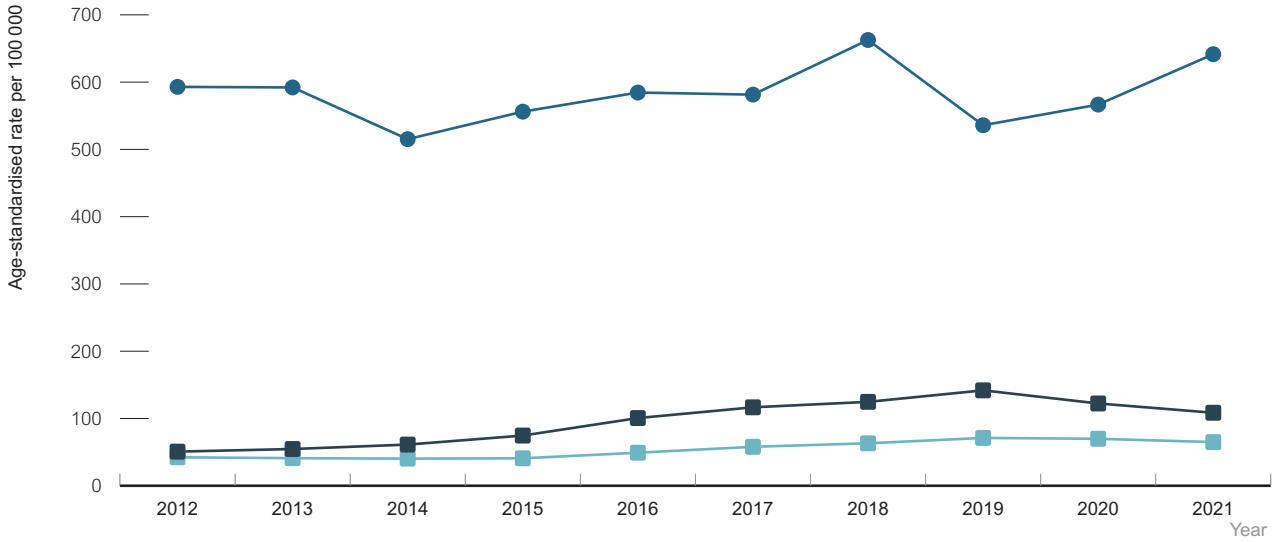


	2017	2018	2019	2020	2021
Non-Indigenous	103.7	110.7	128.4	106.4	93.1
Aboriginal and Torres Strait Islander	456.9	519.1	447.3	466.8	484.1

Source: Australian National Notifiable Diseases Surveillance System. Includes all jurisdictions, as Aboriginal and Torres Strait Islander status was reported for ≥50% of notifications for each year.

Between 2012 and 2019, gonorrhoea notification rates increased in major cities (179% increase) and regional areas (68% increase). Over the same period, the notification rate remained stable in remote areas (Figure 13). The notification rate declined in major cities and regional areas between 2019 and 2021. In 2021, gonorrhoea notification rates were highest in remote areas (641.5 per 100 000), followed by major cities (108.5 per 100 000) and regional areas (64.9 per 100 000) (Figure 13). Similar trends were seen in both males and females. For breakdowns of gonorrhoea notification rates by gender and remoteness classifications, please see the Kirby Institute data site.

Figure 13 Gonorrhoea notification rate per 100 000 population by region of residence, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Major cities	50.7	54.6	61.2	74.6	100.6	116.6	124.7	141.8	122.3	108.5
Regional areas	42.3	41.0	40.3	40.8	49.1	57.9	63.1	71.1	69.8	64.9
Remote areas	592.9	592.1	515.2	556.1	584.5	581.4	662.6	535.9	566.6	641.5

Source: Australian National Notifiable Diseases Surveillance System.

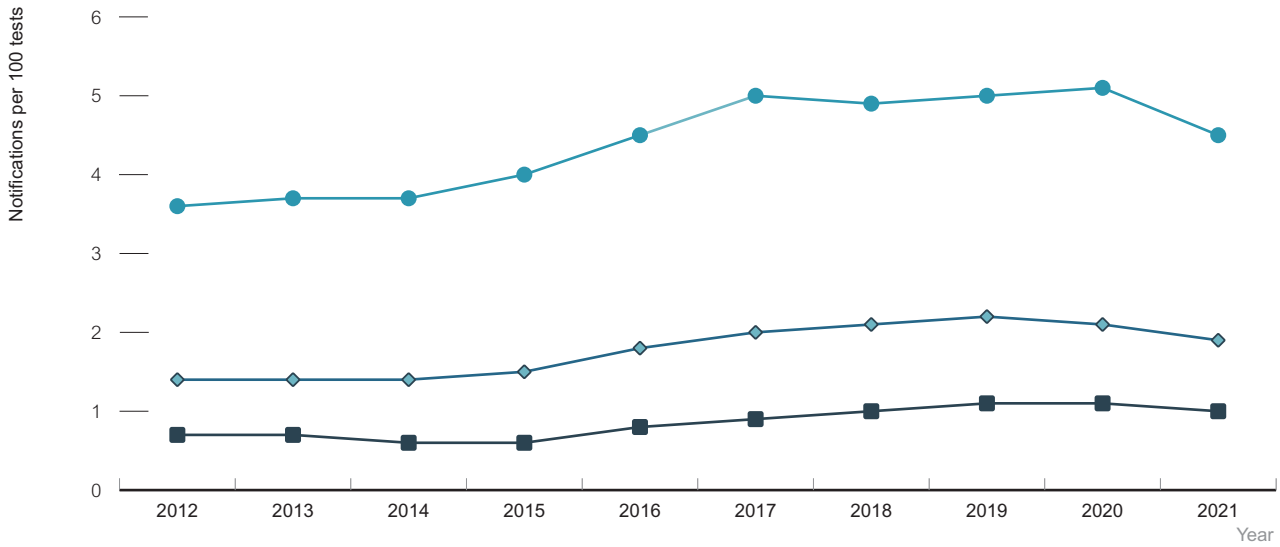
3.2 Gonorrhoea testing

Clinical guidelines recommend the opportunistic offer of gonorrhoea screening to all young people at least annually, in areas of high prevalence, and regular testing for sex workers [2]. Annual testing is recommended for sexually active gay and bisexual men, and testing every three months for men at higher risk on the basis of behavioural criteria and men taking pre-exposure prophylaxis (PrEP) [8]. Gonorrhoea testing data are included in this report from a number of sources including Medicare, sexual health clinics and high-caseload general practice clinics.

Medicare-rebated gonorrhoea tests

Between 2012 and 2019, the number of gonorrhoea notifications per 100 Medicare-rebated gonorrhoea tests increased by 57% from 1.4 in 2012 to 2.2 in 2019, with an increase in both males (39%) and females (57%) (Figure 14). Between 2019 and 2021, this number dropped from 2.2 to 1.9. The number of gonorrhoea notifications per 100 Medicare-rebated has been higher in males than females in each of the years since 2012 (4.5 vs 1.0 in 2021). These data suggest that the increases observed in notifications between 2012 and 2019 cannot be fully explained by more testing. (See Gonorrhoea notifications, pp 17).

Figure 14 Number gonorrhoea notifications per 100 Medicare-rebated gonorrhoea tests by gender, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Men	3.6	3.7	3.7	4.0	4.5	5.0	4.9	5.0	5.1	4.5
Women	0.7	0.7	0.6	0.6	0.8	0.9	1.0	1.1	1.1	1.0
Total	1.4	1.4	1.4	1.5	1.8	2.0	2.1	2.2	2.1	1.9

Source: Australian National Notifiable Diseases Surveillance System; Medicare.

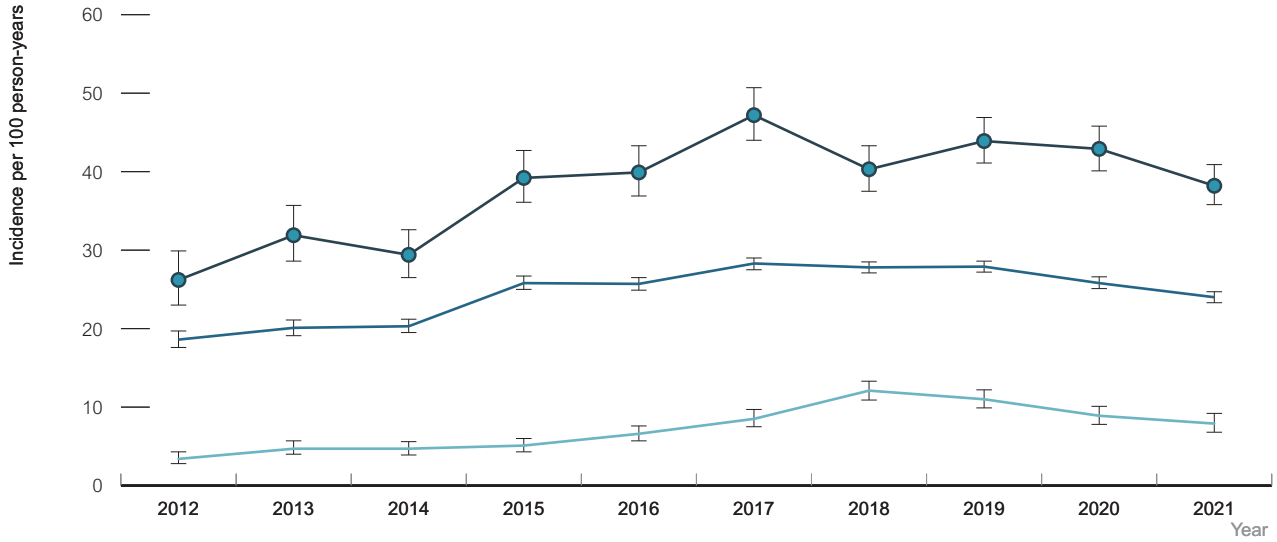
3.3 Gonorrhoea incidence

Gonorrhoea incidence is an important indicator of new transmissions, reflecting the impact of current prevention programs, whereas prevalence reflects the burden of disease. Gonorrhoea incidence is available from the ACCESS network and is calculated by dividing the number of incident infections (negative test followed by a positive test) among people undergoing repeat gonorrhoea testing at sexual health services by the person's time at risk (determined by the time between repeat gonorrhoea tests) [6]. These incidence estimates represent populations attending sexual health clinics and may not be generalisable to the broader priority populations.

In 2021, gonorrhoea incidence was 38.2 new infections per 100 person-years in HIV-positive gay and bisexual men, 59% greater than among HIV-negative gay and bisexual men (24.0 per 100 person-years). Between 2012 and 2021, gonorrhoea incidence increased in both HIV-positive (46% increase) and HIV-negative (29% increase) gay and bisexual men (Figure 15). Among female sex workers, gonorrhoea incidence increased by 132% from 3.4 per 100 person-years in 2012 to 7.9 per 100 person-years in 2021 (Figure 15).

Caution should be taken with interpretation as confidence intervals overlap between some years, indicating that between-year differences are not statistically significant.

Figure 15 Gonorrhoea incidence in sexual health clinic attendees by population, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
HIV-negative gay and bisexual men	18.6	20.1	20.3	25.8	25.7	28.3	27.8	27.9	25.8	24.0
HIV-positive gay and bisexual men	26.2	31.9	29.4	39.2	39.9	47.2	40.3	43.9	42.9	38.2
Female sex workers	3.4	4.7	4.7	5.1	6.6	8.5	12.1	11.0	8.9	7.9

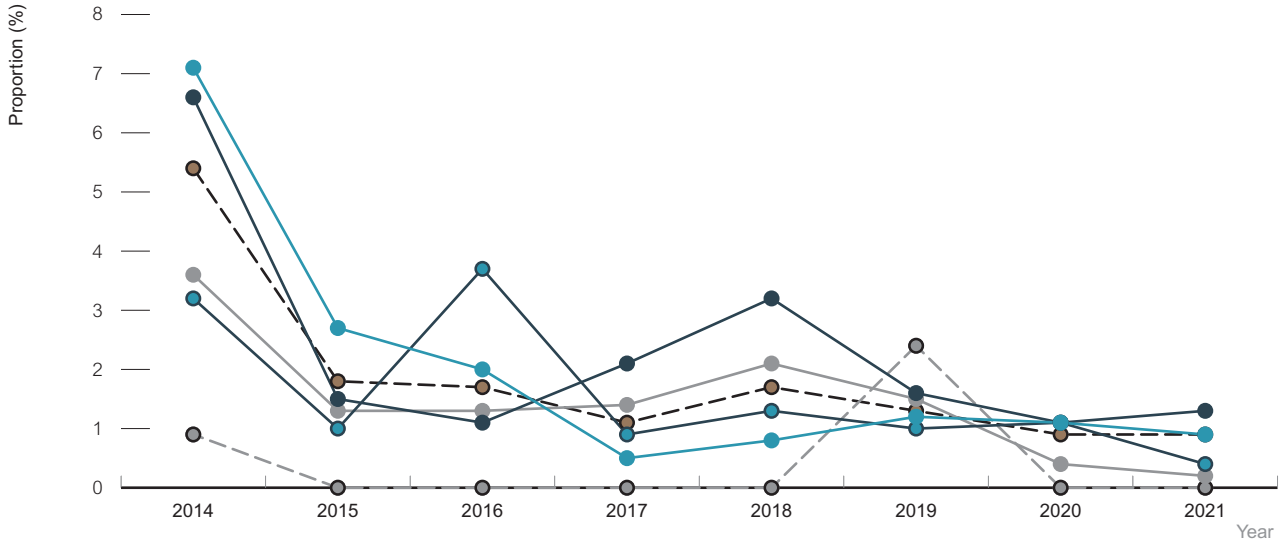
Source: ACCESS (Australian Collaboration for Coordinated Enhanced Sentinel Surveillance).

3.4 Antimicrobial resistance

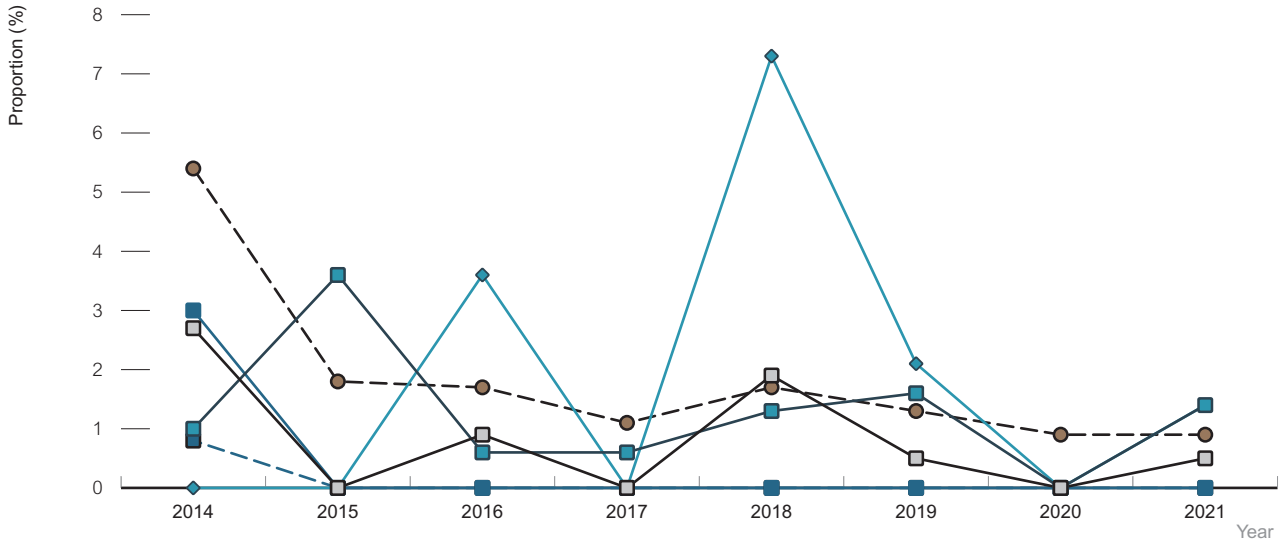
Since 1981, the Australian Gonococcal Surveillance Programme has monitored antimicrobial resistance in clinical isolates of *N. gonorrhoeae* in all states and territories. Ceftriaxone in combination with azithromycin is currently the recommended treatment for gonorrhoea in most places in Australia (except for some areas in northern and central Australia where amoxicillin and azithromycin are used).

Between 2014 and 2021, the proportion of gonococcal isolates tested for antimicrobial resistance with decreased susceptibility to ceftriaxone declined from 5.4% in 2014 to 0.9% in 2021. Decreased susceptibility to ceftriaxone remained low across all Australian states and territories in 2021 (Figure 16).

Figure 16 Proportion of gonococcal isolates tested at the Australian Gonococcal Surveillance Programme with decreased susceptibility to ceftriaxone, 2014–2021, by state/territory



	2014	2015	2016	2017	2018	2019	2020	2021
NSW	7.1	2.7	2.0	0.5	0.8	1.2	1.1	0.9
QLD	3.2	1.0	3.7	0.9	1.3	1.0	1.1	0.4
VIC	6.6	1.5	1.1	2.1	3.2	1.6	1.1	1.3
WA non-remote	3.6	1.3	1.3	1.4	2.1	1.5	0.4	0.2
WA remote	0.9	0.0	0.0	0.0	0.0	2.4	0.0	0.0
Australia	5.4	1.8	1.7	1.1	1.7	1.3	0.9	0.9



	2014	2015	2016	2017	2018	2019	2020	2021
ACT	2.7	0.0	0.9	0.0	1.9	0.5	0.0	0.5
SA	1.0	3.6	0.6	0.6	1.3	1.6	0.0	1.4
TAS	0.0	0.0	3.6	0.0	7.3	2.1	0.0	1.4
NT non-remote	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NT remote	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Australia	5.4	1.8	1.7	1.1	1.7	1.3	0.9	0.9

Note: Decreased susceptibility was defined as having an MIC (minimum inhibitory concentration) between 0.06 and 0.125 mg/L.

Source: Australian Gonococcal Surveillance Programme.

3.5 Gonorrhoea diagnosis and care cascade

This report includes the gonorrhoea diagnosis and care cascade for gay and bisexual men, which estimates the number of gay and bisexual men with new gonorrhoea infections in Australia, and the number and proportion who were diagnosed, received treatment and had a retest at between three and six weeks after treatment, as recommended in clinical guidelines [2].

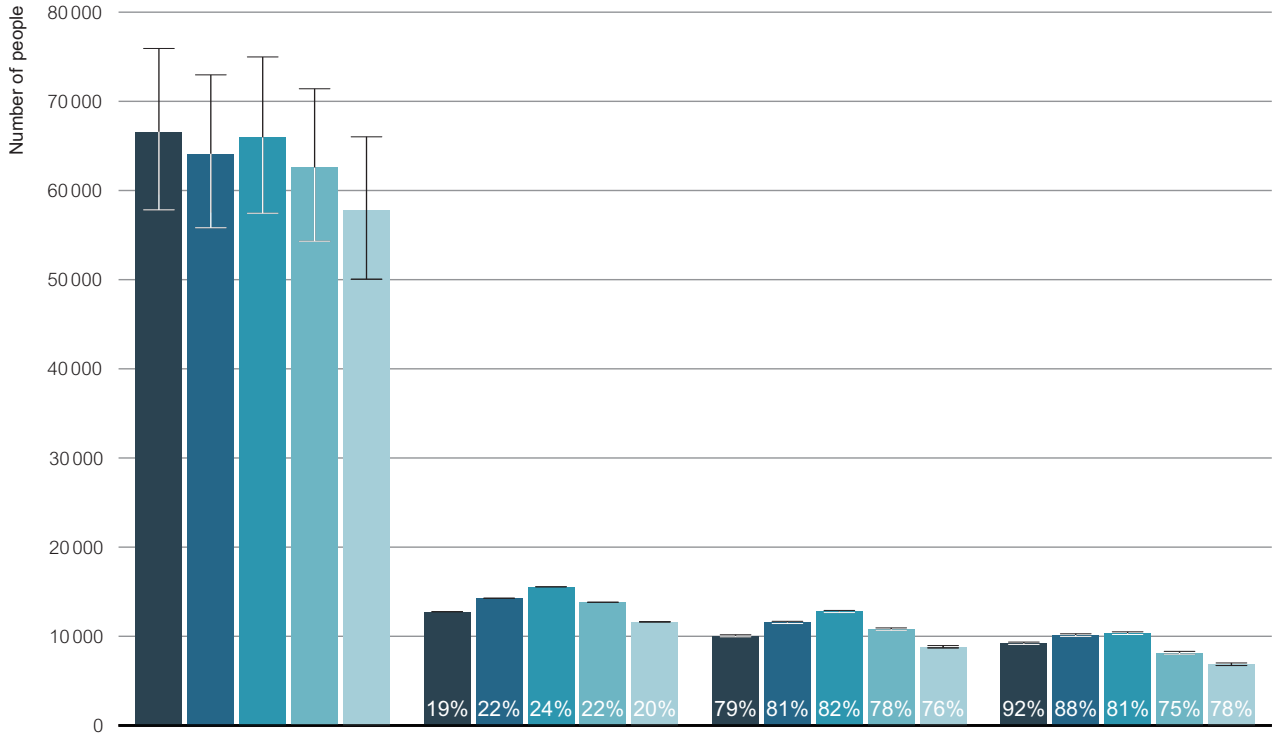
These estimates are used to support improvement in the delivery of services to gay and bisexual men infected with gonorrhoea across the entire continuum of care—from diagnosis of infection and uptake of treatment to retesting. As gonorrhoea is concentrated largely among urban gay and bisexual men and in young people living in remote Aboriginal and Torres Strait Islander communities, these populations are the focus of these cascades. Further data are needed to prepare data for a cascade for young people living in remote Aboriginal communities, which will be explored in future reports.

Using available data and accounting for uncertainties, the proportions of gay and bisexual men in each stage of the cascade in Australia were estimated. Methods and the associated uncertainties are described in detail in the Methodology. The approach was informed by recommendations from a national stakeholder reference group (see Acknowledgements section). The cascade focuses on gay and bisexual men, as guidelines recommend regular testing in this group and a significant proportion of gonorrhoea notifications occur in this group.

In 2021, there were an estimated 57 770 new gonorrhoea infections among gay and bisexual men, down from 66 590 new infections in 2017. Of new infections in 2021, an estimated 20% (11 620) were diagnosed, down from 24% (15 550) in 2019. Of those diagnosed in 2021, 77% (8930) received treatment, down from 83% (12 880) in 2019. Of those who received treatment in 2021, 77% (6860) had a retest between six weeks and six months after diagnosis, down from 80% (10 500) in 2019 (Figure 17).

The cascade shows that the greatest gap in the gonorrhoea cascade among gay and bisexual men was at the diagnosis step. It is important to note that many men may clear gonorrhoea naturally without treatment, particularly for those with throat infections [9], and may have had a test during 2021 which was negative (not counted in the diagnosis step). Conversely, most men with urethral infections would have rapidly developed symptoms and sought diagnosis and treatment [10]. Even so, it would be ideal for these infections to be detected soon after infection to prevent further transmission. It is also important to note that the total infections were calculated based on incidence estimates from men undergoing repeat testing at sexual health clinics (see section on Gonorrhoea incidence for details), who are likely to be at higher risk of gonorrhoea, so the total of new infections is likely to be an overestimation.

Figure 17 The gonorrhoea diagnosis and care cascade in gay and bisexual men, 2019–2021



	New infections	Diagnosed	Received treatment	Retested
2017	66 590	12 760	10 050	9 220
2018	64 130	14 270	11 560	10 140
2019	65 960	15 550	12 780	10 350
2020	62 580	13 820	10 800	8 150
2021	57 770	11 620	8 830	6 860

Source: See Methodology for further details of mathematical modelling used to generate estimates.

4 Infectious Syphilis

See page 5 for summary.

4.1 Infectious syphilis notifications

An expanded infectious syphilis national case definition was implemented in July 2015 which includes a new subcategory of 'probable' infectious syphilis to capture infectious syphilis cases in people without a prior testing history, particularly young people aged 15–19 years. The probable infectious syphilis cases are included in the number of infectious syphilis notifications for the years 2015–2021

There were 5570 infectious syphilis notifications (infections of less than two years' duration) in Australia in 2021. In 2021, 4533 (81%) infectious syphilis notifications were among males, 2945 (53%) were among people aged 25 to 39 years, and 4269 (77%) were among people residing in major cities. Also in 2021, 959 (17%) notifications were among Aboriginal and Torres Strait Islander peoples, 4233 (76%) were among non-Indigenous people and 378 notifications (7%) did not have Aboriginal and Torres Strait Islander status reported (Table 3).

In 2021, just under half (48%) of notifications of infectious syphilis among Aboriginal and Torres Strait Islander peoples were male compared with the majority (67%) among non-Indigenous people. See *Bloodborne viral and sexually transmissible infections in Aboriginal and Torres Strait Islander people: annual surveillance report 2022* for further details [1].

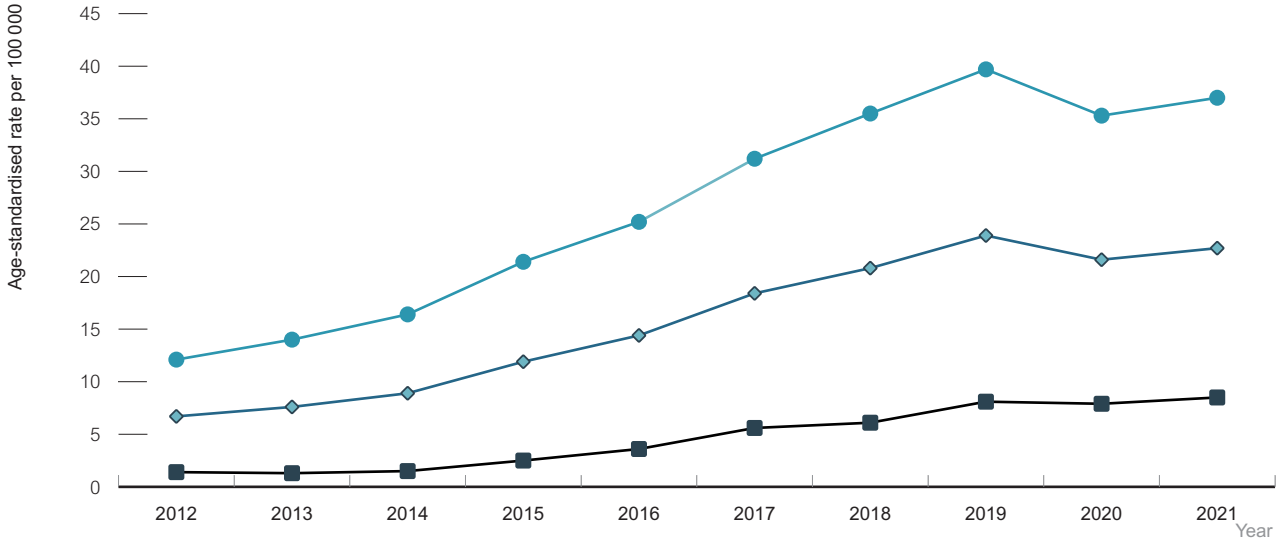
Table 3 Characteristics of syphilis notifications, 2012–2021

	Year of diagnosis									
Characteristic	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total cases	1519	1733	2044	2775	3379	4406	5067	5871	5326	5570
Gender										
Male	1366	1584	1881	2485	2956	3732	4315	4879	4354	4533
Female	151	148	162	287	414	655	732	965	950	1014
Missing	2	1	1	3	9	19	20	27	22	23
Age group										
0–14	1	1	8	12	14	22	9	29	17	15
15–19	21	34	67	104	170	225	213	280	276	251
20–24	128	144	185	343	427	569	664	703	611	580
25–29	220	233	285	449	617	817	933	1063	924	964
30-34	223	283	331	445	534	737	830	1067	971	1110
35–39	194	238	271	359	443	544	676	814	779	871
40+	732	800	897	1063	1174	1492	1742	1915	1748	1779
Remoteness										
Major cities	1174	1263	1554	1848	2400	3209	3824	4452	4059	4269
Regional	174	211	229	363	536	775	748	787	698	586
Remote	89	81	107	251	246	296	361	480	442	544
Missing	82	178	154	313	197	126	134	152	127	171
Aboriginal and Torres Strait Islander status										
Aboriginal and/or Torres Strait Islander	186	161	254	461	544	797	806	1034	901	959
Non-Indigenous	1255	1462	1677	2129	2589	3370	4005	4531	4127	4233
Not reported	78	110	113	185	246	239	256	306	298	378
Congenital syphilis										
Aboriginal and/or Torres Strait Islander	0	4	3	2	1	5	4	1	8	9
Non-Indigenous	0	3	0	2	1	3	4	2	8	6
Not reported	0	0	0	0	0	0	0	1	1	0
State/Territory										
ACT	15	10	18	14	13	33	54	66	56	39
NSW	491	580	767	739	874	1113	1517	1904	1716	1713
NT	14	23	72	206	231	322	350	342	270	212
QLD	389	333	395	572	683	1080	1127	1131	993	1043
SA	45	42	29	119	86	161	202	162	132	243
TAS	14	21	15	15	6	12	9	7	10	8
VIC	473	638	655	947	1149	1360	1374	1686	1428	1487
WA	78	86	93	163	337	325	434	573	721	825

Source: Australian National Notifiable Diseases Surveillance System.

Between 2012 and 2019, the infectious syphilis notification rate more than tripled from 6.7 to 23.9 per 100 000, followed by a 5% decline between 2019 and 2021 to 22.7 per 100 000. The decline in the notification rate between 2019 and 2021 is likely due to a decrease in testing rates related to the ongoing COVID-19 pandemic and may not be reflective of the trend in new infectious syphilis infections. Similar trends were seen among both males and females. Notification rates have remained higher among males than females for every year since before 2012 and in 2021, rates were 37.0 and 8.5 per 100 000, respectively (Figure 18).

Figure 18 Infectious syphilis notification rate per 100 000 population by gender, 2012–2021



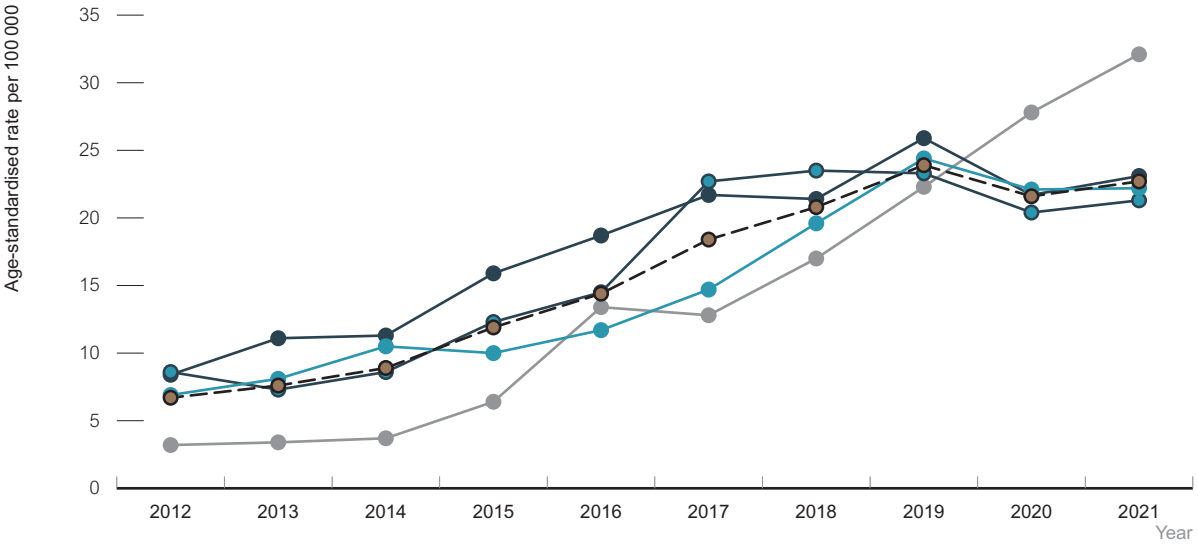
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Males	12.1	14.0	16.4	21.4	25.2	31.2	35.5	39.7	35.3	37.0
Females	1.4	1.3	1.5	2.5	3.6	5.6	6.1	8.1	7.9	8.5
Total	6.7	7.6	8.9	11.9	14.4	18.4	20.8	23.9	21.6	22.7

Source: Australian National Notifiable Diseases Surveillance System.

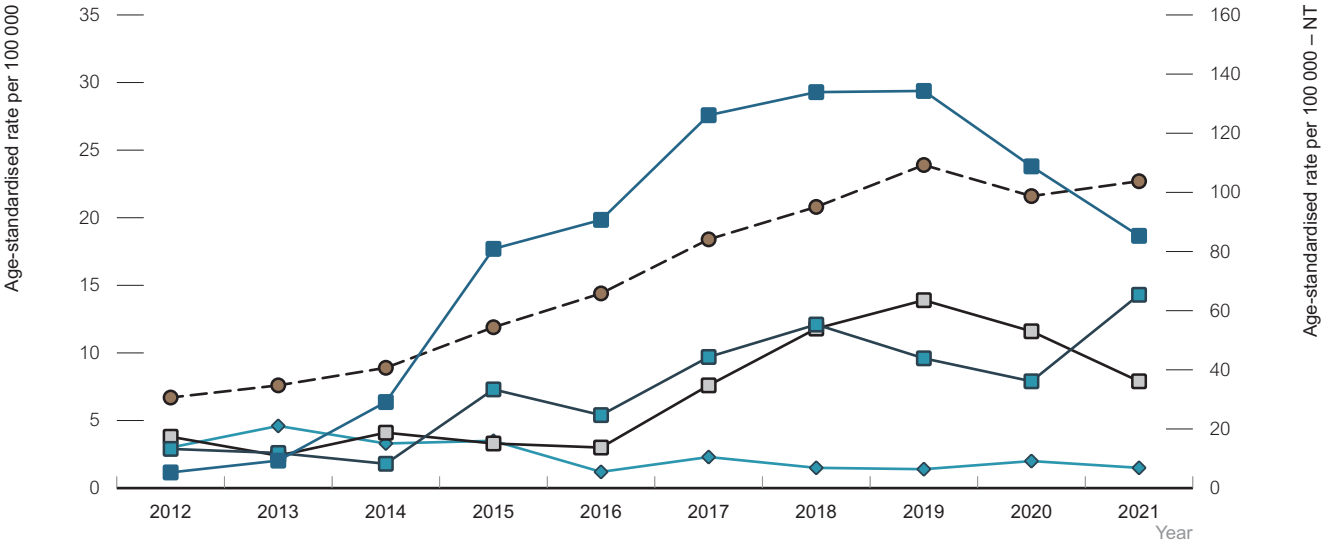
In 2021, infectious syphilis notification rates were highest among people aged 25 to 29 years (52.9 per 100 000), 30 to 39 years (52.6 per 100 000) and 20 to 24 years (35.7 per 100 000). Among males in 2021, the notification rates of infectious syphilis were highest in those aged 30 to 39 years (90.0 per 100 000), 25 to 29 years (82.0 per 100 000) and 20 to 24 years (43.8 per 100 000). For women, notification rates were highest among those aged 20 to 24 years (26.6 per 100 000), 25 to 29 years (22.7 per 100 000) and 15 to 19 years (18.8 per 100 000). Breakdowns of infectious syphilis notification rates by age and gender can be found on the Kirby Institute data site.

By state and territory in 2021, infectious syphilis notification rates were highest in the Northern Territory (85.3 per 100 000) and Western Australia (32.1 per 100 000). There was an increase in the infectious syphilis notification rate in every state and territory between 2012 and 2019, followed by declines in most states and territories between 2019 and 2021 (except for New South Wales, South Australia, and Western Australia; Figure 19).

Figure 19 Infectious syphilis notification rate per 100 000 population by state/territory, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
NSW	6.9	8.1	10.5	10.0	11.7	14.7	19.6	24.4	22.1	22.2
QLD	8.6	7.3	8.6	12.3	14.5	22.7	23.5	23.3	20.4	21.3
VIC	8.4	11.1	11.3	15.9	18.7	21.7	21.4	25.9	21.7	23.1
WA	3.2	3.4	3.7	6.4	13.4	12.8	17.0	22.3	27.8	32.1
Australia	6.7	7.6	8.9	11.9	14.4	18.4	20.8	23.9	21.6	22.7



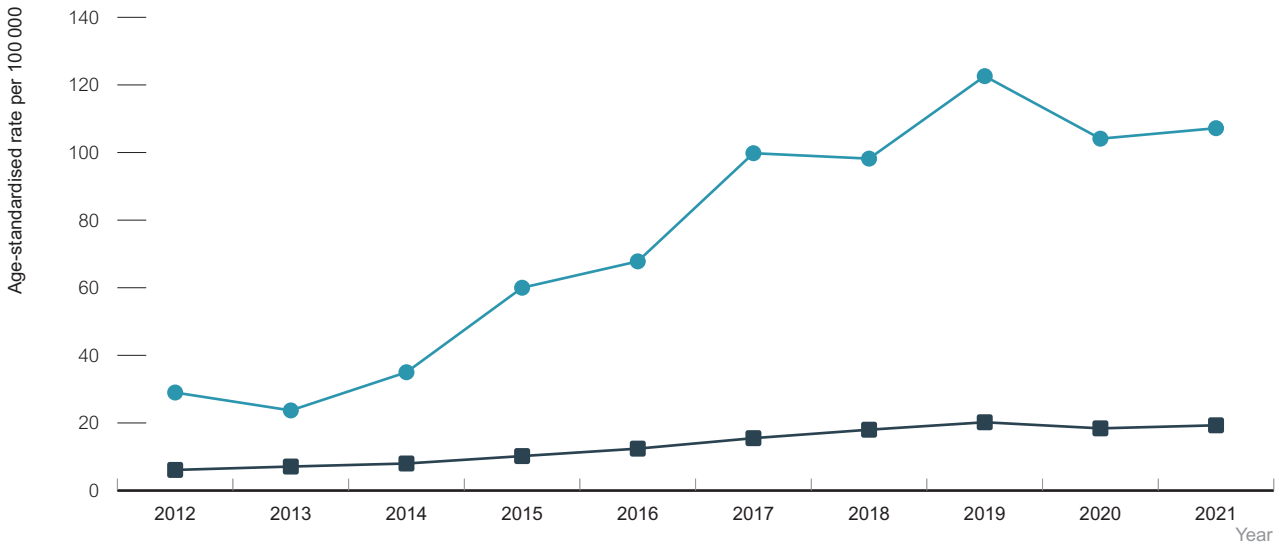
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ACT	3.8	2.4	4.1	3.3	3.0	7.6	11.8	13.9	11.6	7.9
SA	2.9	2.6	1.8	7.3	5.4	9.7	12.1	9.6	7.9	14.3
TAS	3.0	4.6	3.3	3.5	1.2	2.3	1.5	1.4	2.0	1.5
Australia	6.7	7.6	8.9	11.9	14.4	18.4	20.8	23.9	21.6	22.7
NT	5.3	9.3	29.1	80.9	90.7	126.1	133.9	134.3	108.8	85.3

Source: Australian National Notifiable Diseases Surveillance System.

Between 2012 and 2019, the infectious syphilis notification rate among Aboriginal and Torres Strait Islander peoples increased more than four-fold from 29.0 to 122.6 per 100 000. In 2021, the infectious syphilis notification rate among Aboriginal and Torres Strait Islander peoples was 107.2 per 100 000, 5.5 times as high as among the non-Indigenous people rate of 19.3 per 100 000 (Figure 20).

In 2021, 18% of infectious syphilis notifications among Aboriginal and Torres Strait Islander peoples were among people aged 15 to 19 years, compared to 2% among non-Indigenous people. See *Bloodborne viral and sexually transmissible infections in Aboriginal and Torres Strait Islander people: annual surveillance report 2022* for further details [1].

Figure 20 Infectious syphilis notification rate per 100 000 population by Aboriginal and Torres Strait Islander status, 2012–2021

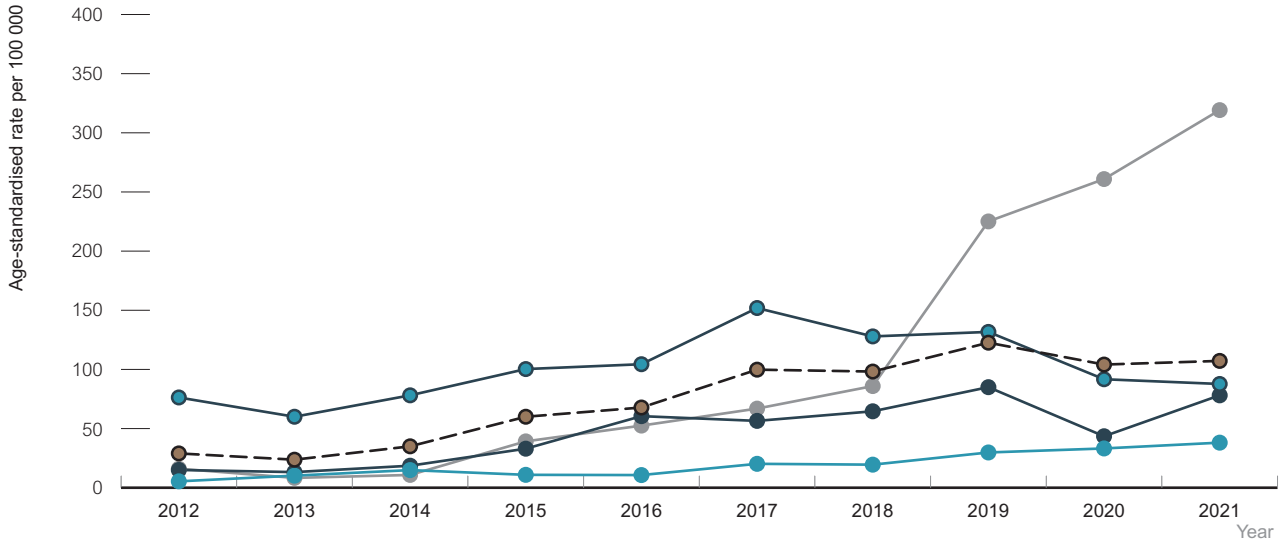


	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Non-Indigenous	6.1	7.1	8.0	10.2	12.4	15.5	18.0	20.2	18.4	19.3
Aboriginal and Torres Strait Islander	29.0	23.7	35.0	60.0	67.8	99.8	98.2	122.6	104.1	107.2

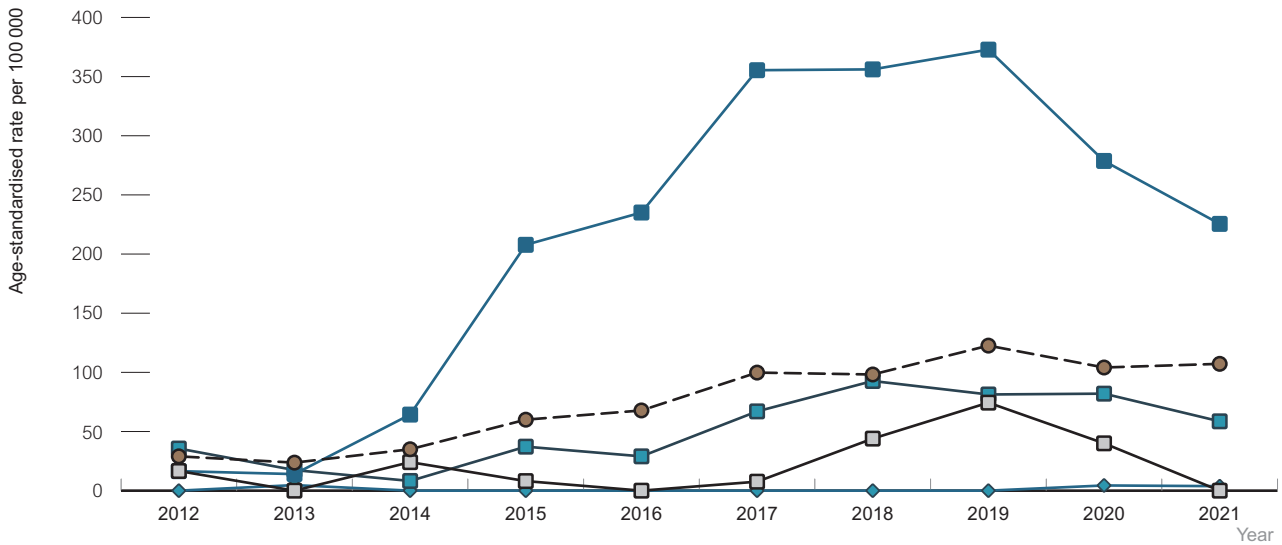
Source: Australian National Notifiable Diseases Surveillance System. Includes all jurisdictions, as Aboriginal and Torres Strait Islander status was reported for ≥50% of notifications for each year.

In 2021, infectious syphilis notification rates among Aboriginal and Torres Strait Islander peoples were highest in the Western Australia (319.2 per 100 000) and the Northern Territory (225.5 per 100 000).

Figure 21 Infectious syphilis notification rate per 100 000 population among Aboriginal and Torres Strait Islander status peoples by state/territory, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
NSW	5.4	10.2	14.9	10.9	10.7	20.2	19.5	29.8	33.2	38.1
QLD	76.3	60.0	78.1	100.3	104.4	151.9	127.9	131.7	91.7	87.7
VIC	15.0	13.2	18.6	33.0	60.5	56.5	64.6	85.0	43.5	78.1
WA	16.1	8.3	10.8	39.2	52.5	66.9	85.9	225.1	260.9	319.2
Australia	29.0	23.7	35.0	60.0	67.8	99.8	98.2	122.6	104.1	107.2



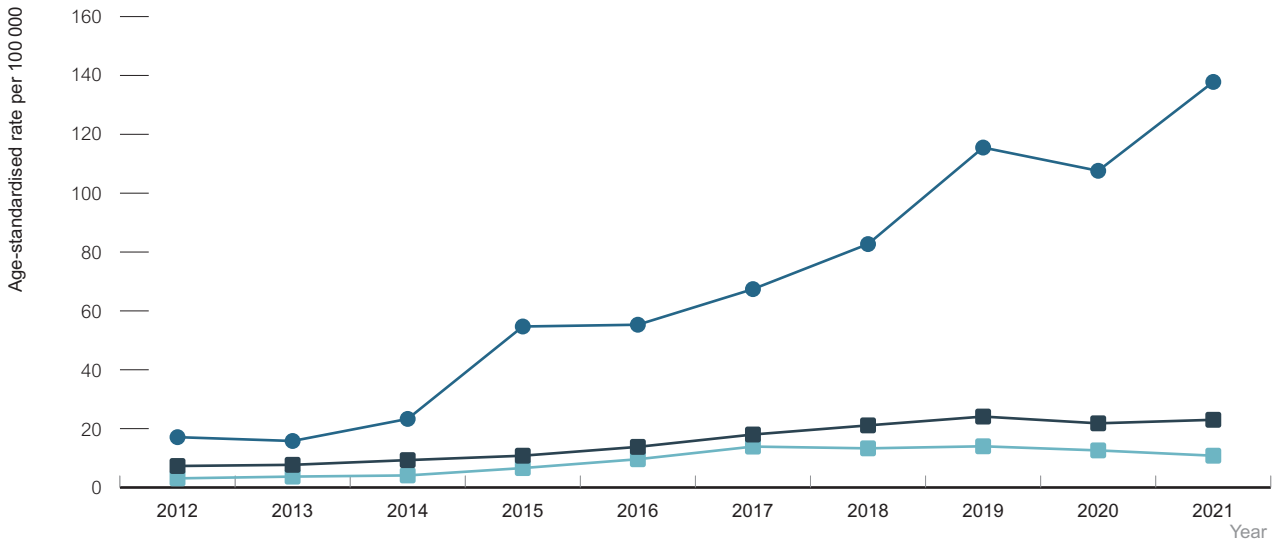
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ACT	16.6	0.0	24.1	8.1	0.0	7.6	44.0	74.4	40.0	0.0
NT	16.5	14.0	64.3	207.8	235.1	355.4	356.1	372.8	278.7	225.5
SA	35.6	17.4	8.2	37.2	29.0	67.0	92.7	81.3	82.0	58.6
TAS	0.0	4.7	0.0	0.0	0.0	0.0	0.0	0.0	4.4	3.8
Australia	29.0	23.7	35.0	60.0	67.8	99.8	98.2	122.6	104.1	107.2

Source: Australian National Notifiable Diseases Surveillance System. Includes all jurisdictions, as Aboriginal and Torres Strait Islander status was reported for ≥50% of notifications for each year.

In 2021, infectious syphilis notification rates were higher in remote areas (137.8 per 100 000) when compared with major cities (23.0 per 100 000) and regional areas (10.8 per 100 000) (Figure 22). Among males in 2021, the notification rate was 40.7 per 100 000 in major cities, 14.6 per 100 000 in regional areas, and 115.5 per 100 000 in remote locations. (Figure 23). For comparison, in the same year and among females, the notification rate was 5.5 per 100 000 in major cities, 7.0 per 100 000 in regional areas, and 161.3 per 100 000 in remote areas (Figure 24).

By remoteness classification among Aboriginal and Torres Strait Islander peoples, the infectious syphilis notification rate for people residing in remote areas (332.8 per 100 000) was higher compared to those living in major cities (73.7 per 100 000) and regional areas (50.8 per 100 000). By comparison, the highest notification rate for non-Indigenous people was in major cities (22.2 per 100 000). See *Bloodborne viral and sexually transmissible infections in Aboriginal and Torres Strait Islander people: annual surveillance report 2022* for further details [1].

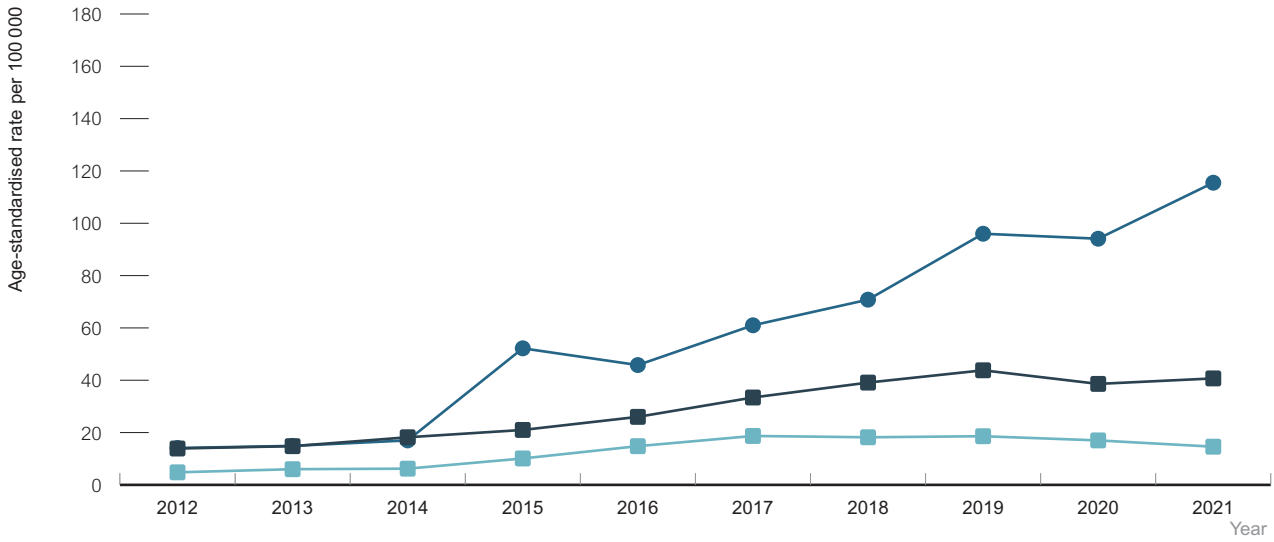
Figure 22 Infectious syphilis notification rate per 100 000 population by region of residence, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Major cities	7.3	7.7	9.3	10.8	13.8	18.0	21.1	24.1	21.8	23.0
Regional	3.1	3.7	4.1	6.6	9.6	13.9	13.3	14.0	12.6	10.8
Remote	17.1	15.8	23.3	54.7	55.3	67.4	82.7	115.5	107.6	137.8

Source: Australian National Notifiable Diseases Surveillance System.

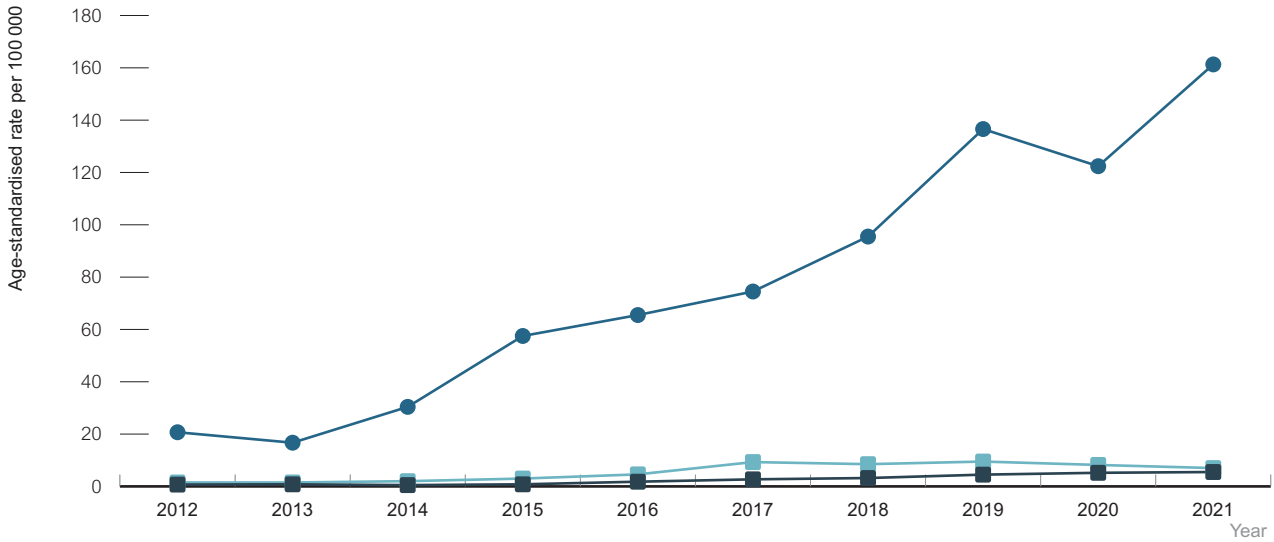
Figure 23 Infectious syphilis notifications per 100 000 males by region of residence, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Major cities	13.9	14.8	18.2	21.0	26.0	33.4	39.1	43.8	38.6	40.7
Regional	4.8	6.0	6.2	10.1	14.8	18.7	18.2	18.6	17.0	14.6
Remote	14.1	14.9	17.0	52.2	45.8	61.0	70.8	96.0	94.1	115.5

Source: Australian National Notifiable Diseases Surveillance System.

Figure 24 Infectious syphilis notifications per 100 000 females by region of residence, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Major cities	0.7	0.8	0.5	0.8	1.8	2.7	3.2	4.5	5.2	5.5
Regional	1.5	1.5	2.0	3.0	4.6	9.3	8.5	9.5	8.2	7.0
Remote	20.7	16.7	30.4	57.5	65.5	74.5	95.5	136.6	122.4	161.3

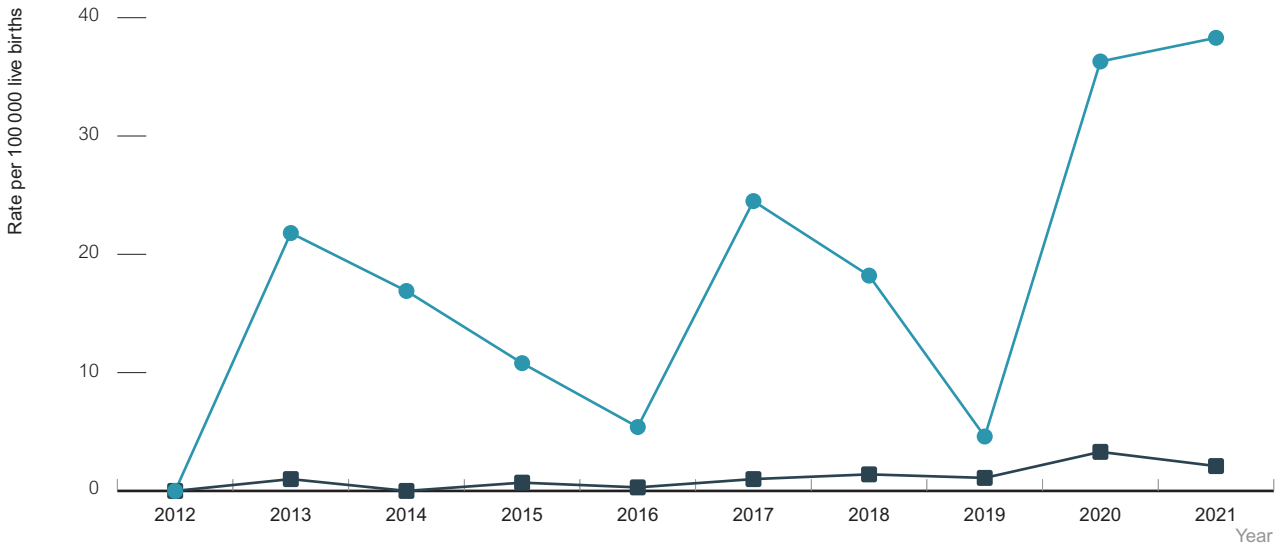
Source: Australian National Notifiable Diseases Surveillance System.

4.2 Congenital syphilis

Between 2012 and 2021 there were 68 cases of congenital syphilis notified in Australia. Of those, 37 (54%) were among Aboriginal and Torres Strait Islander peoples. Of the 15 congenital syphilis cases notified in 2021, nine were among Aboriginal and Torres Strait Islander peoples and six were among non-Indigenous people (see Table 3, pp 29). It is important to note that there were 17 deaths (including stillbirths) associated with congenital syphilis notifications in the reporting period.

The congenital syphilis notification rate among Aboriginal and Torres Strait Islander peoples was 38.3 per 100 000 live births in 2021, the highest rate since before 2012. In 2021, the congenital syphilis notification rate among Aboriginal and Torres Strait Islander peoples was more than 18 times as high as the notification rate among non-Indigenous people (2.1 per 100 000) (Figure 25). See *Bloodborne viral and sexually transmissible infections in Aboriginal and Torres Strait Islander people: annual surveillance report 2022* for further details [1].

Figure 25 Congenital syphilis rate per 100 000 live births by Aboriginal and Torres Strait Islander status, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Non-Indigenous[a]	0.0	1.0	0.0	0.7	0.3	1.0	1.4	1.1	3.3	2.1
Aboriginal and Torres Strait Islander	0.0	21.8	16.9	10.8	5.4	24.5	18.2	4.6	36.3	38.3

a Includes notifications where Aboriginal and Torres Strait Islander status was not reported.

Source: Australian National Notifiable Diseases Surveillance System.

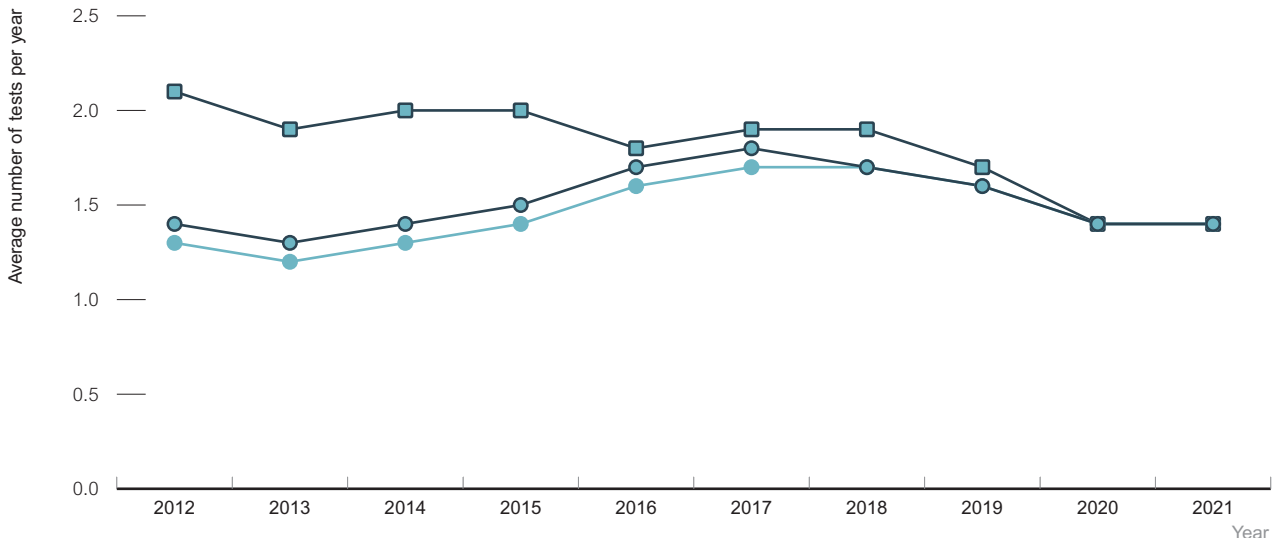
4.3 Syphilis testing

Clinical guidelines recommend at least annual STI testing for all sexually active gay and bisexual men, increasing to every three months for men with higher risk behaviour, and at each monitoring visit for HIV-positive gay and bisexual men [2].

Repeat syphilis testing is recommended as part of routine antenatal screening early in the third trimester (28-32 weeks), including syphilis testing for women less than 30 years of age. Also, guidelines may vary by local area, particularly in areas with a declared outbreak. For sexually active people aged under 15 to 29 years, annual opportunistic syphilis testing is recommended, with more frequent testing recommended in areas of high prevalence [2].

The number of syphilis tests per year among gay and bisexual men can give an indication of adherence to recommendations in the clinical guidelines [2]. The average number of syphilis tests per year among gay and bisexual men attending sexual health clinics and high-caseload general practice clinics in the ACCESS network fluctuated between 2012 and 2021 and was 1.4 tests per year in 2021. Among HIV-positive gay and bisexual men, the average number of syphilis tests declined from 2.1 tests per year in 2012 to 1.4 tests per year in 2021. Among HIV-negative gay and bisexual men in the same period, the average number of syphilis tests fluctuated and was 1.4 tests per year in 2021.

Figure 26 Average number of syphilis tests per year among gay and bisexual men by HIV status, 2012–2021

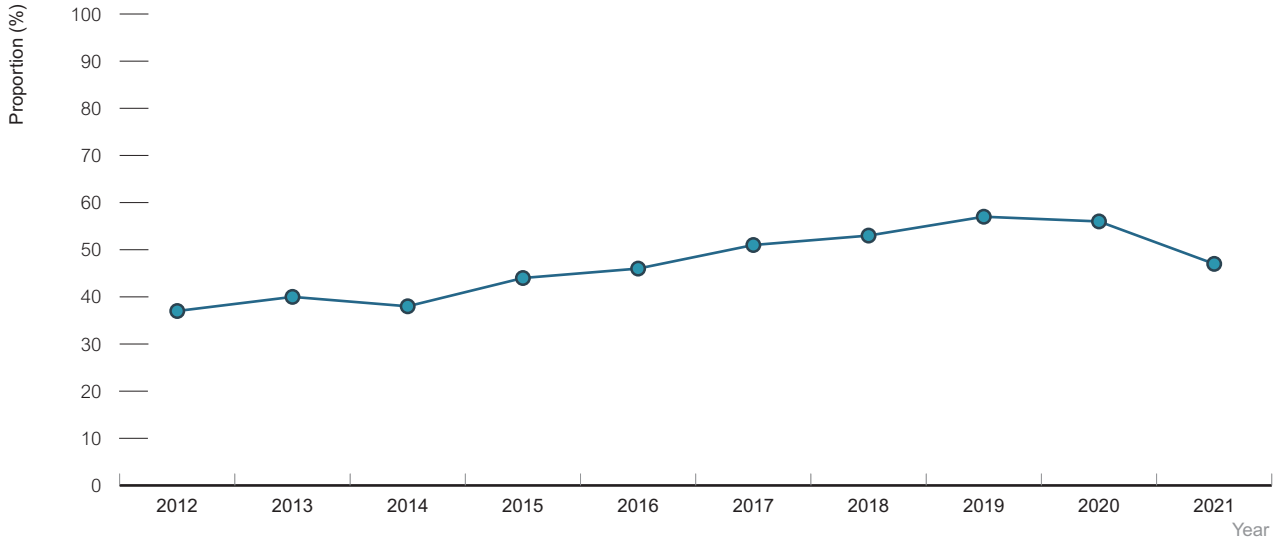


	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
All gay and bisexual men	1.4	1.3	1.4	1.5	1.7	1.8	1.7	1.6	1.4	1.4
HIV-negative gay and bisexual men	1.3	1.2	1.3	1.4	1.6	1.7	1.7	1.6	1.4	1.4
HIV-positive gay and bisexual men	2.1	1.9	2.0	2.0	1.8	1.9	1.9	1.7	1.4	1.4

Source: ACCESS (Australian Collaboration for Coordinated Enhanced Sentinel Surveillance).

In 2021, the Gay Community Periodic Surveys report that 47% of gay and bisexual men completed comprehensive STI testing (at least four samples collected) in the 12 months prior to the survey. This proportion has increased from 37% in 2012 (Figure 27). The change is largely attributed to increased collection of rectal and throat swabs. For more information, see *Annual reports of trends in behaviour* [11].

Figure 27 Gay and bisexual men reporting comprehensive STI testing in the 12 months prior to the survey, 2012–2021



Proportion (%)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	37	40	38	44	46	51	53	57	56	47

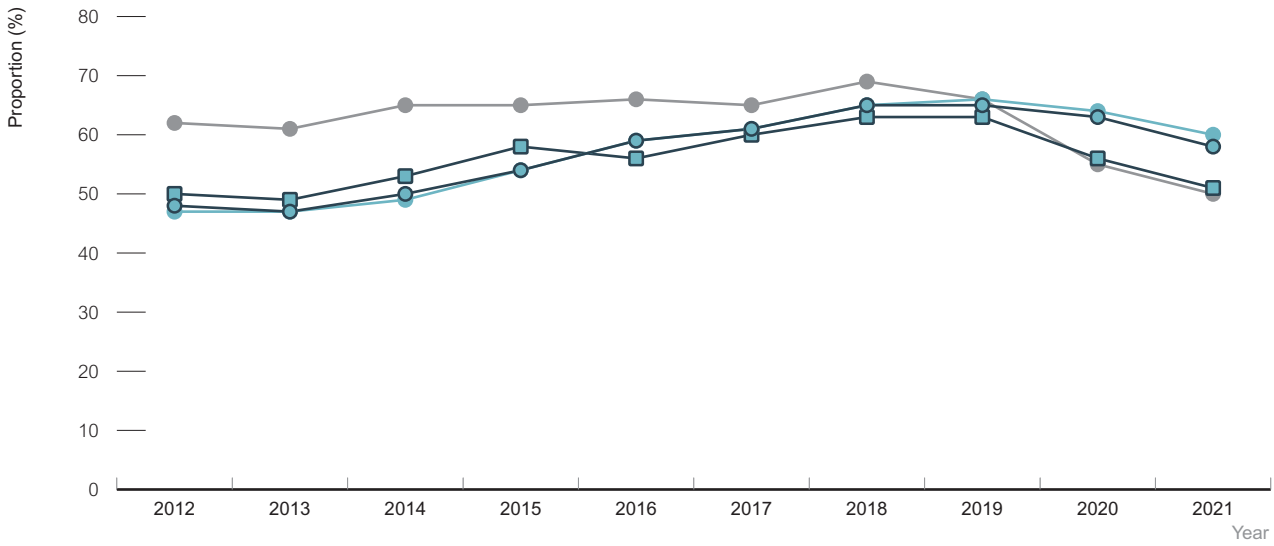
Note: Comprehensive testing is defined as the collection of samples of at least four of the following: anal swab, throat swab, penile swab, urine, blood, among men tested for STI in the previous 12 months.

Source: Gay Community Periodic Surveys.

Repeat comprehensive testing

In 2021, among gay and bisexual men attending sexual health clinics in the ACCESS network, 58% had a repeat comprehensive STI screen (includes chlamydia and gonorrhoea test on any anatomical site, syphilis and HIV among HIV-negative men) within 13 months of a previous comprehensive screen, an increase from 48% in 2012, but a decline from 65% in 2019 (Figure 28). The trend over time in the proportion with repeat comprehensive screening was similar between HIV-positive and HIV-negative gay and bisexual men between 2012 and 2021. Among female sex workers attending sexual health clinics in the ACCESS network, the proportion who had a repeat comprehensive STI screen increased from 62% in 2012 to 66% in 2019, and then declined to 50% in 2021.

Figure 28 Repeat comprehensive STI screen within 13 months of a test among gay and bisexual men by HIV-status and female sex workers, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
All gay and bisexual men (%)	48	47	50	54	59	61	65	65	63	58
HIV-negative gay and bisexual men (%)	47	47	49	54	59	61	65	66	64	60
HIV-positive gay and bisexual men (%)	50	49	53	58	56	60	63	63	56	51
Female sex workers (%)	62	61	65	65	66	65	69	66	55	50

Note: Repeat screening pertains to prospective 13-month period. A comprehensive screen is defined as a test for chlamydia and gonorrhoea (any anatomical site), syphilis and HIV (among HIV-negative men).

Source: ACCESS (Australian Collaboration for Coordinated Enhanced Sentinel Surveillance).

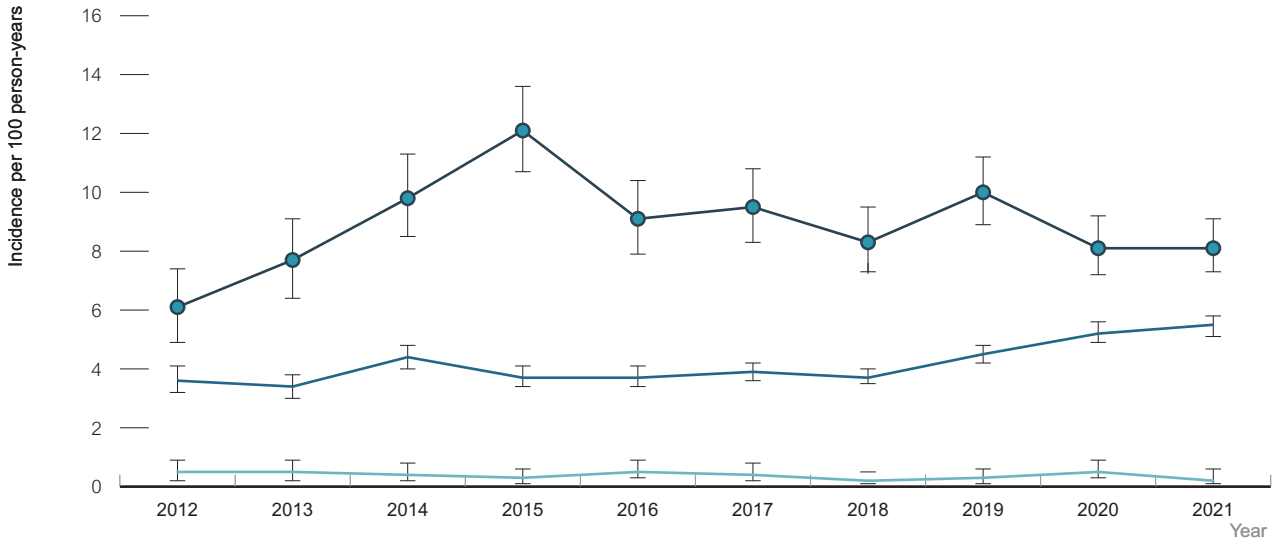
4.4 Infectious syphilis incidence

Infectious syphilis incidence is an important indicator of new transmissions, reflecting the impact of current prevention programs, whereas prevalence reflects the burden of disease. Infectious syphilis incidence is available from the ACCESS network and is calculated by dividing the number of incident infections (negative test followed by a syphilis diagnosis) among people undergoing repeat syphilis testing at sexual health services by the person's time at risk (determined by the time between repeat syphilis tests) [6]. These incidence estimates represent populations attending sexual health clinics and may not be generalisable to broader priority populations.

In 2021, the incidence of infectious syphilis among HIV-positive gay and bisexual men attending sexual health clinics was 8.1 new infections per 100 person-years, compared with 5.5 per 100 person-years among HIV-negative gay and bisexual men. Between 2012 and 2021, infectious syphilis incidence increased among HIV-negative gay and bisexual men by 50% (from 3.6 per 100 person-years). By comparison, infectious syphilis incidence increased among HIV-positive gay and bisexual men by 32% (from 6.1 per 100 person-years in 2012) (Figure 29). Caution should be taken with interpretating between-year trends as confidence intervals overlap, indicating that between-year differences are not statistically significant.

In 2021, the infectious syphilis incidence rate among female sex workers was 0.2 per 100 person-years, down from 0.5 per 100 person-years in 2012 (Figure 29). Small numbers of female sex workers included in incidence calculations mean that this trend should be interpreted with caution.

Figure 29 Infectious syphilis incidence in sexual health clinic attendees by select population, 2012–2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
HIV-negative gay and bisexual men	3.6	3.4	4.4	3.7	3.7	3.9	3.7	4.5	5.2	5.5
HIV-positive gay and bisexual men	6.1	7.7	9.8	12.1	9.1	9.5	8.3	10.0	8.1	8.1
Female sex workers	0.5	0.5	0.4	0.3	0.5	0.4	0.2	0.3	0.5	0.2

Source: ACCESS (Australian Collaboration for Coordinated Enhanced Sentinel Surveillance).

4.5 Syphilis diagnosis and care cascade

For this first time, this report includes the syphilis diagnosis and care cascade for gay and bisexual men, which estimates the number of gay and bisexual men with infectious syphilis infections in Australia, and the number and proportion who were diagnosed, received treatment and had a retest at around three months after treatment, as recommended in clinical guidelines [2].

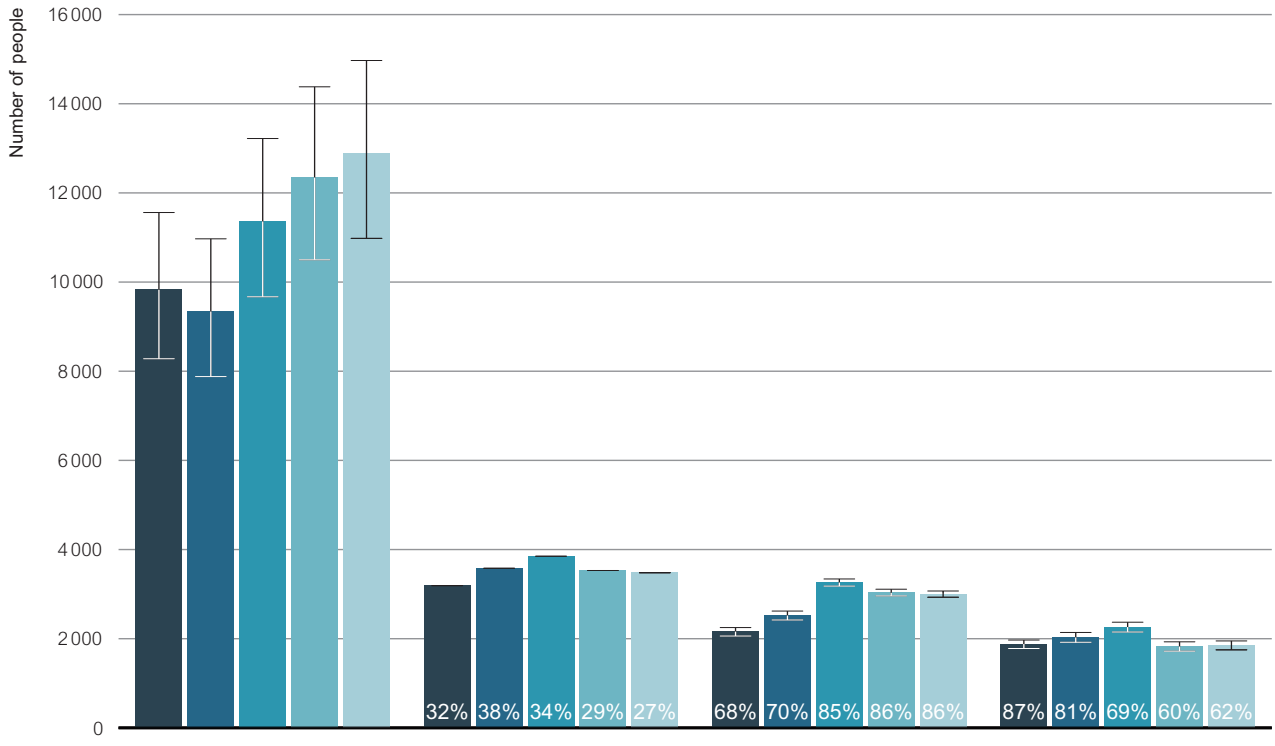
These estimates are used to support improvement in the delivery of services to gay and bisexual men infected with syphilis across the entire continuum of care—from diagnosis of infection and uptake of treatment to retesting. As infectious syphilis is concentrated largely among urban gay and bisexual men and in young people living in remote Aboriginal and Torres Strait Islander communities, these populations are the focus of the cascades. Further data are needed to prepare data for an infectious syphilis cascade for young people living in remote Aboriginal communities, which will be explored in future reports.

Using available data and accounting for uncertainties, the proportions of gay and bisexual men in each stage of the cascade in Australia were estimated. Methods and the associated uncertainties are described in detail in the Methodology. The approach was informed by recommendations from a national stakeholder reference group (see Acknowledgments section). The cascade focuses on gay and bisexual men, as guidelines recommend regular testing in this group and a significant proportion of infectious syphilis notifications occur in this group.

In 2021, there were an estimated 12 890 new syphilis infections among gay and bisexual men, up from 11560 new infections in 2017. Of new infections in 2021, an estimated 27% (3480) were diagnosed, down from 32% (3190) in 2017. Of those diagnosed in 2021, 86% (3070) received treatment, down from 68% (2250) in 2017. Of those who received treatment in 2021, only 62% (1750) had a retest between six weeks and six months after diagnosis, down from 87% (1780) in 2017 (Figure 30).

The cascade shows that the greatest gap in the syphilis cascade among gay and bisexual men was at the diagnosis step. In 2019, STI testing guidelines were updated to add an increased focus on syphilis testing for men who have sex with men. This change may have altered the frequency of infectious syphilis testing and which people were tested from 2019 [8]. Also, it is important to note that the total infections were calculated based on incidence estimates from men undergoing repeat testing at sexual health clinics (see Infectious syphilis incidence section for details), who are likely to be at higher risk of syphilis, so the total of new infections is likely to be an overestimation.

Figure 30 The syphilis diagnosis and care cascade in gay and bisexual men, 2019–2021



	New infections	Diagnosed	Received treatment	Retested
2017	9 830	3 190	2 160	1 880
2018	9 340	3 580	2 520	2 030
2019	11 360	3 850	3 260	2 260
2020	12 350	3 530	3 030	1 820
2021	12 890	3 480	3 000	1 850

Source: See Methodology for further details of mathematical modelling used to generate estimates.

5 Human papillomavirus infection

5.1 Genital warts diagnoses

In Australia all girls aged 12 to 13 years have been routinely offered at least two doses of human papilloma virus (HPV) vaccination since 2007, as have boys of the same age since 2013. The Genital Warts Surveillance Network is a sentinel surveillance system that includes over 50 sexual health clinics across Australia and provides evaluation of the population-level effects of the Australian vaccination program. The network also monitors epidemiological trends of genital wart diagnoses by routinely collected de-identified data on demographics, sexual behaviours, associated with genital wart clinical diagnoses from patient management systems.

Information available from sexual health clinics included in the Genital Warts Surveillance Network has shown a considerable reduction in the proportion of Australian-born non-Indigenous females under 21 years of age diagnosed with genital warts at first visit among, from 13.0% in 2006 to 0.7% in 2021 (Figure 31). In the same period, among women aged 21 to 29 years there was also a decline in the proportion who were diagnosed with genital warts at first visit from 16.0% to 0.8% in 2021, reflecting the catch-up vaccination campaign in women aged up to 26 years between 2007 and 2009. Among women aged 30 years or older; there was a more gradual decline from 6.8% in 2006 to 2.2% in 2021.

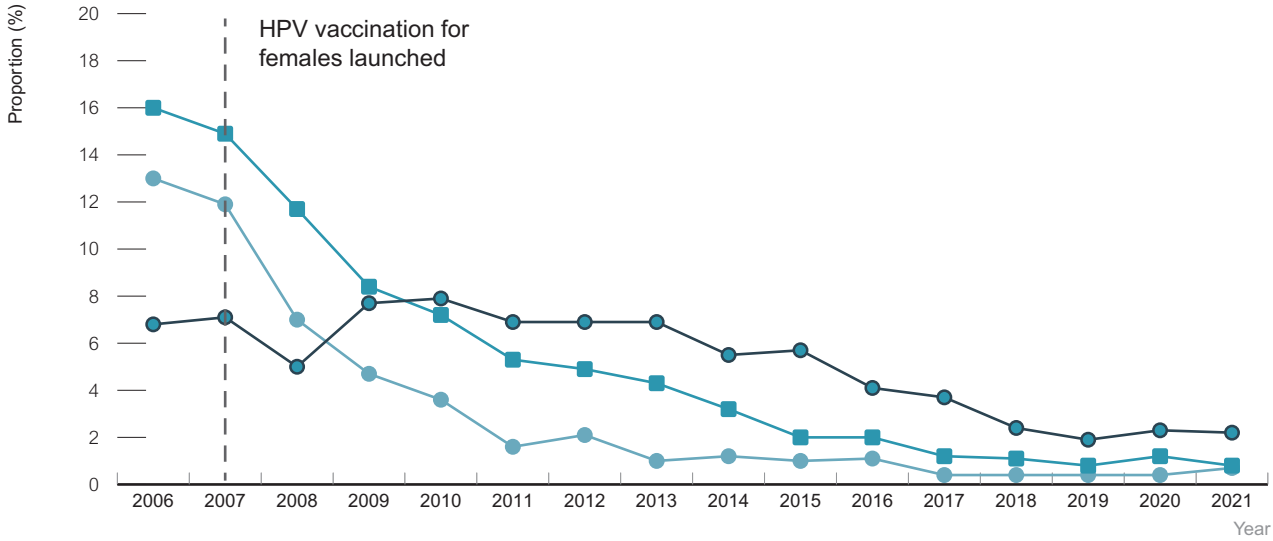
Among Australian-born non-Indigenous heterosexual males aged under 21 years, there was a reduction in the proportion diagnosed with genital warts at first visit from 9.8% in 2006 to 0.0% in 2021 (Figure 32). The proportion of genital warts diagnoses in men aged 21 to 29 years declined from 17.2% in 2006 to 2.3% in 2021. Among men aged 30 years or older, this proportion declined from 12.0% in 2006 to 3.8% in 2021.

Among Aboriginal and Torres Strait Islander females aged under 21 years, the proportion diagnosed with genital warts at first declined from 5.0% in 2006 to 0.0% in 2021. Among women aged 21 to 29 years there the proportion diagnosed with genital warts reduced from 8.0% in 2006 to 0.0% in 2021. The proportion of Aboriginal and Torres Strait Islander women aged 30 years or older diagnosed with genital warts diagnoses declined from 4.6% in 2006 to 1.0% in 2021 (Figure 33).

Among Aboriginal and Torres Strait Islander males aged under 21 years, the proportion diagnosed with genital warts at first declined from 5.4% in 2006 to 0.0% in 2021. Among men aged 21 to 29 years there the proportion diagnosed with genital warts reduced from 7.8% in 2006 to 2.7% in 2021. The proportion of Aboriginal and Torres Strait Islander men aged 30 years or older diagnosed with genital warts diagnoses declined from 8.0% in 2006 to 3.9% in 2021 (Figure 34).

The proportion of genital warts diagnoses among non-Indigenous Australian-born gay and bisexual men at first visit declined between 2006 and 2021 (Figure 35). In this period, among gay men the proportion diagnosed with genital warts declined from 9.3% to 1.5% and among bisexual men this proportion declined from 11.1% to 2.0%.

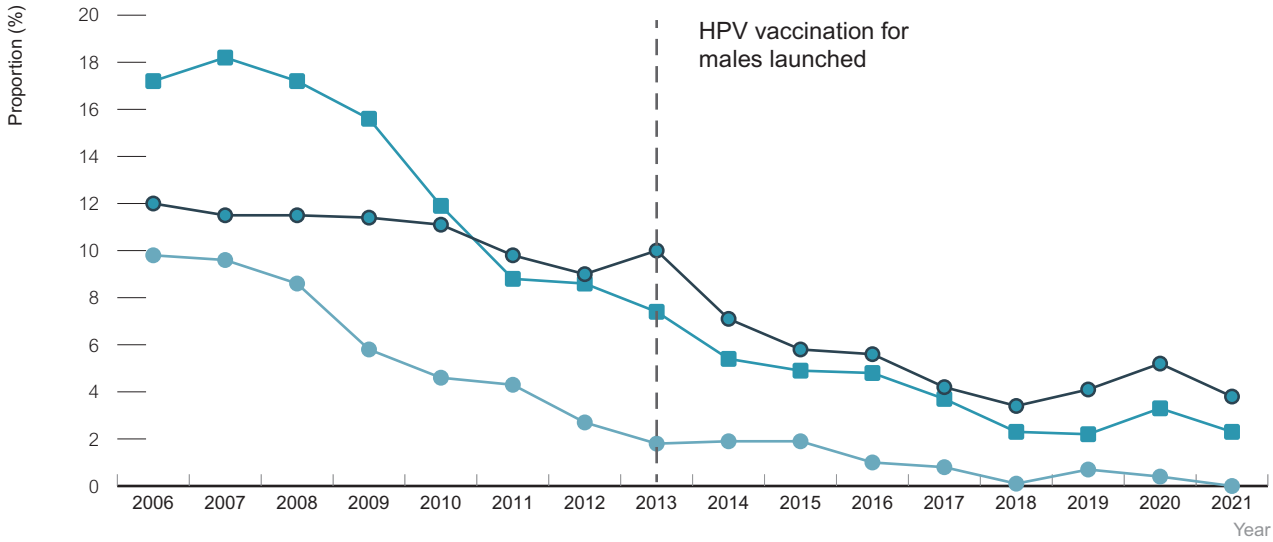
Figure 31 Proportion of Australian-born non-Indigenous females diagnosed with genital warts at first visit at sexual health clinics by age group, 2006–2021



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<21 years (%)	13.0	11.9	7.0	4.7	3.6	1.6	2.1	1.0	1.2	1.0	1.1	0.4	0.4	0.4	0.4	0.7
21–29 years (%)	16.0	14.9	11.7	8.4	7.2	5.3	4.9	4.3	3.2	2.0	2.0	1.2	1.1	0.8	1.2	0.8
≥30 years (%)	6.8	7.1	5.0	7.7	7.9	6.9	6.9	6.9	5.5	5.7	4.1	3.7	2.4	1.9	2.3	2.2

Source: Genital Wart Surveillance Network.

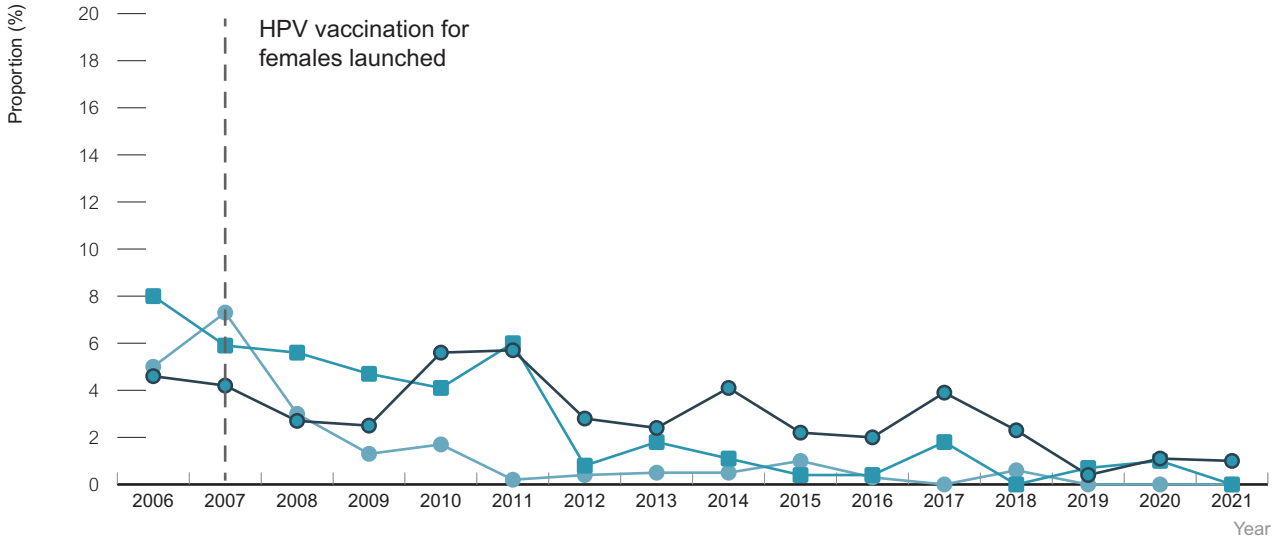
Figure 32 Proportion of Australian-born non-Indigenous heterosexual males diagnosed with genital warts at first visit at sexual health clinics by age group, 2006–2021



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<21 years (%)	9.8	9.6	8.6	5.8	4.6	4.3	2.7	1.8	1.9	1.9	1.0	0.8	0.1	0.7	0.4	0.0
21–29 years (%)	17.2	18.2	17.2	15.6	11.9	8.8	8.6	7.4	5.4	4.9	4.8	3.7	2.3	2.2	3.3	2.3
≥30 years (%)	12.0	11.5	11.5	11.4	11.1	9.8	9.0	10.0	7.1	5.8	5.6	4.2	3.4	4.1	5.2	3.8

Source: Genital Wart Surveillance Network.

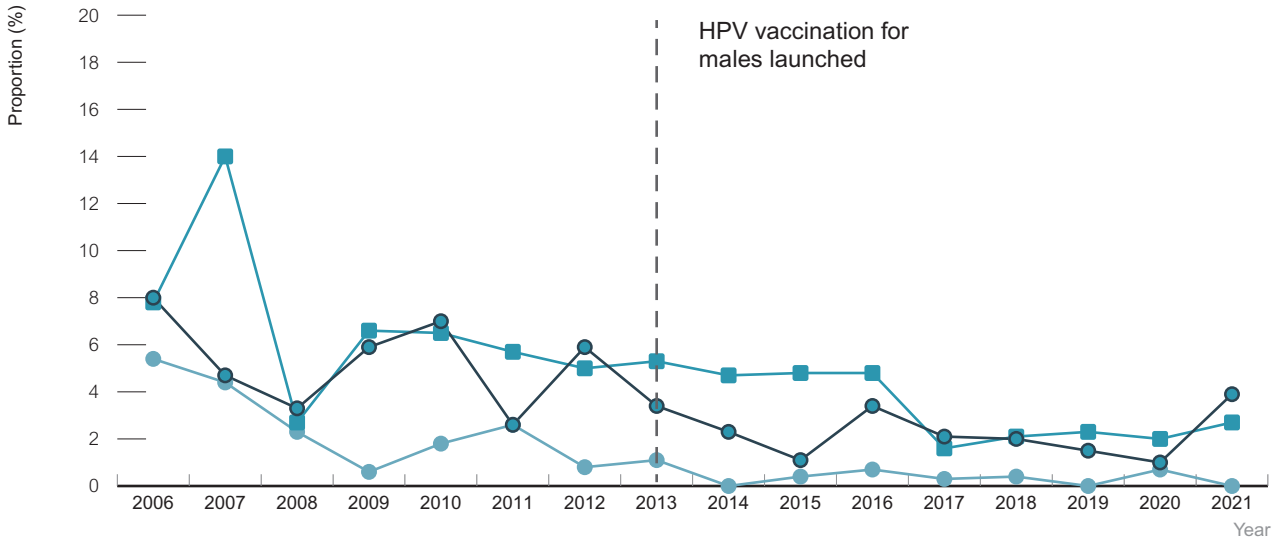
Figure 33 Proportion of Aboriginal and Torres Strait Islander females diagnosed with genital warts at first visit at sexual health clinics by age group, 2006–2021



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<21 years (%)	5.0	7.3	3.0	1.3	1.7	0.2	0.4	0.5	0.5	1.0	0.3	0.0	0.6	0.0	0.0	0.0
21–29 years (%)	8.0	5.9	5.6	4.7	4.1	6.0	0.8	1.8	1.1	0.4	0.4	1.8	0.0	0.7	1.0	0.0
≥30 years (%)	4.6	4.2	2.7	2.5	5.6	5.7	2.8	2.4	4.1	2.2	2.0	3.9	2.3	0.4	1.1	1.0

Source: Genital Wart Surveillance Network.

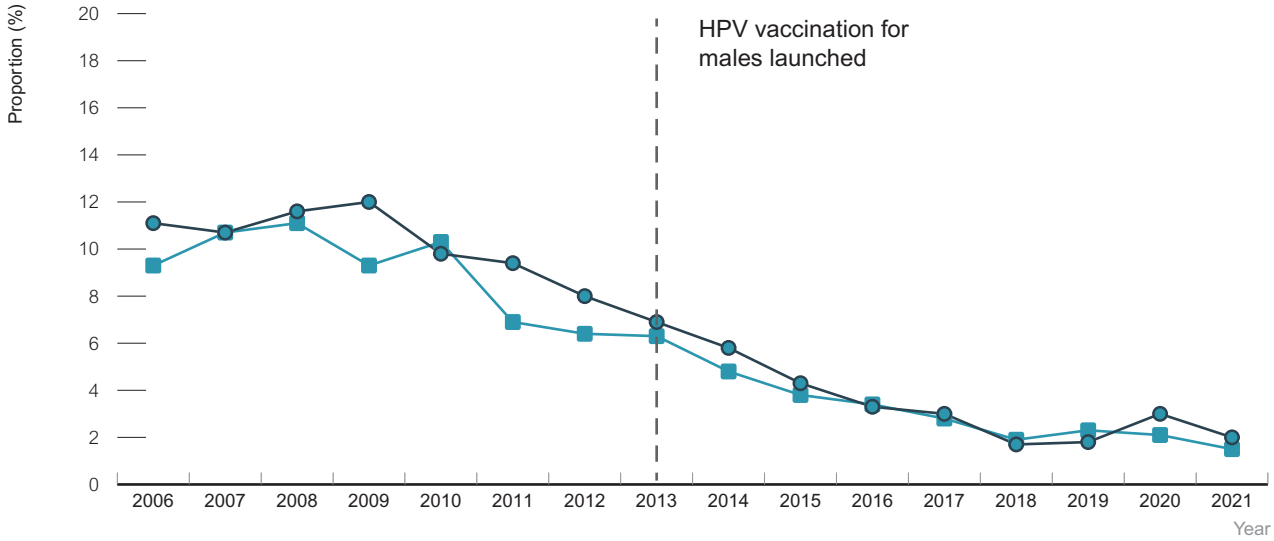
Figure 34 Proportion of Aboriginal and Torres Strait Islander males diagnosed with genital warts at first visit at sexual health clinics by age group, 2006–2021



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<21 years (%)	5.4	4.4	2.3	0.6	1.8	2.6	0.8	1.1	0.0	0.4	0.7	0.3	0.4	0.0	0.7	0.0
21–29 years (%)	7.8	14.0	2.7	6.6	6.5	5.7	5.0	5.3	4.7	4.8	4.8	1.6	2.1	2.3	2.0	2.7
≥30 years (%)	8.0	4.7	3.3	5.9	7.0	2.6	5.9	3.4	2.3	1.1	3.4	2.1	2.0	1.5	1.0	3.9

Source: Genital Wart Surveillance Network.

Figure 35 Proportion of Australian-born non-Indigenous gay or bisexual men diagnosed with genital warts at first visit at sexual health clinics, 2006–2021



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Gay men (%)	9.3	10.7	11.1	9.3	10.3	6.9	6.4	6.3	4.8	3.8	3.4	2.8	1.9	2.3	2.1	1.5
Bisexual men (%)	11.1	10.7	11.6	12.0	9.8	9.4	8.0	6.9	5.8	4.3	3.3	3.0	1.7	1.8	3.0	2.0

Source: Genital Wart Surveillance Network.

6 Donovanosis

Australia is on track to eliminate donovanosis, which was once a regularly diagnosed STI among remote Aboriginal populations. Since 2012 there have only been two cases notified, one in 2012 and one in 2014 (Data not shown).

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