

NSW Sexually Transmissible Infections Strategy 2016 – 2020

January to December
2018

Data Report



Key Data

Reduce gonorrhoea infections				
	2018	Change since 2017		
Gonorrhoea notification rate (per 100,000 population)	128	11% higher (115)		
Number of tests	934,944	3.5% higher (903,272)		
Reduce infectious syphilis infections				
	2018	Change since 2017		
Infectious syphilis notification rate (per 100,000 population)	18.6	31% higher (14.2)		
Reduce pelvic inflammatory disease (PID) associated with chlamydia: Hospitalisations				
	2017	Change since 2016		
Hospital admissions for chlamydia associated PID	181	13% lower (209)		
Reduce pelvic inflammatory disease (PID) associated with chlamydia: Chlamydia notifications				
	2018	Change since 2017		
Chlamydia notification rate (per 100,000 population)	388	5% higher (368)		
Number of tests	646,183	4.9% higher (615,880)		
Maintain levels of condom use for preventing the transmission of STIs				
	2017	Change since 2016		
Proportion re- porting condom- less intercourse with casual part- ners	Men who have sex with men ¹	69%	Increased by 12 per cent (57%)	
	Young people aged 15-29 years ²	17.6%	Increased by 1 per cent (16.6%)	
Maintain high coverage of HPV vaccination for Year 7 school students				
	2017	Change since 2016		
Course comple- tion for human papillomavirus (HPV) vaccination	Female year 7 students	82%	Unchanged at 82%	
	Male year 7 students	79%	1% lower	
Increase comprehensive STI testing in priority populations in accordance with risk				
	2017	Change since 2016		
Comprehensive STI testing rates	Men who have sex with men	PFSHSs ³	87%	Increased 1 per cent (86%)
		GP ⁴	72%	Increased 4 per cent (68%)
	Young people	PFSHSs	64%	Increased by 5 per cent (59%)
		GP	37%	Increased by 1 per cent (36%)
	Female sex workers	84%	Increased by 2 per cent (82%)	

¹ Sydney Gay Community Periodic Survey, Centre for Social Research, UNSW

² It's Your Love Life Periodic Survey, Centre for Social Research, UNSW

³ PFSHSs: Publicly funded sexual health services

⁴ General practices with high and medium case load of GBM in Sydney

Key Messages

Gonorrhoea notifications continue to increase in NSW

Data from the last five years shows the number of gonorrhoea notifications has been rising each year, with the notification rate doubling since 2014. Some of the increase is likely due to increased and well-targeted testing. However, the increase in notification to test ratio and the rise in the number of genitourinary gonorrhoea notifications in males suggest there has been an increase in gonorrhoea transmission in NSW. There has been a continued increase in gonorrhoea notifications among females, which is being investigated further.

Syphilis notifications continue to increase in NSW

There has been a continued increase in the number of notifications of infectious syphilis. The available data suggests that, amongst men, this is most likely due to increased and well-targeted testing. No change was observed in the proportion of positive syphilis tests in men who have sex with men. Fewer than 5 per cent of infectious syphilis notifications in 2018 were in women. There were 72 notifications in women in 2018, which is 1.6 times higher compared with 2017. The reason for the recent increase among women is being investigated.

The ongoing outbreak of infectious syphilis among Aboriginal and Torres Strait Islander people in the Northern Territory, Queensland, South Australia and Western Australia has the potential to spread to NSW and requires vigilance. At time of publication of this report, no outbreak-associated cases have been detected in NSW and the number of syphilis notifications among Aboriginal people in NSW remain small. In 2018, there were 32 notifications among Aboriginal people, with 87.5% of these among men. Only four cases resided outside major cities, with none in remote areas of NSW.

Efforts to promote condom use and make comprehensive STI testing easier and more accessible will continue to be priorities

STI screening among gay and bisexual men and young people continues to increase while condom use, particularly among HIV negative gay and bisexual men on PrEP and young females, has decreased. Further scale up and strengthening of initiatives to promote condom use and innovative ways to make comprehensive STI testing easier and more accessible are needed to prevent STI transmission.

Efforts to increase the rate of STI testing and re-testing following treatment in accordance with STI testing guidelines should continue. Partner notification is also central to preventing STI and should be comprehensively undertaken for all people diagnosed with an STI.

HPV vaccination initiation and completion for adolescents requires ongoing efforts

Data indicate that the high proportion of male and female students in Year 7 who received the first dose of human papillomavirus (HPV) vaccine remained stable between 2012 and 2018. The move from a three-dose to a two-dose course in 2017 has seen a small decrease in completion rates in school, potentially due to fewer opportunities to catch-up doses. Students may be completing the course with their GP, and this can be monitored through the Australian Immunisation Register.

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Glossary of Terms

ABS	Australian Bureau of Statistics
ART	Antiretroviral therapy
CDR	Communicable Diseases Register
GBM	Gay and bisexual men
GU	Genitourinary tract
HIV	Human immunodeficiency virus
LHD	Local Health District
MHCL	Medium to high caseload
MSM	Men who have sex with men
NAAT	Nucleic acid amplification testing
NAT	Nucleic acid testing
NCIMS	Notifiable Conditions Information Management System
NSW	New South Wales
PFSHSs	Publicly funded sexual health services
PID	Pelvic inflammatory disease
SAPHaRI	Secure Analytics for Population Health Research and Intelligence

1 Reduce gonorrhoea infections

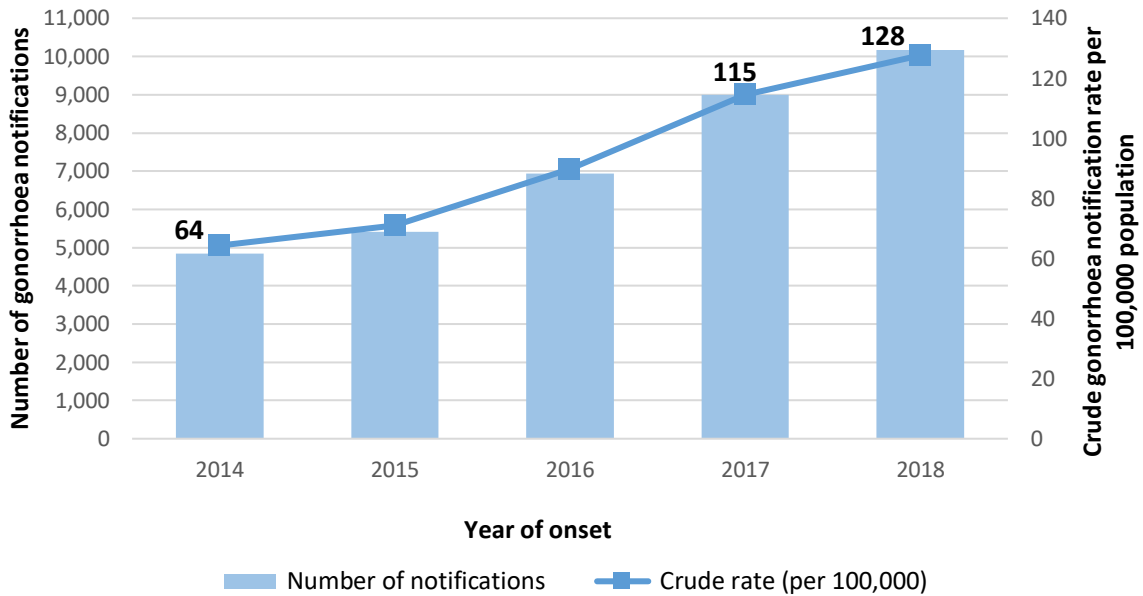
Prevention, testing and appropriate treatment and management with partner notification are the cornerstones of gonorrhoea control and are embedded in the current STI strategy. Gonorrhoea notification data does not reflect the true incidence of gonorrhoea infection as it only represents a proportion of infections in the population, however it is useful for monitoring notification trends over time. Gonorrhoea notification data are heavily influenced by testing practices, and hence, may not be representative of the NSW population.

Gonorrhoea is a notifiable disease under the NSW *Public Health Act 2010*. A confirmed case requires isolation of *Neisseria gonorrhoeae* from culture or detection by nucleic acid amplification testing (NAAT). Only confirmed cases of gonorrhoea are counted when reporting gonorrhoea notification data. Patient care and contact tracing are the responsibility of the treating doctor. Information on risks (e.g. sexual exposure) is not routinely collected.

It is important to note that there may be multiple specimens collected for each individual tested for gonorrhoea. Hence the number of gonorrhoea tests done is greater than the number of individuals tested. However, an individual with multiple specimens that are positive for gonorrhoea will generate only one notification.

1.1 Gonorrhoea notifications

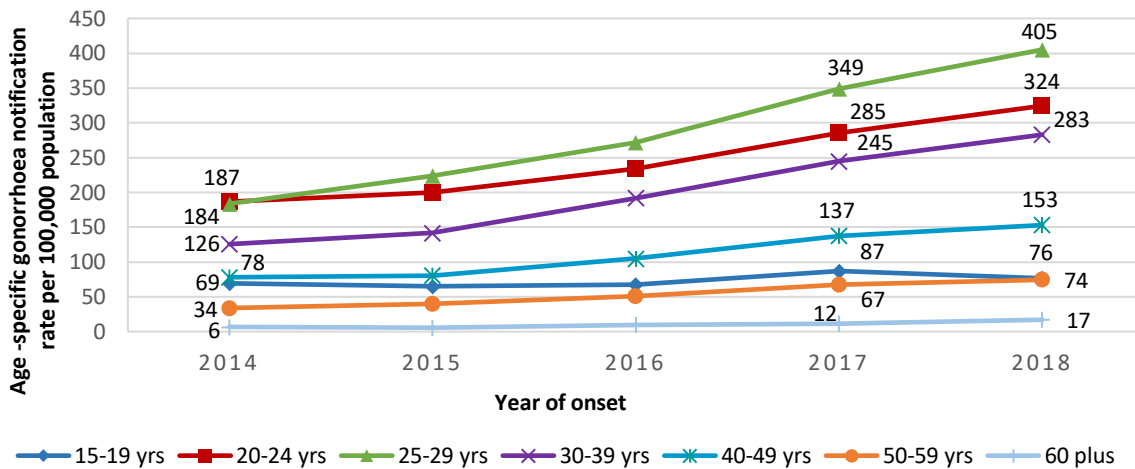
Figure 1: Number and crude rate of gonorrhoea notifications by year of onset, NSW, 1 January 2014-31 December 2018



Data source: Data source: NCIMS and ABS population estimates (via SAPHaRI), NSW Health; data extracted 1 April 2019.
Note: Excludes non-NSW residents. Year of onset is based on calculated onset date.

- In 2018, the gonorrhoea notification rate was 128 notifications per 100,000 population, 11% higher compared to 2017 when it was 115 notifications per 100,000 population.
- The notification rate has doubled since 2014 when it was 64 notifications per 100,000 population.

Figure 2: Age-specific gonorrhoea notification rates in people aged 15 years and over, NSW, 1 January 2014-31 December 2018



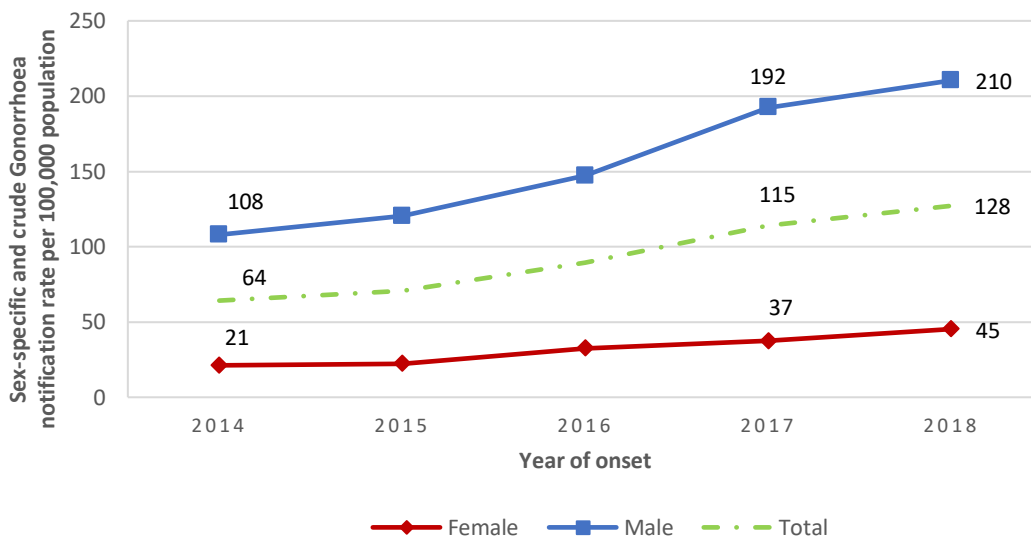
Data source: NCIMS and ABS population estimates (via SAPHaRI), NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents and persons whose age at diagnosis was not known. Year of onset is based on calculated onset date.

In 2018:

- The highest gonorrhoea notification rates continue to occur in the 20-24 years and 25-29 years age groups.
- Compared with the previous year, the largest relative increases in gonorrhoea notification rates were observed in the age group 60+ with a 45% increase from 2017 levels, followed by the age groups 25-29 years and 30-39 years with a 16% increase in both groups. The only age group to experience a small decrease from 2017 levels were 15-19 year-olds.

Figure 3: Sex-specific gonorrhoea notification rates, NSW, 1 January 2014-31 December 2018



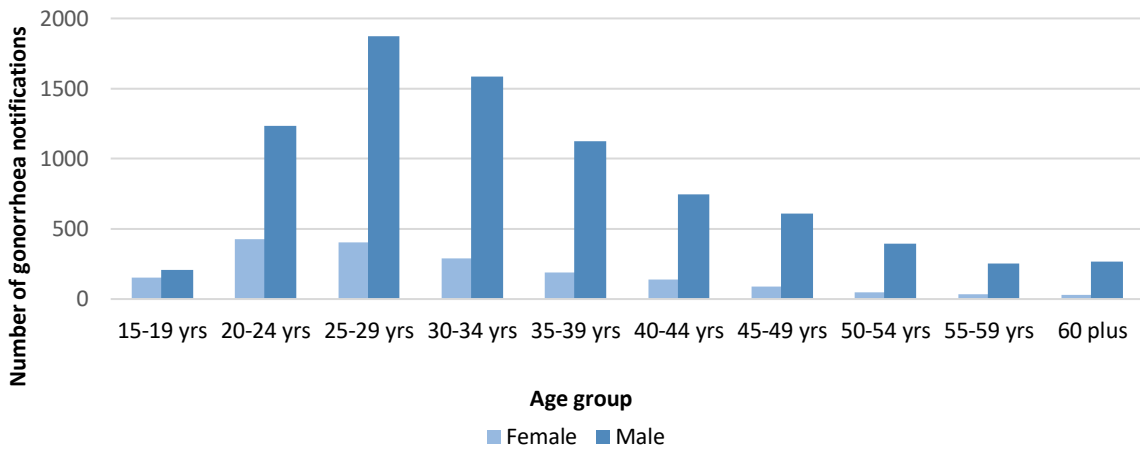
Data source: NCIMS and ABS population estimates (via SAPHaRI), NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents, persons reported as transgender (due to small numbers), and persons whose sex was not reported.

In 2018:

- Of the 10,164 gonorrhoea notifications, 82% (n=8,308) were reported as male and 18% (n=1,818) were reported as female. There were 18 notifications in persons reported as transgender and 20 notifications in persons whose sex was reported as not stated or inadequately described (for further notes on sex classification see Appendix D).
- The gonorrhoea notification rate in males was 210 notifications per 100,000 males, which is 4.6 times as high as the notification rate for females at 45 notifications per 100,000 females. In 2017, the gonorrhoea notification rate in males was 5.1 times as high as in females.
- The notification rates increased by 9% from the 2017 rates for males and by 21% for females.
- Since 2014, the female notification rate has more than doubled, while the male notification rate increased by 94%.

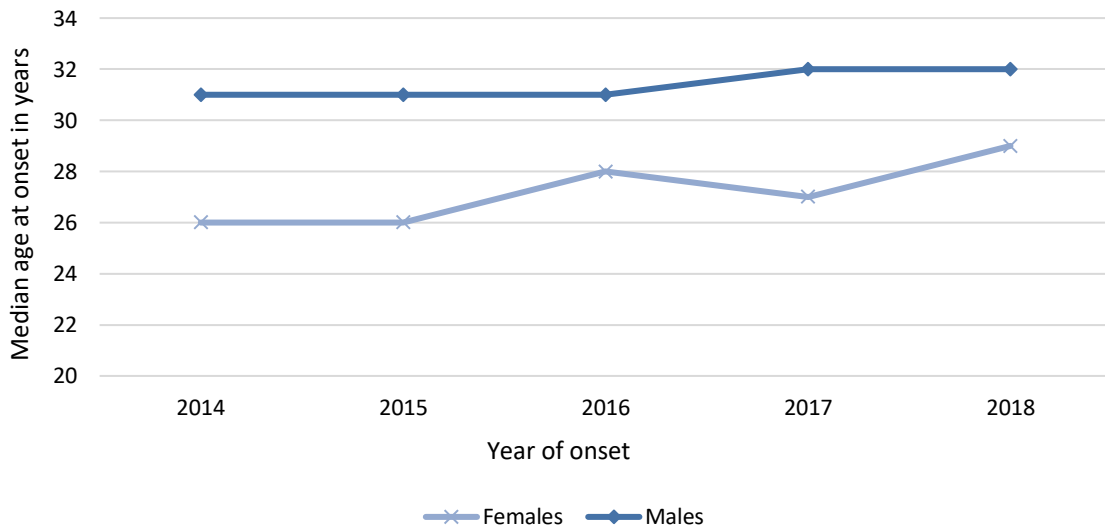
Figure 4: Number of gonorrhoea notifications by age group and sex in people aged 15 years and over, NSW, 1 January 2018-31 December 2018



Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents, persons reported as transgender (due to small numbers), and persons whose age or sex was not reported.

Figure 5: Median age of gonorrhoea notifications by sex, NSW, 1 January 2014 - 31 December 2018



Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 1 April 2019.

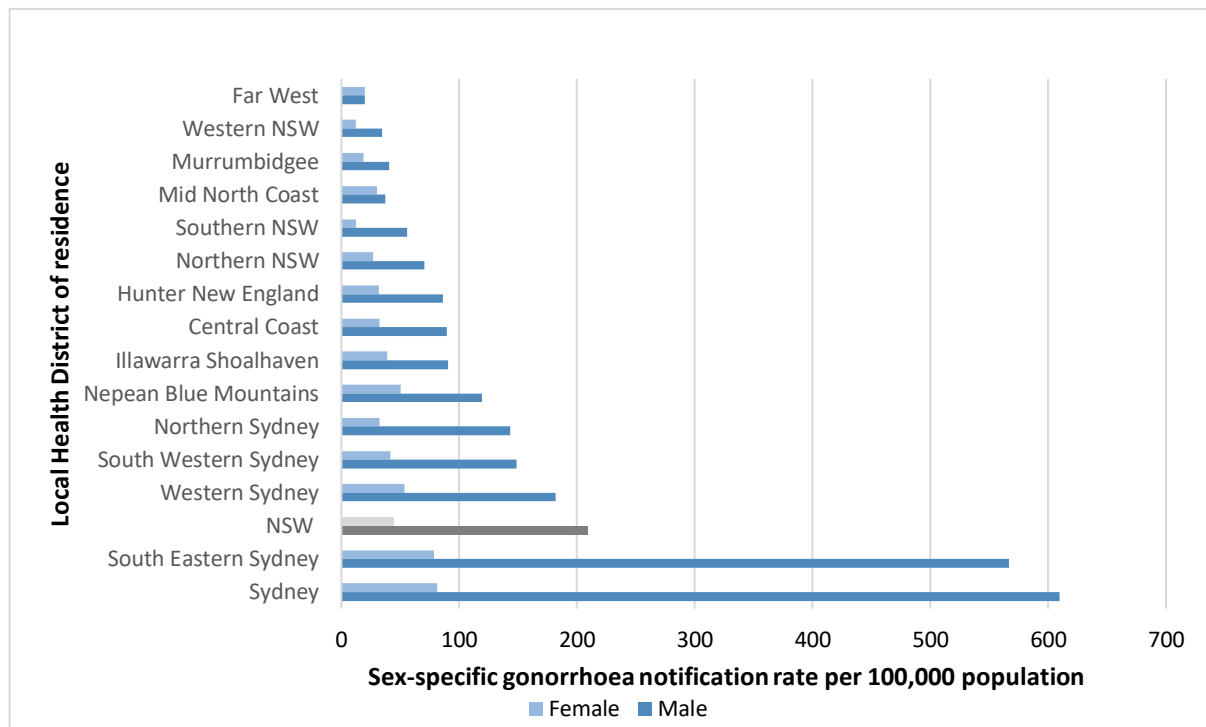
Note: Excludes non-NSW residents and persons whose age and sex was not reported.

In 2018:

- In males, the highest absolute numbers of notifications were recorded in 25-29 year-olds, followed by 30-34 year-olds.

- In females, the highest absolute numbers of notifications were recorded in 20-24 year-olds, followed by 25-29 year-olds.
- The median age of females notified with gonorrhoea was 29 years, which is higher compared to the median age of 27 years recorded in 2017. The median age for females has increased by three years since 2014.
- The median age of males notified with gonorrhoea was 32 years, which is equivalent to 2017. The median age for males has increased by one year since 2014 which represents a markedly lower increase than for females. Nevertheless, the median age of males remains older than that of females.

Figure 6: Gonorrhoea notification rates by sex and LHD, NSW, 1 January - 31 December 2018



Data source: NCIMS, NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents, persons reported as transgender (due to small numbers), persons whose sex was not reported, and notifications from Justice Health. For Justice Health notifications, see Table in Appendix D: Notification data. Year of onset is based on calculated onset date.

In 2018:

- Overall, gonorrhoea notification rates continued to increase in all but three local health districts. The largest relative increases in gonorrhoea notification rates from 2017 levels occurred in the Illawarra Shoalhaven (58% increase from 2017), Hunter New England (39% increase), and Mid North Coast (24% increase) Local Health Districts.
- The highest gonorrhoea notification rates continue to be observed in the Sydney and South Eastern Sydney Local Health Districts for both males and females.
- The largest relative increases in male gonorrhoea notification rates from 2017 levels were observed in the Illawarra Shoalhaven (57% increase from 2017), Hunter New England (37% increase from 2017), and Southern NSW Local Health Districts (36% increase from 2017).
- The largest relative increases in female gonorrhoea notification rates from 2017 levels were observed in the Nepean Blue Mountains (72% increase from 2017), Illawarra Shoalhaven (61% increase from 2017), and Hunter New England Local Health Districts (45% increase from 2017).
- It should be noted that gay men, who are at increased risk of acquiring STIs, are unequally distributed among local health districts. Continuing high notification rates among males in the Sydney and South Eastern Sydney Local Health Districts in particular reflect large concentrations

of gay men in these areas. These populations also have a high uptake of pre-exposure prophylaxis (PrEP) for HIV.⁵ Persons on PrEP are regularly tested for STIs.

- See **Appendix D Table 8** for a full overview of notification rates by sex and year for each local health district.

⁵ Grulich AE, Guy R, Amin J, Jin F, Selvey C, Holden J, Schmidt HM, Zablotska I, Price K, Whittaker B, Chant K. Population-level effectiveness of rapid, targeted, high-coverage roll-out of HIV pre-exposure prophylaxis in men who have sex with men: the EPIC-NSW prospective cohort study. *The Lancet HIV*. 2018;5(11):e629-37.

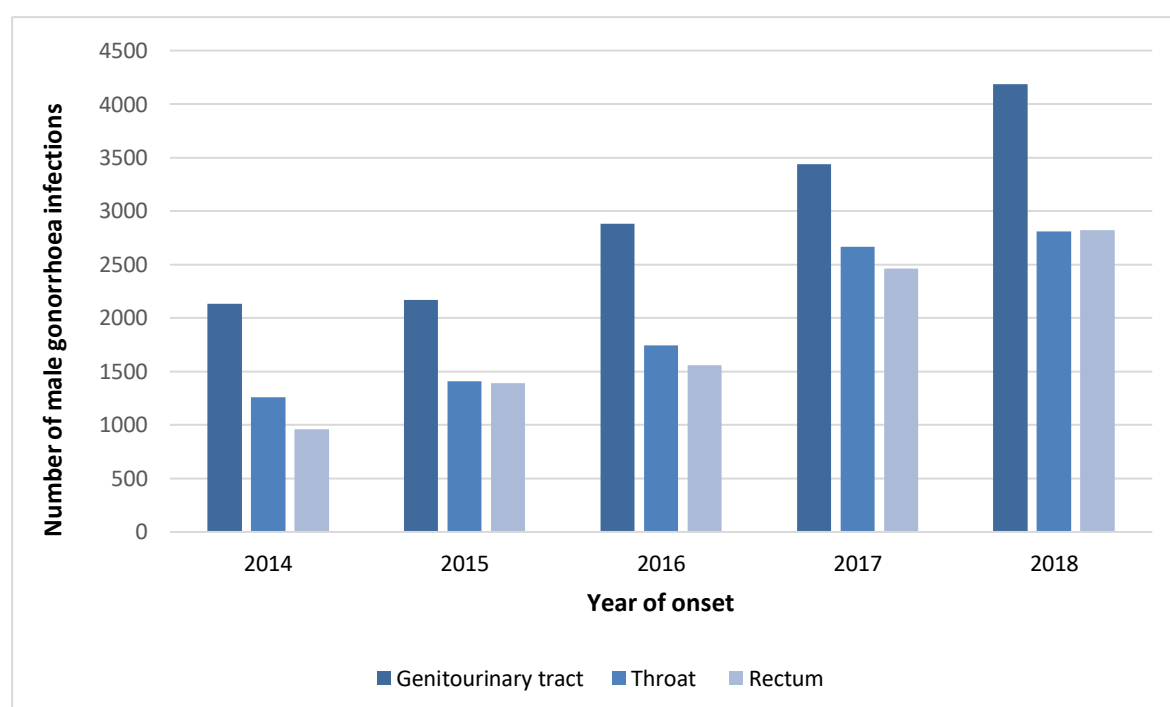
Table 1: Number of gonorrhoea infections by anatomical site, NSW 1 January - 31 December 2018

Site of infection	Number of infections		
	Total*	Males	Females
Genitourinary tract (GU) only	4,834	3530	1297
Throat only	1,948	1638	296
Rectum only	1,594	1556	28
Rectum and throat	823	801	17
GU and rectum	308	290	17
GU and throat	300	193	106
GU and rectum and throat	192	175	17
Other (joints/conjunctiva/nasopharynx) only	16	7	9
Other (joints/conjunctiva/nasopharynx) and either of GU/throat/rectum	8	6	2

Data source: NCIMS, NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents.*The total includes transgender people and people whose gender was not stated/ inadequately described.

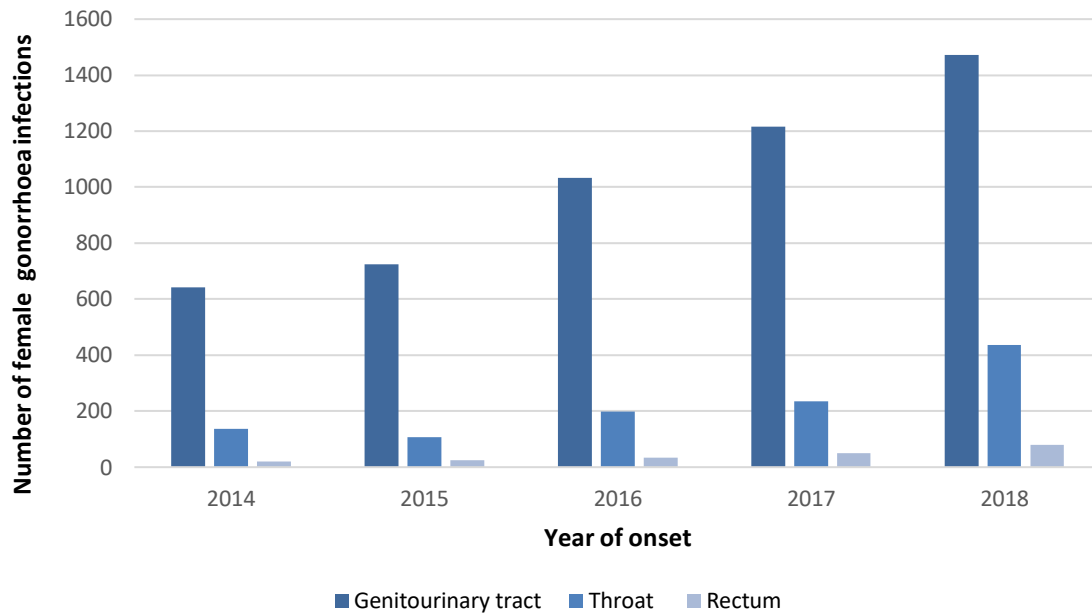
Figure 7: Number of male gonorrhoea infections by site of infection, NSW, 1 January 2014 - 30 June 2018



Data source: NCIMS, NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents and 'other' site of infection or missing/unknown site of infection. The number of infections may exceed number of notifications due to infection at multiple sites. Excludes persons reported as transgender and persons whose gender was not reported.

Figure 8: Number of female gonorrhoea infections by anatomical site of infection, NSW, 1 January 2014 - 31 December 2018



Data source: NCIMS, NSW Health; data extracted 1 April 2019.

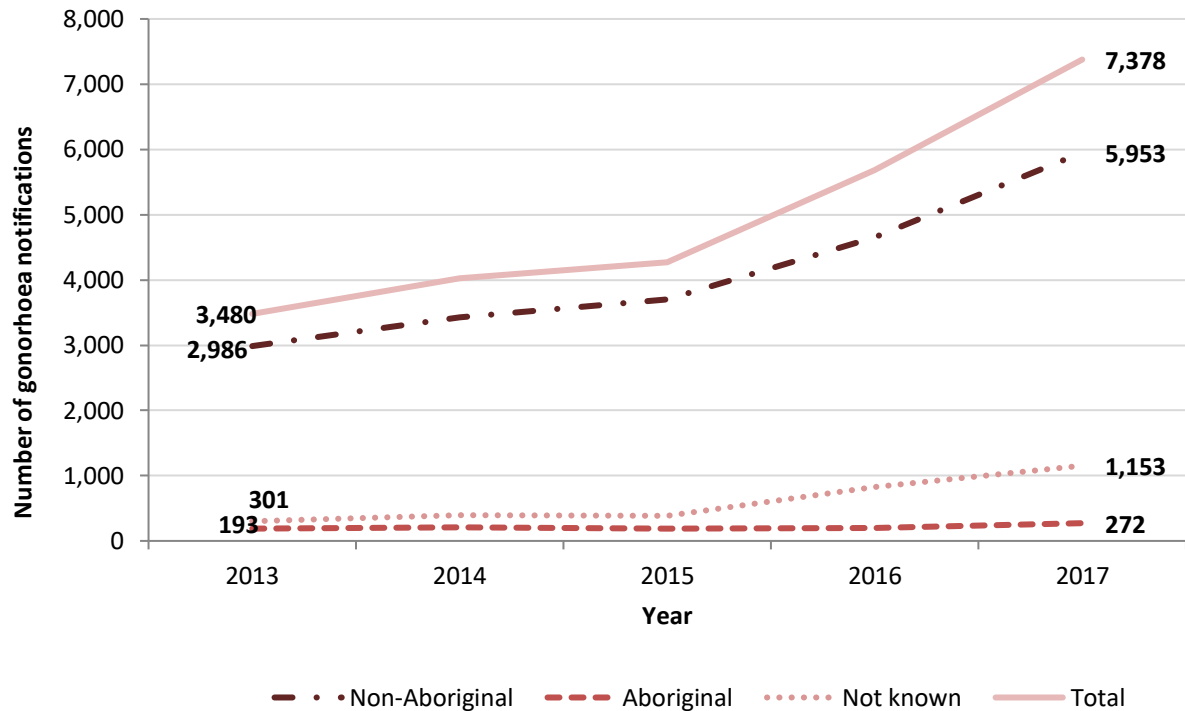
Note: Excludes non-NSW residents and 'other' site of infection or missing/unknown site of infection. The number of infections may exceed number of notifications due to infection at multiple sites. Excludes persons reported as transgender and persons whose gender was not reported.

In 2018:

- The largest relative increase from 2017 levels in the number of infections at specific anatomic sites for males were observed for genitourinary infections at 22%. Increases by 15% and 5%, respectively, were observed for rectal and throat infections. In males, genitourinary infections are usually symptomatic, which means the majority are likely to be diagnosed. Therefore, the notification rate of male genitourinary gonorrhoea may be used as a broad indicator of gonorrhoea transmission. Rectal and throat infections however, are usually asymptomatic. Therefore, trends in the notification rate of these infections is likely to reflect screening trends, as well as disease transmission. In 2018, the increase in the number of male genitourinary infections suggests transmission increased in males, and the smaller increases in rectal and throat infections suggest that screening continues at a high level.
- In females, up to 80% of genitourinary infections are asymptomatic, which means that many infections may be undiagnosed. Infections of the rectum and throat are usually asymptomatic. Therefore, gonorrhoea infections among women are likely to reflect screening trends, as well as disease transmission. The largest relative increase from 2017 levels in sites of infection for females was observed for throat infections at 85%, followed by rectal infections at 58%. However, the absolute number of infections for both sites remains small compared to genitourinary infections, which increased by 21% from 2017.

1.2 Gonorrhoea notifications among Aboriginal people

Figure 9: Number of gonorrhoea notifications by Aboriginality, NSW, 2013 - 2017



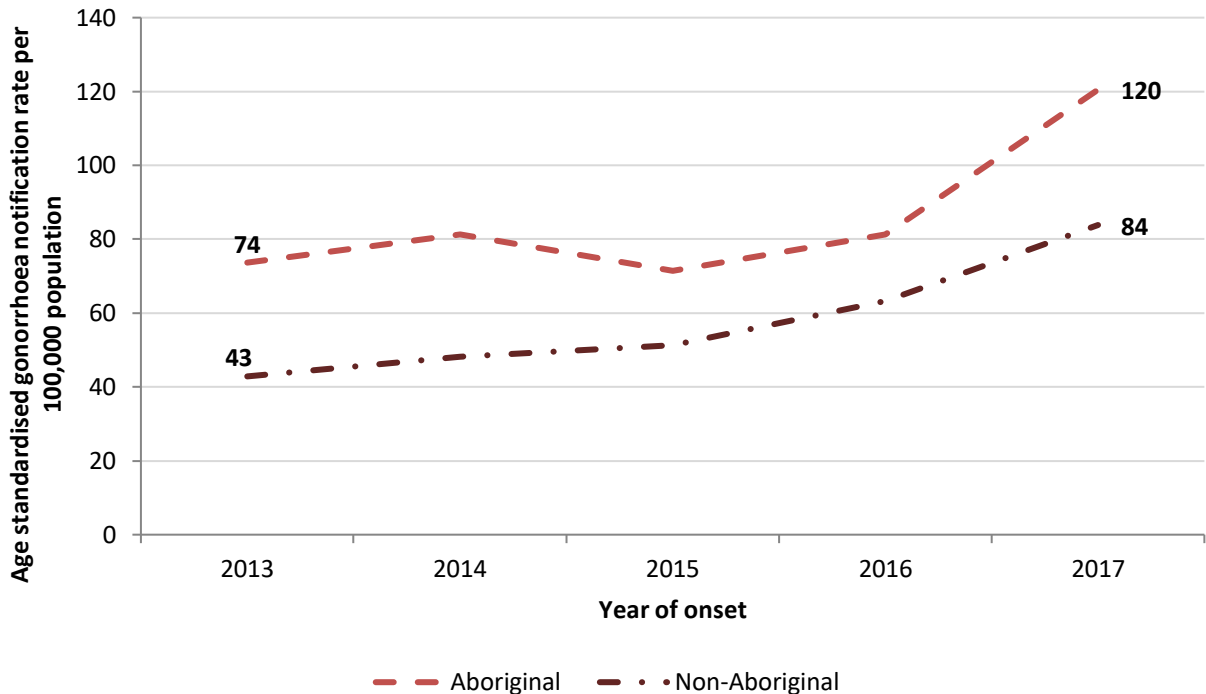
Data source: Communicable Diseases Register, NSW Ministry of Health (via SAPHaRI); data extracted 17 Oct 2018. At time of report, data available until 2017.^{6,7}

- In 2017, 7,378 notifications for gonorrhoea were recorded in the Communicable Diseases Register (CDR). Of these, 272 (3.7%) were among Aboriginal people, 5,953 (80.7%) were among non-Aboriginal people and Aboriginal status was not known for 1,153 (15.6%) people. Of those whose Aboriginal status was not known in 2017, 98% were living in metropolitan Sydney.
- Aboriginal status completeness was higher in 2013 and 2014 due to short-term, state-wide enhanced surveillance of gonorrhoea notifications.
- Trends in the Aboriginal population are difficult to interpret due to variation in the yearly number of people for whom Aboriginal status was not known, and the relatively high proportion of incomplete data compared to the proportion who are Aboriginal people.
- These data were presented in the January to June 2018 data report.

⁶ Work is currently underway to update the data contained in the Communicable Diseases Register and this will be published in future reports

⁷ See **Appendix B: Table 6** for details about methodology

Figure 10: Gonorrhoea notification rate by Aboriginality, NSW, 2013 - 2017

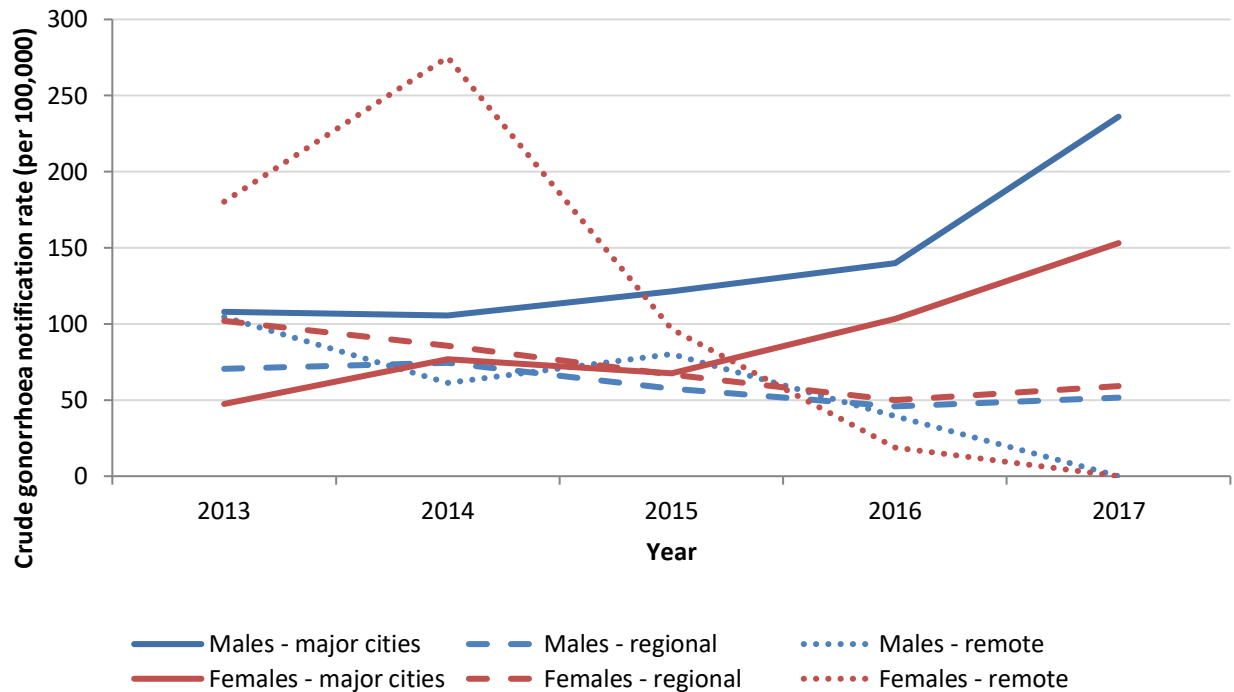


Data source: Communicable Diseases Register, NSW Ministry of Health, and ABS (via SAPHaRI); data extracted 17 Oct 2018. At time of report, data available until 2017.^{5,6} Note: Excludes records where Aboriginal status was not known; rates standardised to the Australian Standard Population 2001.

- Notification rates of gonorrhoea increased among both Aboriginal and non-Aboriginal people between 2016 and 2017. Since 2013, gonorrhoea notification rates among Aboriginal people have increased by 62% and rates among non-Aboriginal people have increased by 95%.
- Among those whose Aboriginal status was known, the gonorrhoea notification rate was 1.3 times higher among Aboriginal people than non-Aboriginal people (120 per 100,000 vs 84 per 100,000) in 2017.
- These data were presented in the January to June 2018 data report.

Note: As the number of gonorrhoea notifications among Aboriginal people is relatively small, yearly fluctuations in the rate should be interpreted with caution. These notification rates are influenced by variations in the number of people for whom Aboriginal status was not known (see Figure 9), and are likely to be an underestimation.

Figure 11: Crude gonorrhoea notification rates in the Aboriginal population, by gender and remoteness area, NSW, 2013 - 2017

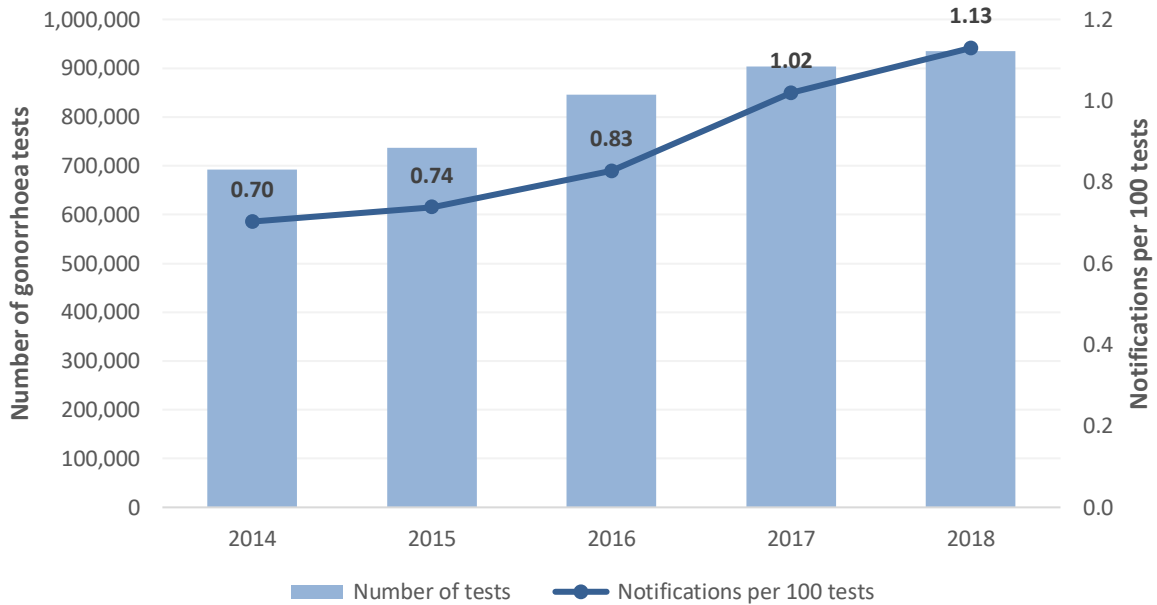


Data sources: Communicable Diseases Register, NSW Ministry of Health (via SAPHARI), data extracted 17 Oct 2018. At time of report, data available until 2016.5,6 Transgender persons not included. Population data are derived from ABS projections (3238.0) and 2011 census estimates, and assumes proportions by remoteness and gender have remained constant since 2011.

- In 2017, the highest gonorrhoea notification rates in Aboriginal people were among males and females living in major cities.
- The gonorrhoea notification rates in Aboriginal males and females in remote areas has dropped markedly since 2014, however notification rates have been rising among Aboriginal males and females in major cities.
- As the number of notifications in the Aboriginal population is small, especially among males and females in regional and remote areas, trends should be interpreted with caution. Changes in notification rates may be due to variation in incidence of disease, screening rates and/or the number of people for whom Aboriginal status was not known (see Figure 9).
- These data were presented in the January to June 2018 data report.

1.3 Gonorrhoea testing

Figure 12: Number of gonorrhoea tests and notification to test⁶ ratio, NSW, 1 January 2014 to 31 December 2018



Data source: NCIMS and NSW Denominator Data Project, NSW Health; data extracted 27 March 2019

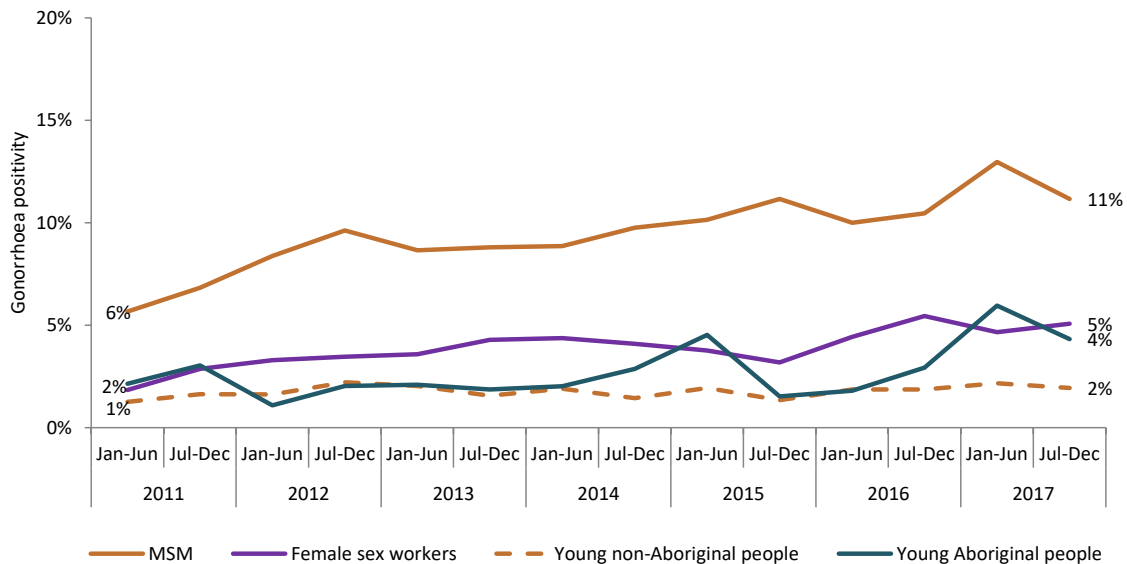
Note: Testing multiple sites results in multiple tests being counted per person

In 2018:

- The number of gonorrhoea tests (NAAT and culture) performed in NSW is continuing to increase.
- A total of 934,944 tests for gonorrhoea were performed in 15 laboratories in NSW, an increase of 3.5% compared to 2017 (903,272).
- There were 1.13 gonorrhoea notifications per 100 gonorrhoea tests. This is the highest ratio for the last five years and suggests that transmission of gonorrhoea has increased and/or screening is better targeted at people at higher risk of infection.

1.4 Gonorrhoea test positivity among men who have sex with men, female sex workers and young people

Figure 13: Proportion of individual patients attending PFSHs and GP clinics⁸ in NSW tested for gonorrhoea with a positive result (gonorrhoea positivity⁹), by priority population¹⁰, 1 January 2011 to 31 December 2017



Data source: ACCESS Database, The Kirby Institute and the Burnet Institute

- Gonorrhoea positivity among MSM was 11% in late 2017, an increase of 5 percentage points when compared to early 2011.
- Among female sex workers positivity was 5% in late 2017, an increase of 3 percentage points when compared to early 2011.

Note: National and jurisdictional data is available at:

https://kirby.unsw.edu.au/sites/default/files/kirby/report/SERP_Annual-Surveillance-Report-2017_compressed.pdf¹¹

⁸ GP clinics included those serving at least 50 gay and bisexual male patients annually.

⁹ Positivity is the proportion of individuals (i.e., de-duplicated) tested in each six-month period with any positive result.

¹⁰ While priority populations are not mutually exclusive those other than MSM exclude MSM-identified patients.

¹¹ HIV, viral hepatitis and sexually transmissible infections in Australia, Annual Surveillance Report 2017, Kirby Institute, UNSW

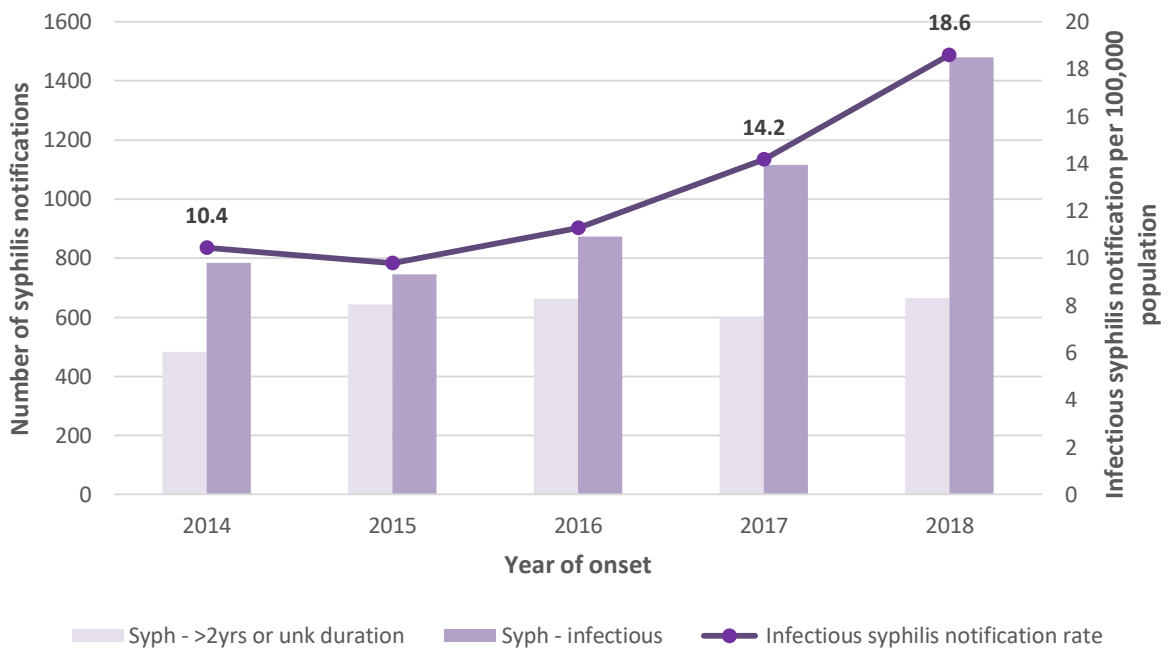
2 Reduce infectious syphilis infections

Prevention, testing and appropriate treatment and management including partner notification are the cornerstones of syphilis control and are embedded in the current STI strategy. Syphilis notification data does not reflect the true incidence of syphilis infection as it only represents a proportion of infections in the population, however it is useful for monitoring notification trends over time. Syphilis notification data are heavily influenced by testing practices, availability of enhanced surveillance information and classification of syphilis cases as 'infectious' or 'greater than 2 years or unknown duration'. Therefore, syphilis data may not be representative of the NSW population.

Syphilis is a notifiable disease under the NSW *Public Health Act 2010*. A confirmed or probable infectious syphilis case requires laboratory evidence or a combination of laboratory, clinical and epidemiological evidence (see Appendix C: Case definitions for full details). Only probable or confirmed cases of infectious syphilis and confirmed cases of syphilis >2 years or unknown duration are included when reporting syphilis notification data. Enhanced surveillance information is routinely collected for people notified with syphilis which includes demographic, testing, treatment and risk exposure information.

2.1 Infectious syphilis notifications

Figure 14: Number and crude rate of syphilis notifications, NSW, 1 January 2014 – 31 December 2018

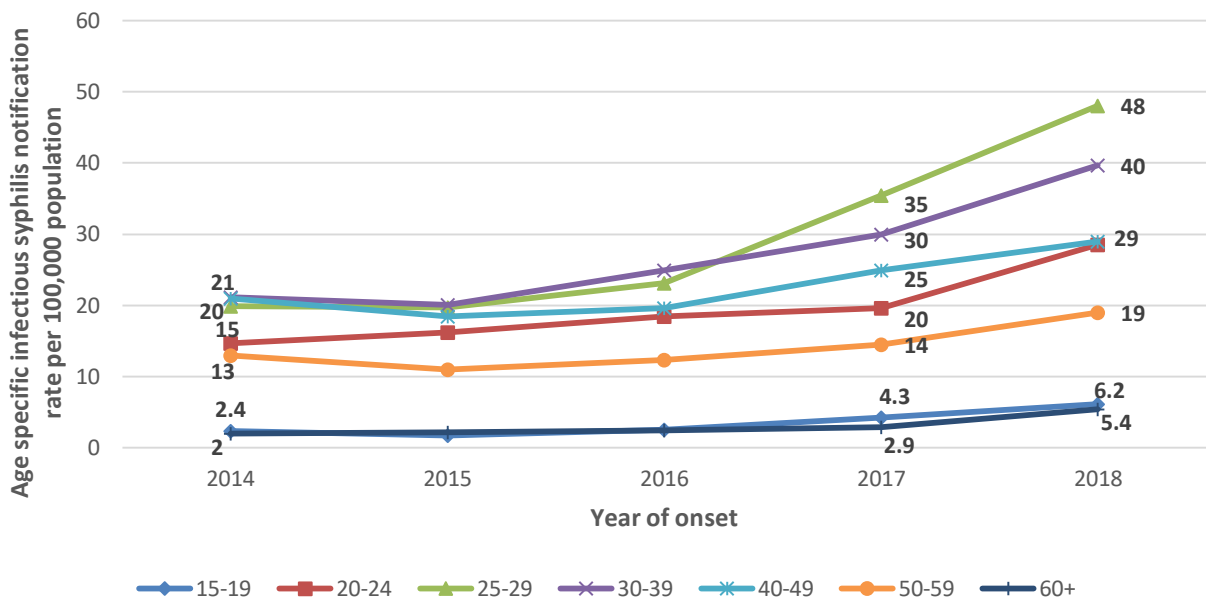


Data source: NCIMS and ABS population estimates (via SAPHaRI), NSW Health; data extracted 1 April 2019.

In 2018:

- There were 1480 infectious syphilis notifications. The annualised infectious syphilis notification rate was 18.6 notifications per 100,000 population, 31% higher than the rate in 2017 (14.2 per 100,000) and 79% higher compared with 2014.
- A small part of the increase in infectious syphilis notifications observed from 2016-2018 is due to a change in the case definition in August 2016, resulting in improved reporting of infectious syphilis cases. See **Appendix C** for links to the full case definitions for syphilis.

Figure 15: Age specific infectious syphilis notification rates in people aged 15 years and over, NSW, 1 January 2014 - 31 December 2018

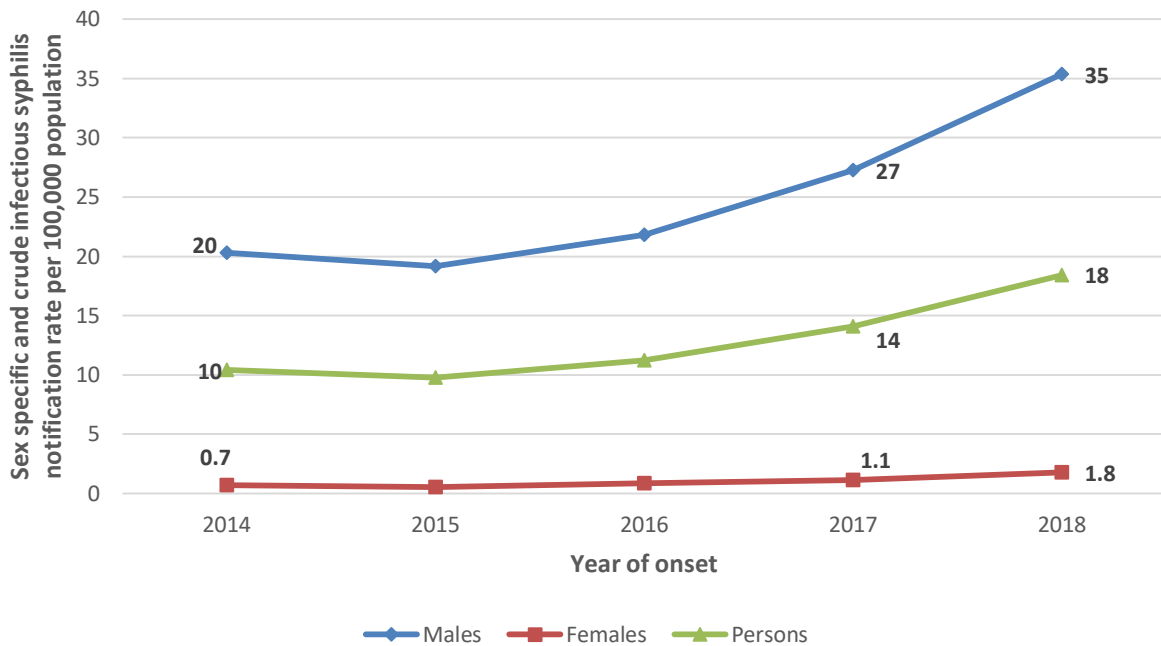


Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 1 April 2019.

In 2018:

- The highest infectious syphilis notification rates occurred in the 25-29 years and 30-39 years age groups (48 and 40 notifications per 100,000 population respectively).
- The largest relative increases in the infectious syphilis notification rates were observed in the 60+ years and 20-24 years age groups (86% and 45% respectively), however the number of notifications in the 60+ years age group was small (95).
- Since 2014, the notification rate in the 15-19 years, 25-29 years and 60+ years age groups has more than doubled.

Figure 16: Sex specific infectious syphilis notification rates, NSW, 1 January 2014 - 31 December 2018



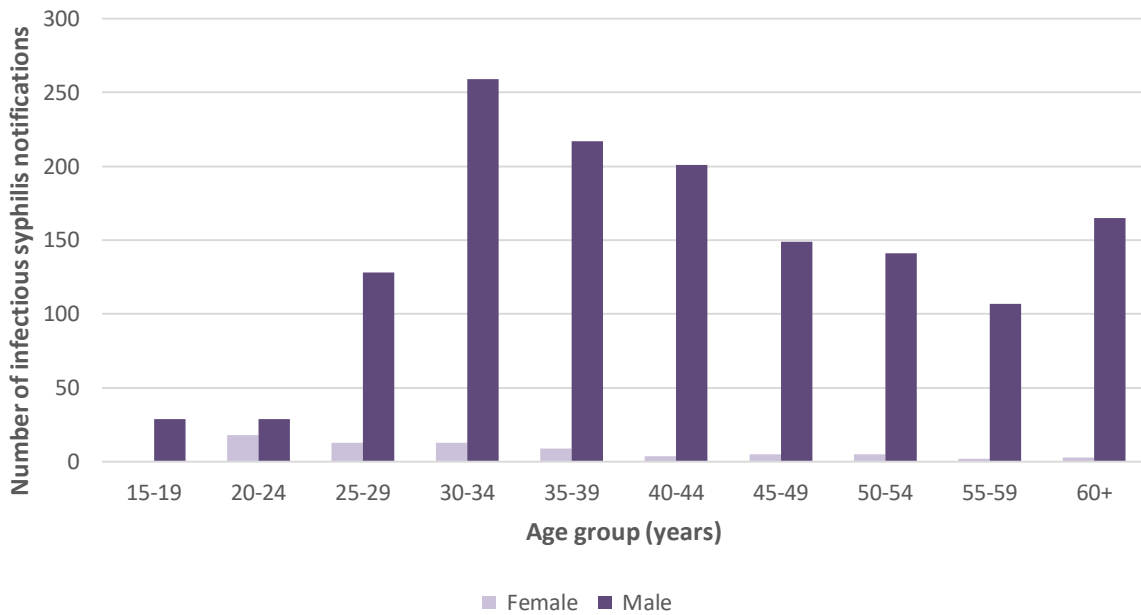
Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 1 April 2019.

Note: Excludes persons reported as transgender (due to small numbers), and persons whose age or sex was not reported.

In 2018:

- Amongst males, there was a 30% increase in the infectious syphilis notification rate compared with 2017 (35 notifications per 100,000 males).
- Amongst females, there was a 63% increase in the infectious syphilis notification rate compared with 2017 (1.8 notifications per 100,000 females). The number of notifications amongst females is small (72) but increasing annually.

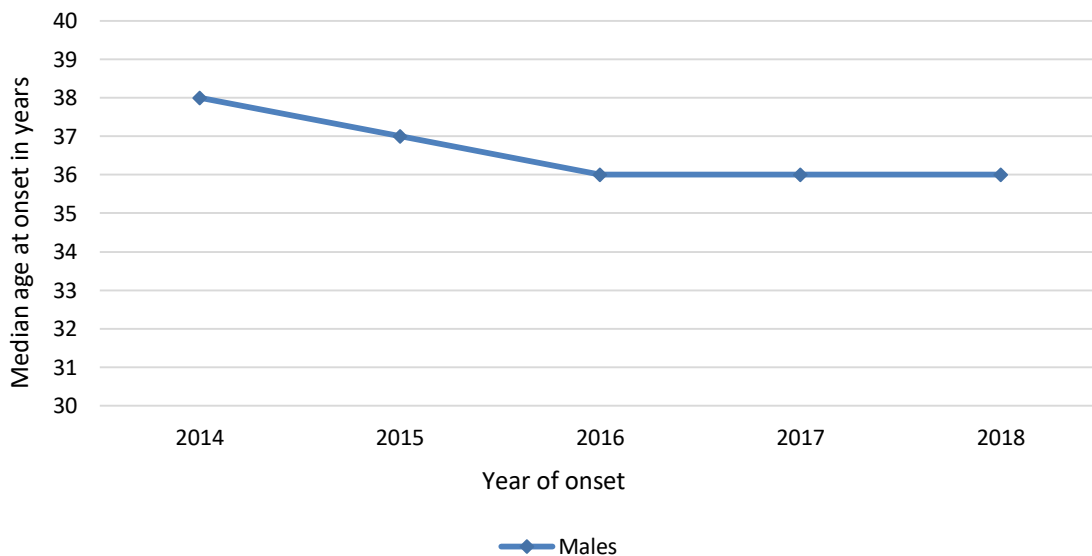
Figure 17: Infectious syphilis notifications by age and sex in people aged 15 years and over, NSW, 1 January - 31 December 2018



Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 1 April 2019.

Note: Excludes persons reported as transgender (due to small numbers), and persons who age or sex was not reported.

Figure 18: Median age of infectious syphilis notifications in males, NSW, 1 January 2014 - 31 December 2018



Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 1 April 2019.

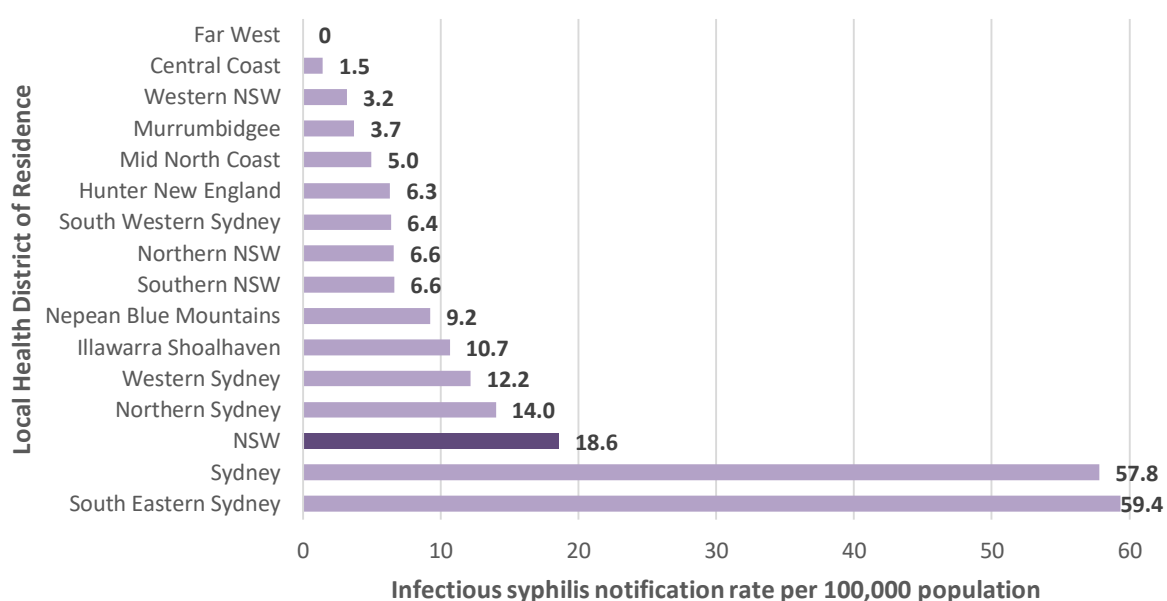
Note: Excludes non-NSW residents and persons whose age and sex was not reported.

In 2018:

- There were 1480 notifications of infectious syphilis. Of these, 1396 (94.3%) were in males, 72 (4.9%) were in females and four (0.6%) were in people reported as transgender.

- The most commonly notified groups were males aged 30-34 and 35-39 years
- The median age of males notified with infectious syphilis was 36 years, the same compared with 2017 and 2 years younger than in 2014 when it was 38 years.
- The median age of females notified with infectious syphilis was 32 years. Due to small numbers, the median age of females fluctuates considerably between reporting years (data not shown).

Figure 19: Infectious syphilis notification rate by LHD, NSW, 1 January - 31 December 2018.



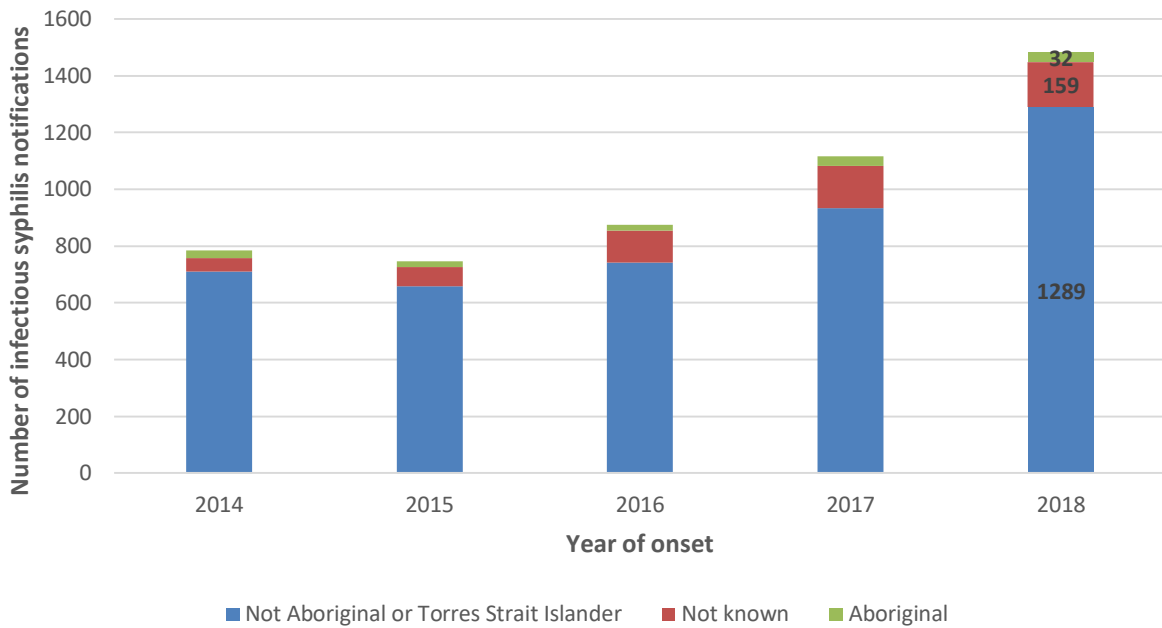
Data source: NCIMS and ABS population estimates (SAPHaRI), NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents, persons whose residential postcode was not known and notifications from Justice Health. For Justice Health notifications, see **Appendix D**.

In 2018:

- The highest infectious syphilis notification rates continued in South Eastern Sydney and Sydney LHDs (59.4 and 57.8 notifications per 100,000 population, respectively). Similar to other STIs, it should be noted that gay men, who are at increased risk of acquiring STIs generally and infectious syphilis in particular, are unequally distributed among local health districts. Continuing high notification rates among males in the Sydney and South Eastern Sydney Local Health Districts in particular reflect large concentrations of gay men in these areas.
- The largest increase in the infectious syphilis notification rates compared with 2017 occurred in the Mid North Coast LHD where the rate more than doubled compared to 2017 (1.8 notifications per 100,000), however the number was small at 11 notifications.
- Large increases in the infectious syphilis notification rate also occurred in the Northern Sydney, Western Sydney and Southern NSW LHDs (93%, 77% and 73%, respectively).
- See **Appendix D Table 9** for a full overview of notification rates by year for each local health district. Note that rates in areas with small annual numbers of notifications fluctuate and should be interpreted with caution.

Figure 20: Infectious syphilis notifications by Aboriginality, NSW, 1 January 2014 – 31 December 2018



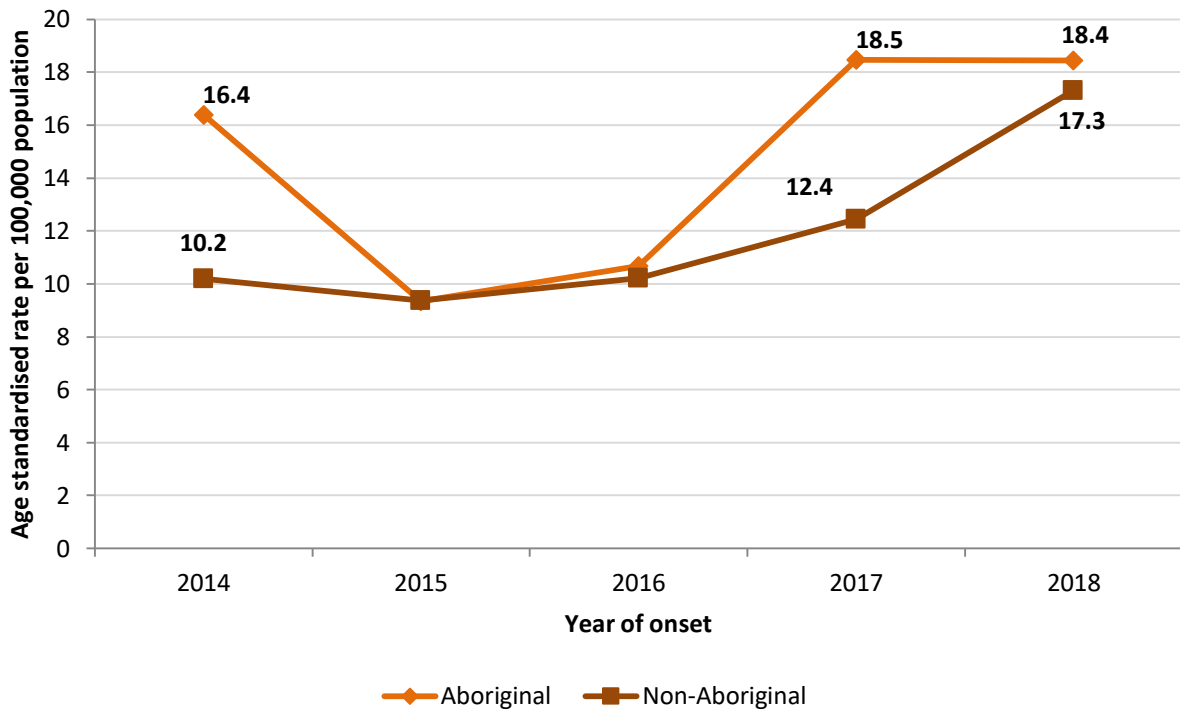
Data source: NCIMS, NSW Health; data extracted 1 Apr 2019.

In 2018:

- Of 1480 infectious syphilis notifications, 32 (2.2%) were among Aboriginal people, 1289 (87%) were among non-Aboriginal people and Aboriginal status was not known for 159 (10.7%).
- The proportion of infectious syphilis notifications that were among Aboriginal people was lower compared with 2017 (3.1%).

Note: As the number of infectious syphilis notifications in the Aboriginal population is small, trends should be interpreted with caution.

Figure 21: Infectious syphilis notification rate by Aboriginality, NSW, 1 January 2014 – 31 December 2018



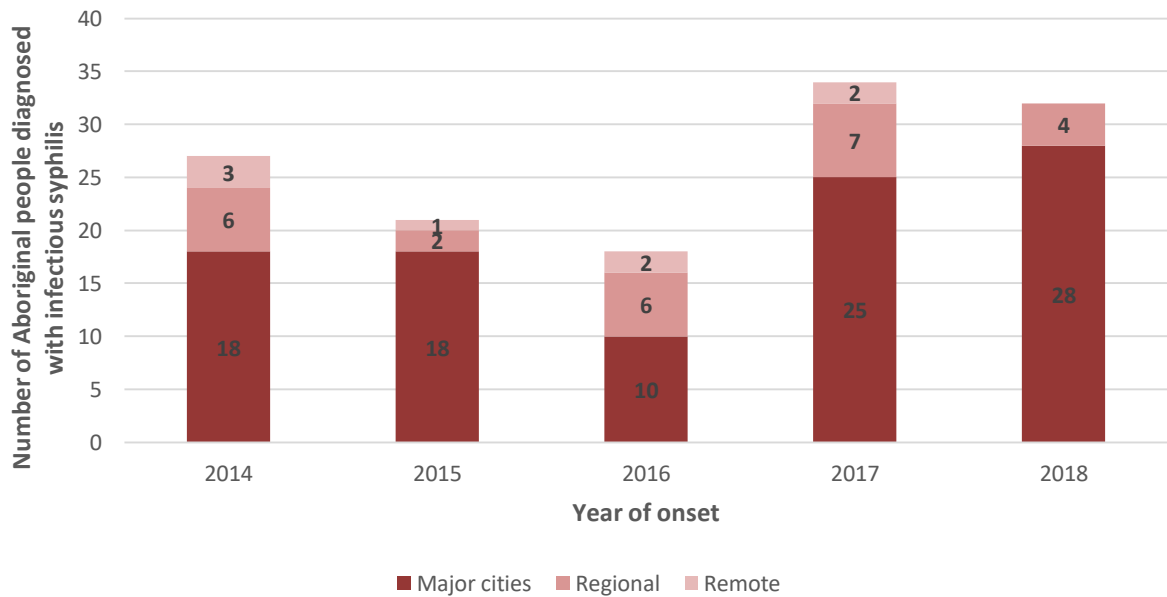
Data source: NCIMS and ABS (via SAPHARI, NSW Health); data extracted 1 Apr 2019.

In 2018:

- Amongst those whose Aboriginal status was known, the annualised age standardised infectious syphilis notification rate among Aboriginal people was 18.4 per 100,000 in 2018, 1.06 times higher than the rate among non-Aboriginal people (17.3 per 100,000).

Note: As the number of infectious syphilis notifications among Aboriginal people is small fluctuations in the rate should be interpreted with caution.

Figure 22: Number of Infectious syphilis notifications in the Aboriginal population, by remoteness area, NSW, 1 January 2014 – 31 December 2018



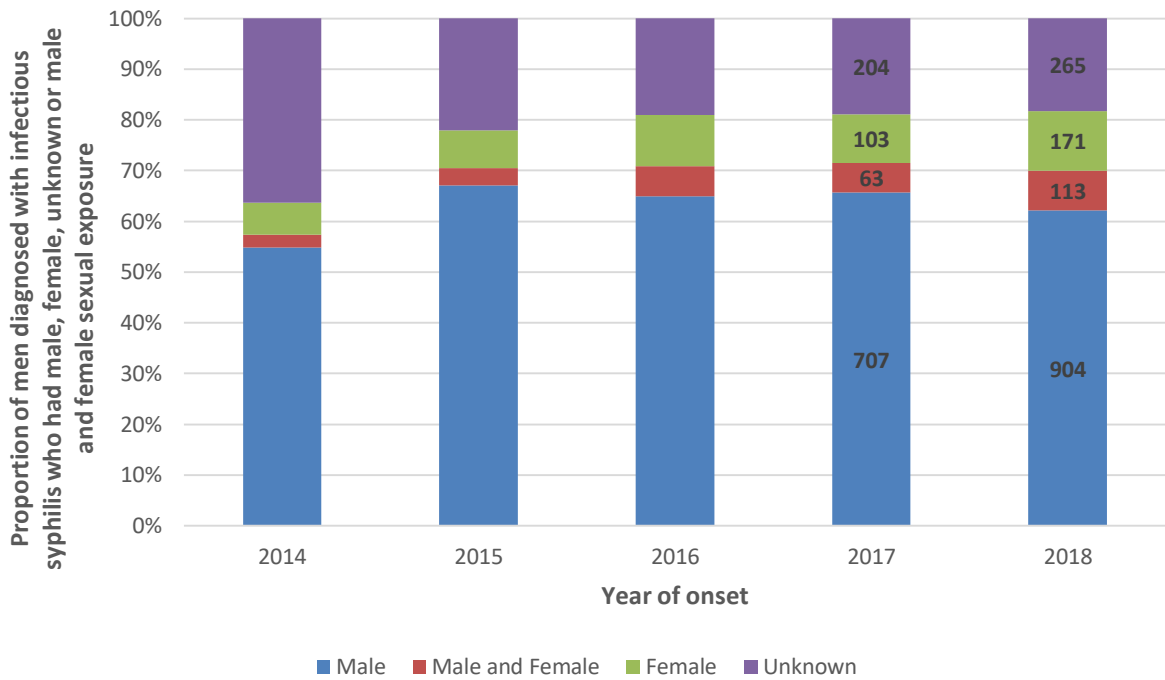
Data sources: NCIMS, NSW Health; data extracted 1 Apr 2019. Population data are derived from ABS projections (3238.0) and 2011 census estimates, and assumes proportions by remoteness have remained constant since 2011.

In 2018:

- Of the 32 infectious syphilis notifications among Aboriginal people, 28 were residing in major cities and 4 were residing in regional areas. There were no infectious syphilis diagnoses among Aboriginal people in remote areas in 2018. As the number of infectious syphilis notifications in the Aboriginal population is small, particularly in regional and remote areas, fluctuations are to be expected and trends should be interpreted with caution.

Note: There is an ongoing infectious syphilis outbreak among young Aboriginal and Torres Strait Islander people in Northern and Central Australia beginning in North West Queensland in 2011. To the end of June 2018, there have been no syphilis cases detected in Aboriginal communities in NSW associated with this outbreak. Information on the outbreak is available on the [Australian Government Health Department website](#).

Figure 23: Reported sexual exposure of men diagnosed with infectious syphilis, NSW, 1 January 2014 – 31 December 2018

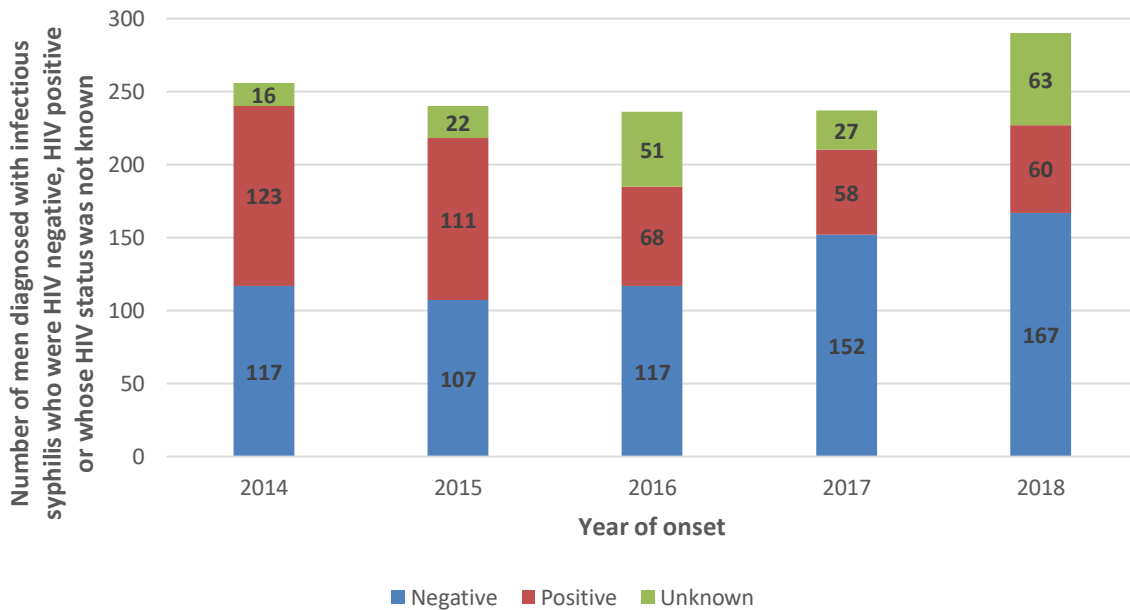


Data source: NCIMS, NSW Health; data extracted 1 Apr 2019.

In 2018:

- The reported sexual exposure of men diagnosed with infectious syphilis continued to be predominantly (62.2%) male-to-male sex, a slight (3.4%) decline from 2017.
- The proportion (7.8%) of men diagnosed with infectious syphilis that reported male and female sexual exposure was higher compared to 2017 (5.8%).
- The proportion (11.8%) of men diagnosed with infectious syphilis who reported female exposure only was also higher compared to 2017 (9.6%).

Figure 24: HIV status of men diagnosed with infectious syphilis, Sydney LHD, 1 January 2014 – 31 December 2018

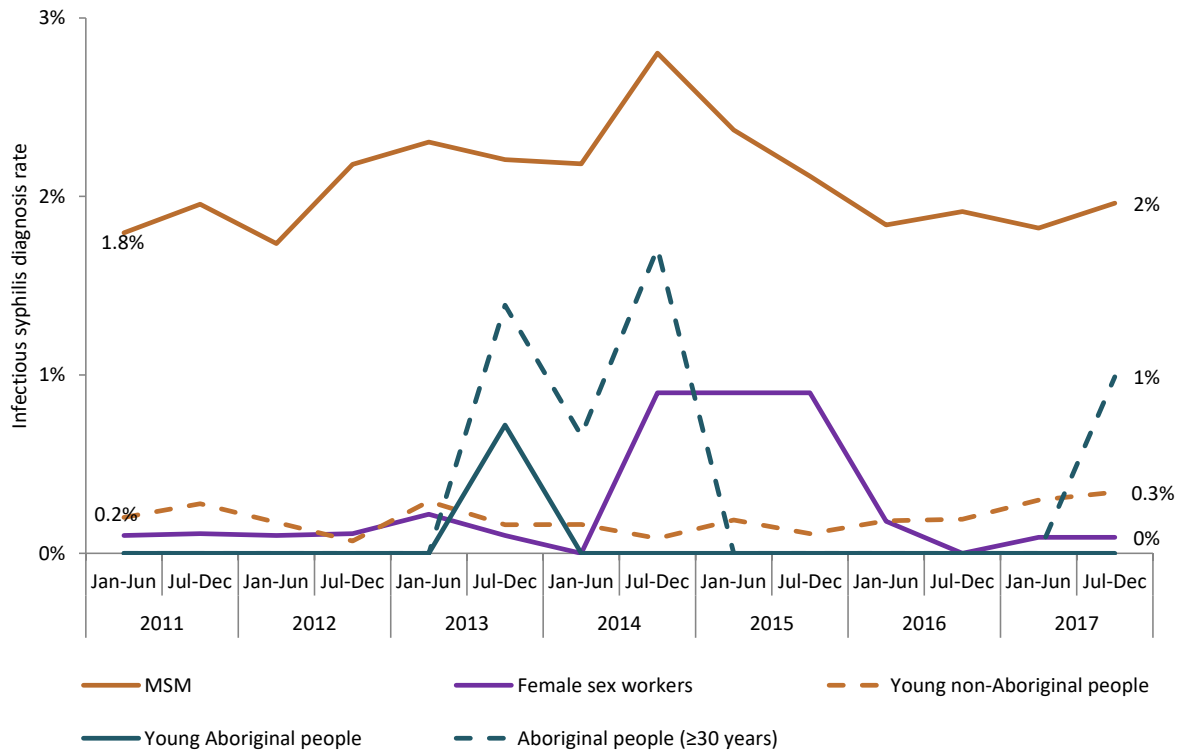


Data source: Sydney LHD – Ethics approved study on syphilis and HIV coinfection enhanced surveillance for infectious syphilis. HIV status is collected from diagnosing clinicians as part of enhanced follow up of all men diagnosed with infectious syphilis.

In 2018:

- The proportion of men diagnosed with infectious syphilis residing in Sydney LHD who were known to be HIV negative (56%) declined compared with 2017 (64%).
- The proportion of men diagnosed with infectious syphilis residing in Sydney LHD who were known to be HIV positive (21%) declined compared with 2017 (24%).
- HIV status was not known for a larger proportion of men diagnosed with infectious syphilis in 2018 (22%) compared with 2017 (11%).

Figure 25: Proportion of individual patients attending PFSHSs and GP clinics¹² tested for syphilis with a diagnosis of infectious syphilis (syphilis diagnosis rate¹³, by priority population¹⁴, 1 January 2011 - 31 December 2017



Data source: ACCESS Database, The Kirby Institute and the Burnet Institute.

- Diagnoses of infectious syphilis were generally rare.
- The diagnosis rate of infectious syphilis remained stable among gay and bisexual men: 1.8% in early 2011 and 2% in late 2017.

¹² GP clinics included those serving at least 50 gay and bisexual male patients annually

¹³ Diagnosis rate is the proportion of individuals (i.e., de-duplicated) tested in each six-month period with any positive result. In PFSHS, infectious syphilis was defined as a diagnosis of primary, secondary or early latent (<2 years) syphilis and in general practice as the proportion of individuals tested with reactive syphilis antigen and antibody tests and, if relevant, a fourfold increase in RPR titre

¹⁴ While priority populations are not mutually exclusive those other than MSM exclude MSM-identified patients

2.2 Congenital syphilis notifications

Congenital syphilis is an entirely preventable disease and represents a failure of the health system. Its occurrence reflects a failure of delivery systems for antenatal care and for syphilis control programs. In NSW, all cases of congenital syphilis are investigated to identify and remedy gaps in service delivery.

In the last five years there have been two cases of congenital syphilis among NSW residents, one in 2018 and one in 2017, both occurring in metropolitan Sydney. There were no congenital syphilis cases in the Aboriginal population in NSW from 2014 to 2018.

Data source: NCIMS, NSW Health

3 Reduce pelvic inflammatory disease associated with chlamydia

Chlamydia infection is usually a self-limiting disease, however in women it is associated with an increased risk of pelvic inflammatory disease (PID), ectopic pregnancy, and infertility. The risk of these outcomes increases with the number of chlamydia infections that a woman contracts. For this reason, the burden of pelvic inflammatory disease may be a better measure of chlamydia morbidity than chlamydia notification data.

Chlamydia associated PID hospitalisation data are used in this report as an indicator of the burden of pelvic inflammatory disease. Emergency department presentations (without a subsequent hospital admission) have not been included as the diagnoses of PID in the admitted patient data collections are likely to be more reliably and consistently applied than in the emergency department data. As only the most severe cases of PID are likely to be hospitalised, chlamydia associated PID hospitalisations do not reflect the true incidence or full burden of PID, but are used to monitor trends over time. PID hospitalisation data are influenced by changes in coding practices and changes in PID management over time.

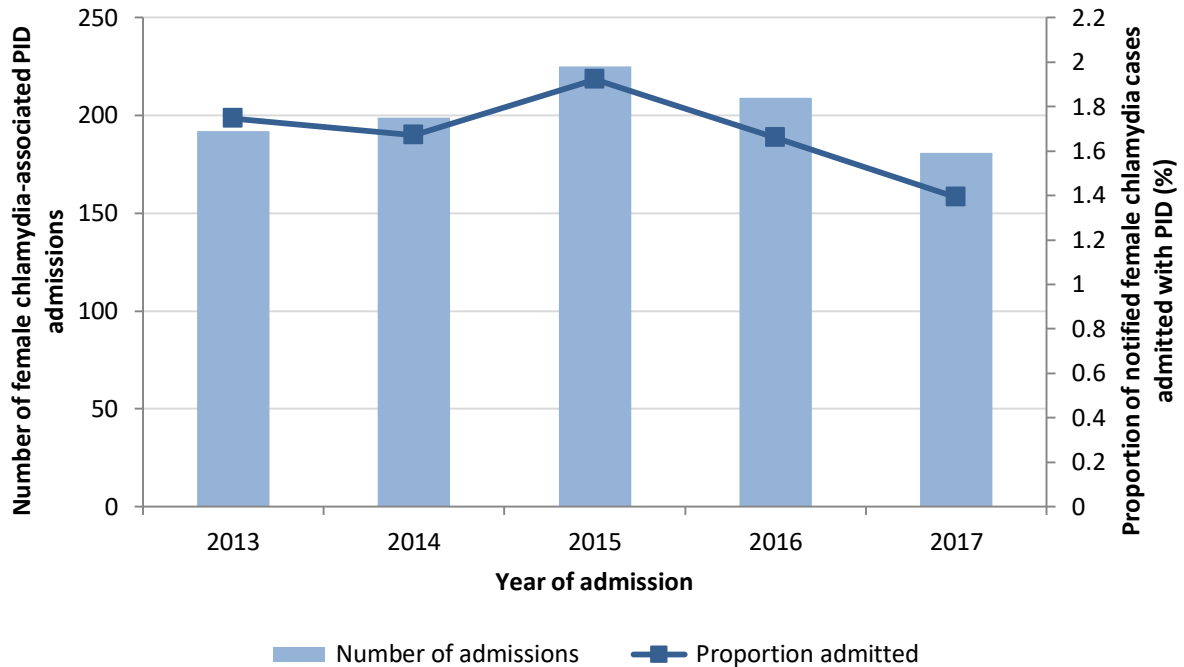
Prevention, testing and appropriate treatment and management are the cornerstones of chlamydia control and are embedded in the current STI strategy. Chlamydia notification data does not reflect the true incidence of chlamydia infection as it only represents a proportion of infections in the population, however it is also useful for monitoring trends over time. Chlamydia notification data are heavily influenced by testing practices.

Chlamydia is a notifiable disease under the NSW *Public Health Act 2010*. A confirmed case requires isolation of *Chlamydia trachomatis* from culture or detection by nucleic acid testing (NAAT) or antigen. Only confirmed cases of chlamydia are counted when reporting chlamydia notification data. Patient care and contact tracing are the responsibility of the treating doctor. Information on risks (e.g. sexual exposure) is not routinely collected.

It is important to note that there may be multiple specimens collected for each individual tested for chlamydia. Hence the number of chlamydia tests done is greater than the number of individuals tested. However, an individual with multiple specimens that are positive for *Chlamydia trachomatis* will generate only one notification.

3.1 Chlamydia-associated hospitalisations for pelvic inflammatory disease

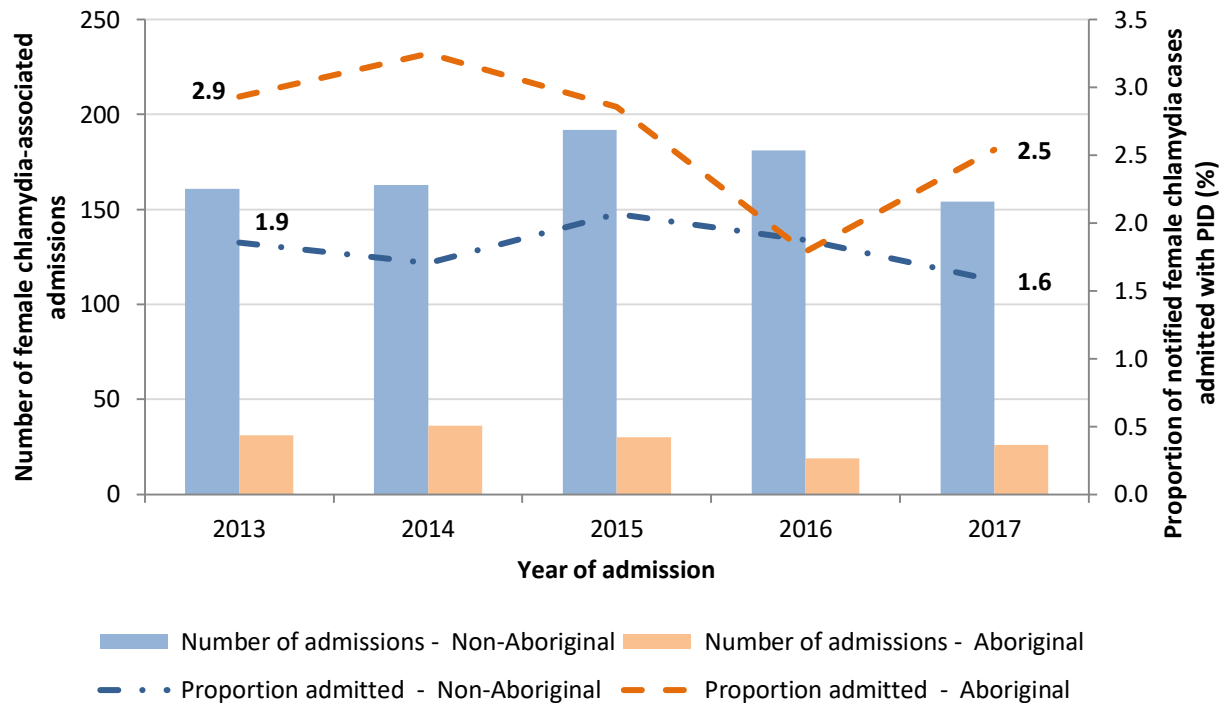
Figure 26: Number and proportion of women notified with chlamydia who are admitted with PID within 12 months of diagnosis, NSW, 1 January 2013 - 31 December 2017



Data source: Communicable Diseases Register, NSW Ministry of Health (via SAPHaRI). Data extracted 18 October 2018.

- The number of women notified with chlamydia who were admitted to hospital with PID within 12 months varied over time from 2013 to 2017, ranging from 181-225 admissions.
- The proportion of all women notified with chlamydia who were admitted to hospital also varied over time from 2013 to 2017, ranging from 1.4-1.9%.
- A decline in both the number of PID admissions and the proportion of women with chlamydia admitted with PID has been observed in 2017.
- These data were presented in the January to June 2018 data report.

Figure 27: Number and proportion of women notified with chlamydia who are admitted with PID within 12 months of diagnosis, by Aboriginality, NSW, 1 January 2012 - 31 December 2016

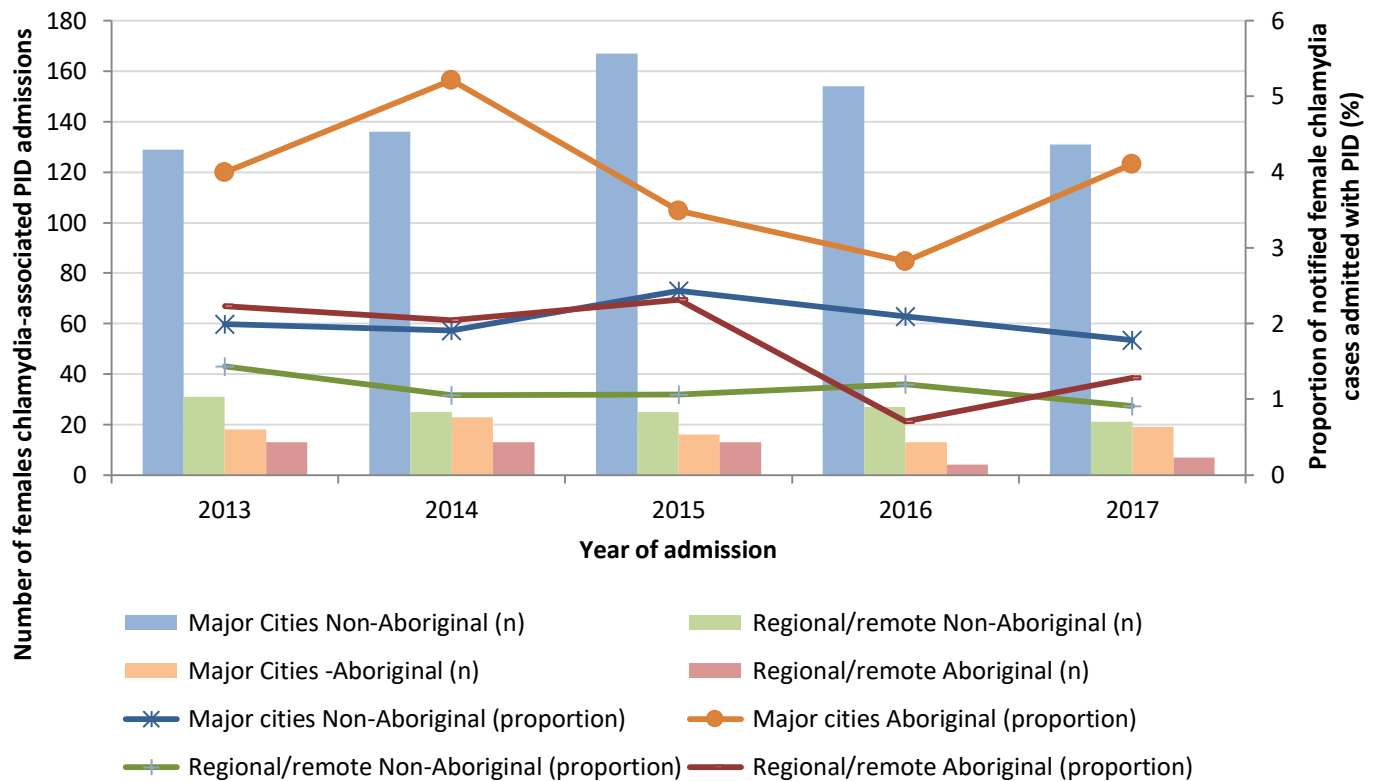


Data source: Communicable Diseases Register, NSW Ministry of Health (via SAPHaRI). Data extracted 18 October 2018.
Note: Excludes re-notifications within 12 months

- The number of Aboriginal women notified with chlamydia who were admitted to hospital with PID within 12 months varied over time from 2013 to 2017, ranging from 19-36 admissions per year.
- The proportion of Aboriginal women notified with chlamydia who were admitted to hospital also varied over time from 2013 to 2017, ranging from 1.8-3.2% each year, which is 1.4 to 1.6 times higher compared to non-Aboriginal women, except in 2016 where it was lower than non-Aboriginal women.
- An increase in both the number of PID admissions and the proportion of women with chlamydia admitted with PID among Aboriginal women was observed in 2017 compared to 2016.
- These data were presented in the January to June 2018 data report.

Note: As the number of PID admissions among Aboriginal women notified with chlamydia is small, yearly variation should be interpreted with caution.

Figure 28: Number and proportion of women notified with chlamydia who are admitted with PID within 12 months of diagnosis, by Aboriginality and residential region, NSW, 1 January 2013 - 31 December 2017



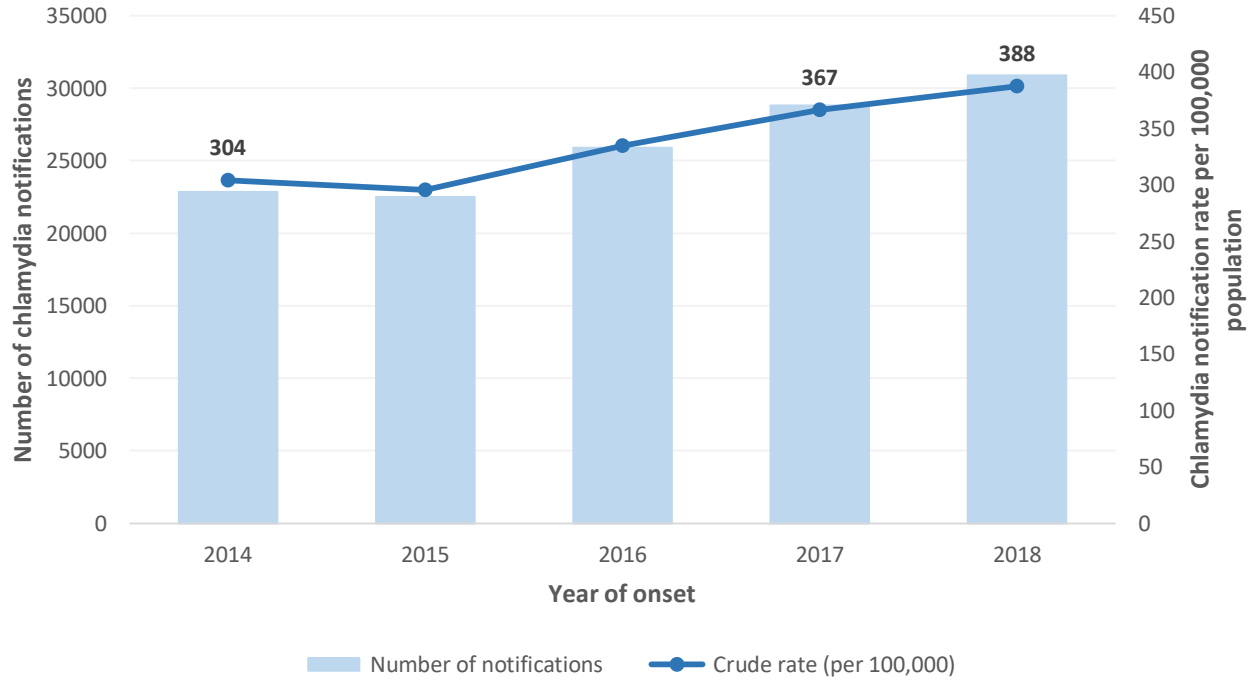
Data source: Communicable Diseases Register, NSW Ministry of Health (via SAPHaRI), data extracted 18 October 2018
Note: Excludes re-notifications within 12 months and chlamydia cases where residential postcode or Aboriginal status was unknown.

- The number of Aboriginal women from both major cities and regional areas who were notified with chlamydia and admitted to hospital with PID within 12 months varied over time from 2013 to 2017, ranging from 4-23 admissions per year.
- The proportion of Aboriginal women notified with chlamydia who were admitted to hospital with PID also varied over time from 2013 to 2017, ranging from 2.8% to 4.1% in major cities and 0.7% to 2.3% in regional areas. This was 1.3 to 2.7 times higher compared to non-Aboriginal women in major cities and 1.4 to 2.2 times higher compared to non-Aboriginal women in regional areas, except for 2014.
- These data were presented in the January to June 2018 data report.

Note: As the number of PID admissions among Aboriginal women notified with chlamydia is small, yearly variation should be interpreted with caution.

3.2 Chlamydia notifications

Figure 29: Number and crude rate of chlamydia notifications, NSW, 1 January 2014 - 31 December 2018

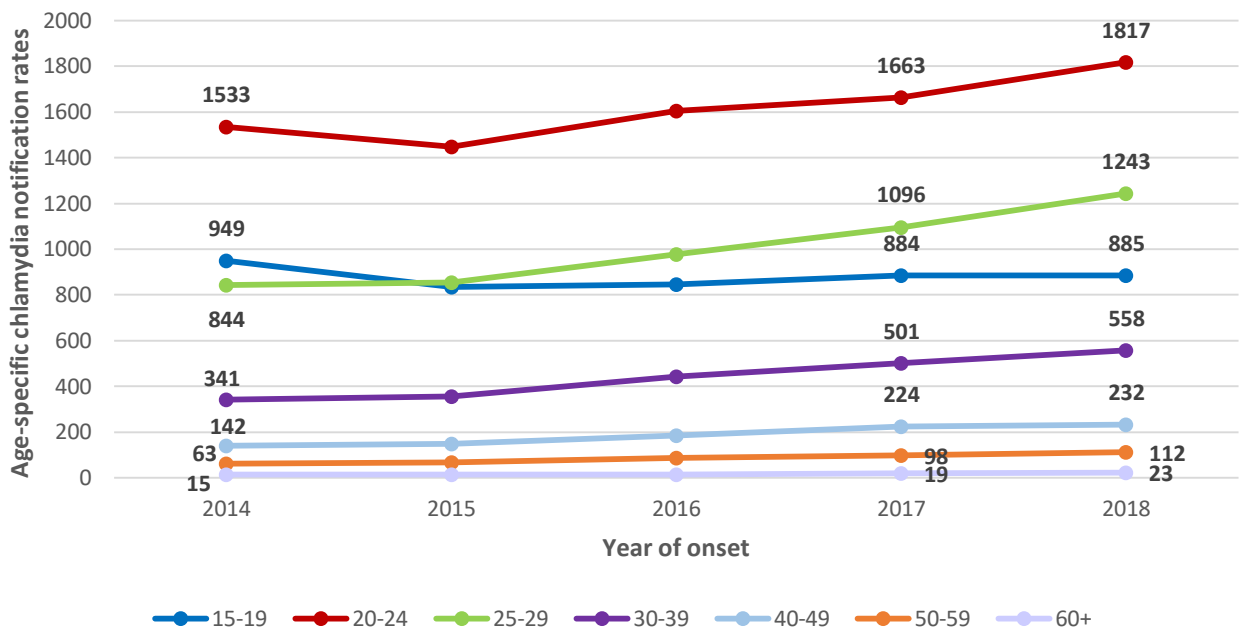


Data source: NCRES and ABS (via SAPHaRI), NSW Health; data extracted 1 April 2019.

In 2018:

- The chlamydia notification rate was 388 notifications per 100,000 population, 5% higher compared to 2017 (368 per 100,000 population) and 28% higher compared with 2014.

Figure 30: Age-specific chlamydia notification rates in people aged 15 years and over, NSW, 1 January 2014 – 31 December 2018

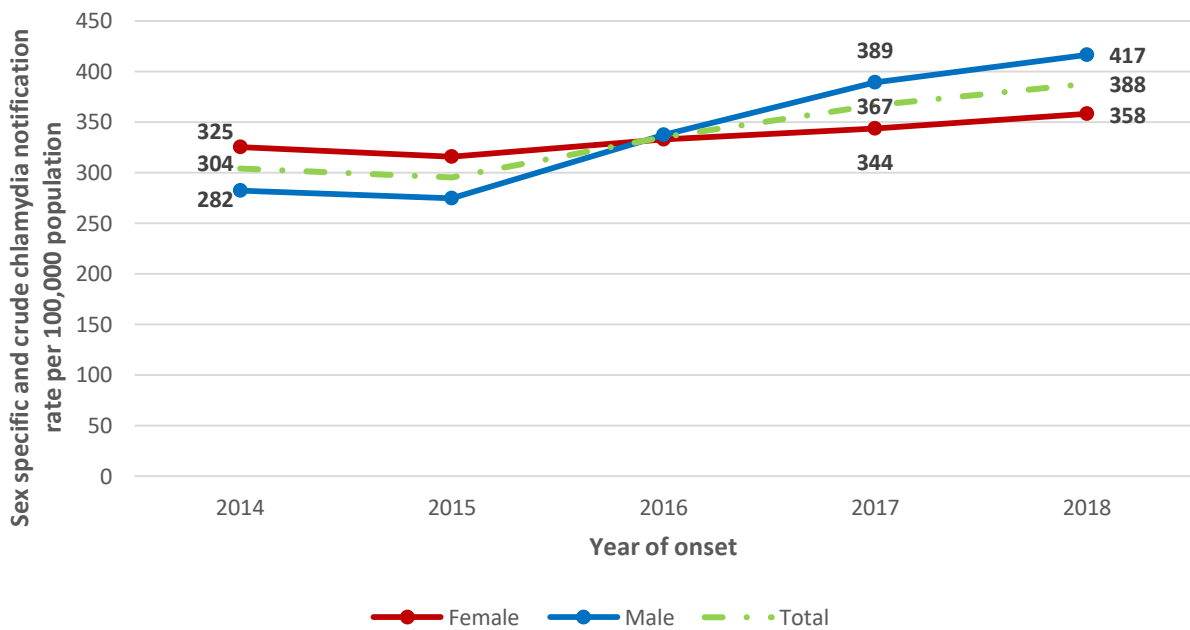


Data source: NCRS (via SAPHaRI), NSW Health; data extracted 1 April 2019.

In 2018:

- Chlamydia notification rates increased among all age groups (15 years and over) compared with 2017.
- The age-specific rates for the 20-24 years, 25-29 years and 30-39 years age groups increased by 9%, 13% and 11% respectively compared to the rates in 2017. A larger relative increase was observed in the 50-59 and 60-69 years age groups (14% and 21% respectively), although actual numbers are smaller.
- Since 2014, notification rates among those aged 30-39 years, 40-49 years and 50-59 years have increased by over 63%.

Figure 31: Sex specific chlamydia notification rate, NSW, 1 January 2014 – 31 December 2018



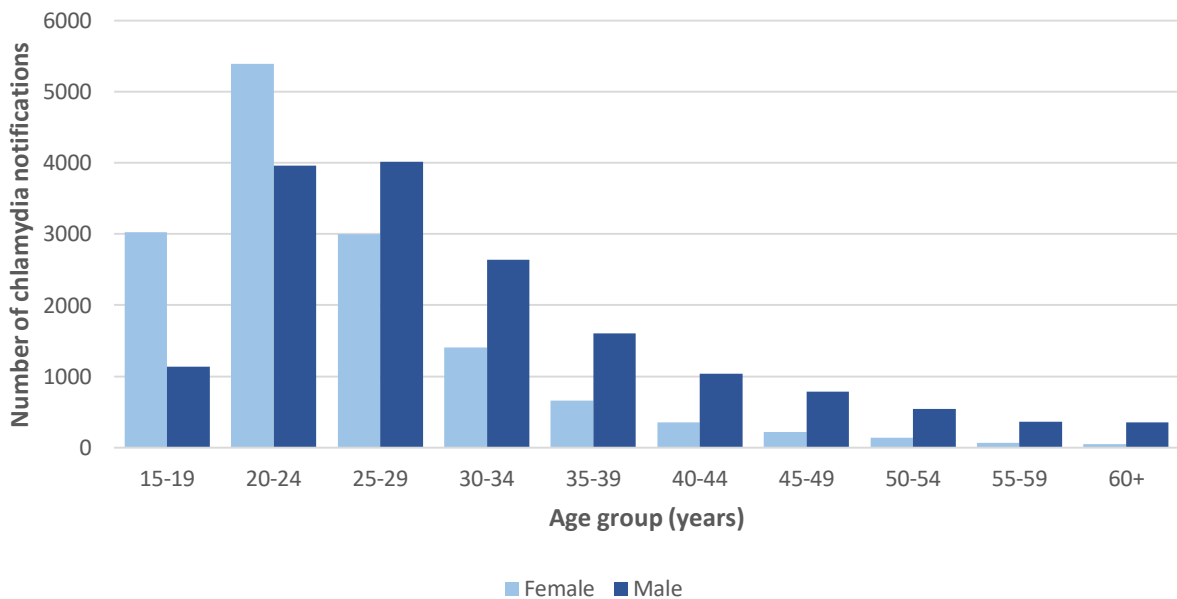
Data source: NCRES (via SAPHaRI), NSW Health; data extracted 1 April 2019.

Note: Excludes persons reported as transgender (due to small numbers), and persons whose sex was not reported.

In 2018:

- Chlamydia notification rates increased among both males and females. The rate in males increased by 7% compared to 2017, whereas the rate in females increased by 4%.
- The chlamydia notification rate was 16% higher in males than in females (417 per 100,000 males compared to 358 per 100,000 females). Prior to 2016, the rate was higher in females than males.

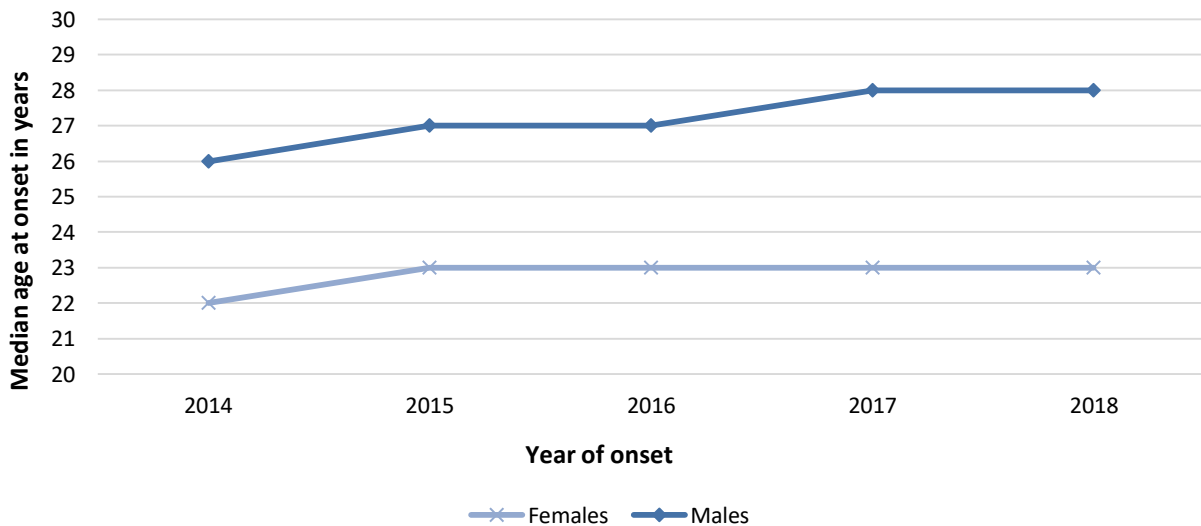
Figure 32: Chlamydia notifications by age and sex in people aged 15 years and over, NSW, 1 January – 31 December 2018



Data source: NCIMS, NSW Health; data extracted 1 April 2019.

Note: Excludes persons reported as transgender (due to small numbers) and persons whose age or sex was not known or reported.

Figure 33: Median age of chlamydia notifications by sex, NSW, 1 January 2014 - 31 December 2018



Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 1 April 2019.

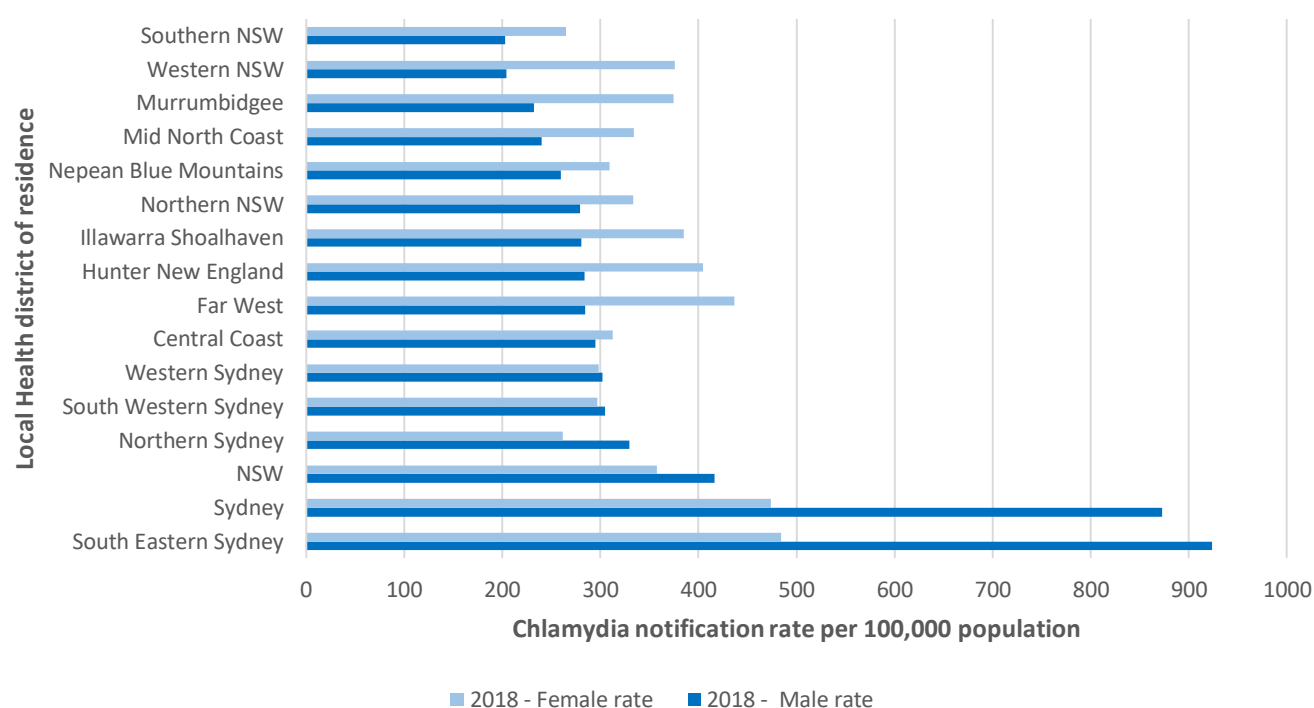
Note: Excludes non-NSW residents and persons whose age and sex was not reported.

In 2018:

- The most commonly notified groups were females aged 20-24 years and males aged 25-29 years, followed by males aged 20-24 years and females aged 15-19 years; 47% of chlamydia notifications were in females and 53% were in males.

- The median age of females was 23 years, the same as in 2017 and one year older than in 2014 when the median age was 22.
- The median age of males was 28 years, the same as in 2017 and two years older than in 2014 when the median age was 26.

Figure 34: Chlamydia notification rate by LHD and gender, NSW, 1 January – 31 December 2018



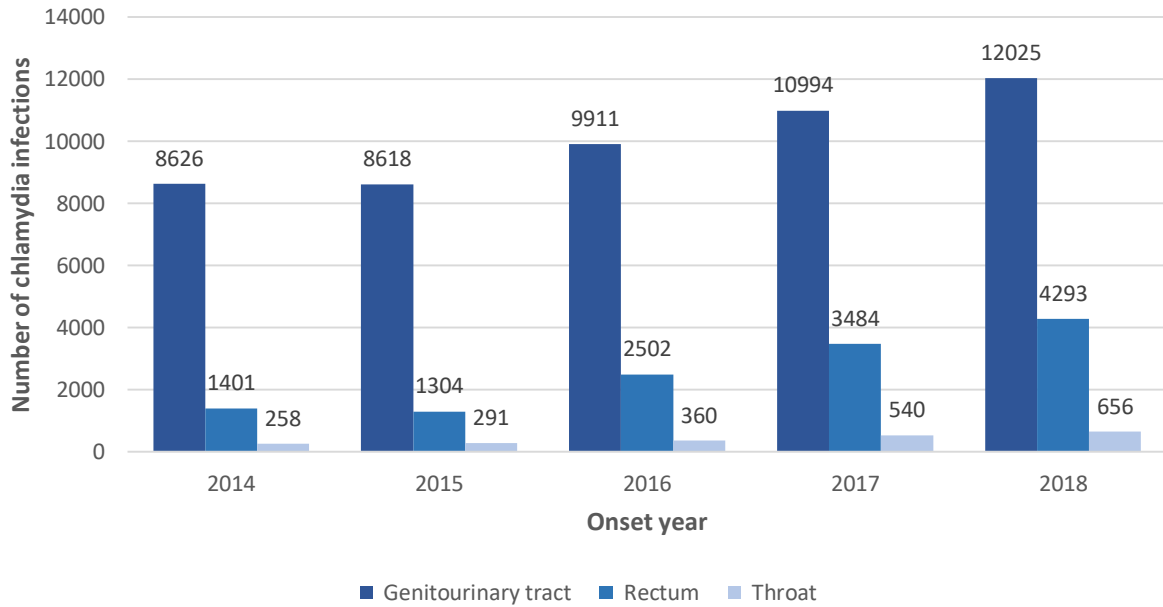
Data source: NCRIS and ABS population estimates (SAPHaRI), NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents, persons whose residential postcode was not known and notifications from Justice Health. For Justice Health notifications, see **Appendix D**.

In 2018:

- Overall, the largest relative increases in the chlamydia notification rate occurred in the Far West, Murrumbidgee and South Western Sydney LHDs (26%, 9% and 8% respectively) compared with 2017.
- The highest chlamydia notification rates for both males and females were in South Eastern Sydney and Sydney LHDs.
- The largest relative increases in the male chlamydia notification rates compared to 2017 were in the Far West and Central Coast LHDs (58% and 16% respectively).
- For females, the largest relative rate increases were in the Far West, Murrumbidgee and Hunter New England LHDs (23%, 14% and 10% respectively).
- See **Appendix D Table 10** for a full overview of notification rates by sex and year by local health district.

Figure 35: Number of chlamydia infections in males, by site of infection, NSW, 1 January 2014 – 31 December 2018



Data source: NCIMS, NSW Health; data extracted 1 April 2019.

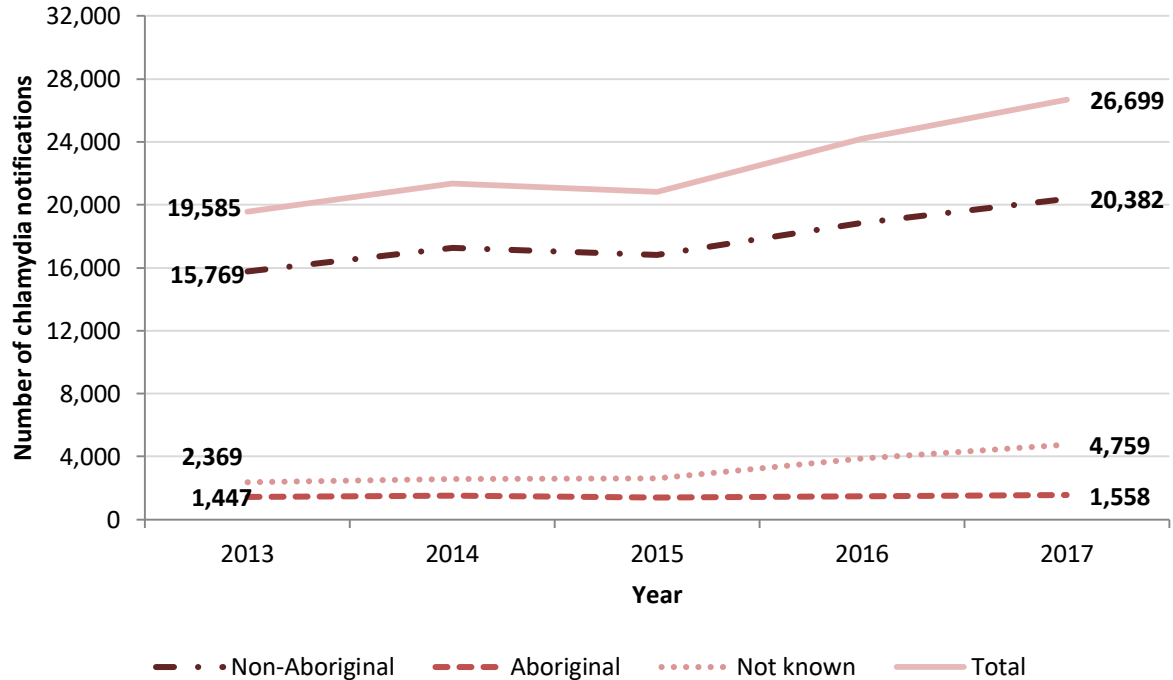
Note: Does not include 'other' (including conjunctiva and joints) site of infection or missing/unknown site of infection; number of infections may exceed number of notifications due to infection at multiple sites.

In 2018:

- Among men, the genitourinary tract is the main site of chlamydia infection notified to NSW Health, followed by the rectum.
- Among women, the genitourinary tract is the main (97.5%) site of chlamydia infection notified to NSW Health, followed by the throat (1.5%) and rectum (1%).
- Compared with 2017, the largest relative increases among men were reported in the rectum (23%) and throat (21%); infections in the genitourinary tract increased by 9%. Among women, the largest relative increases were reported in throat (22%) and rectal (31%) infections; genitourinary tract infections increased by 8%.
- Since 2014, the number of throat infections has tripled among men and doubled among women.

3.3 Chlamydia notifications among Aboriginal people

Figure 36: Chlamydia notifications by Aboriginality, NSW, 2013 - 2017

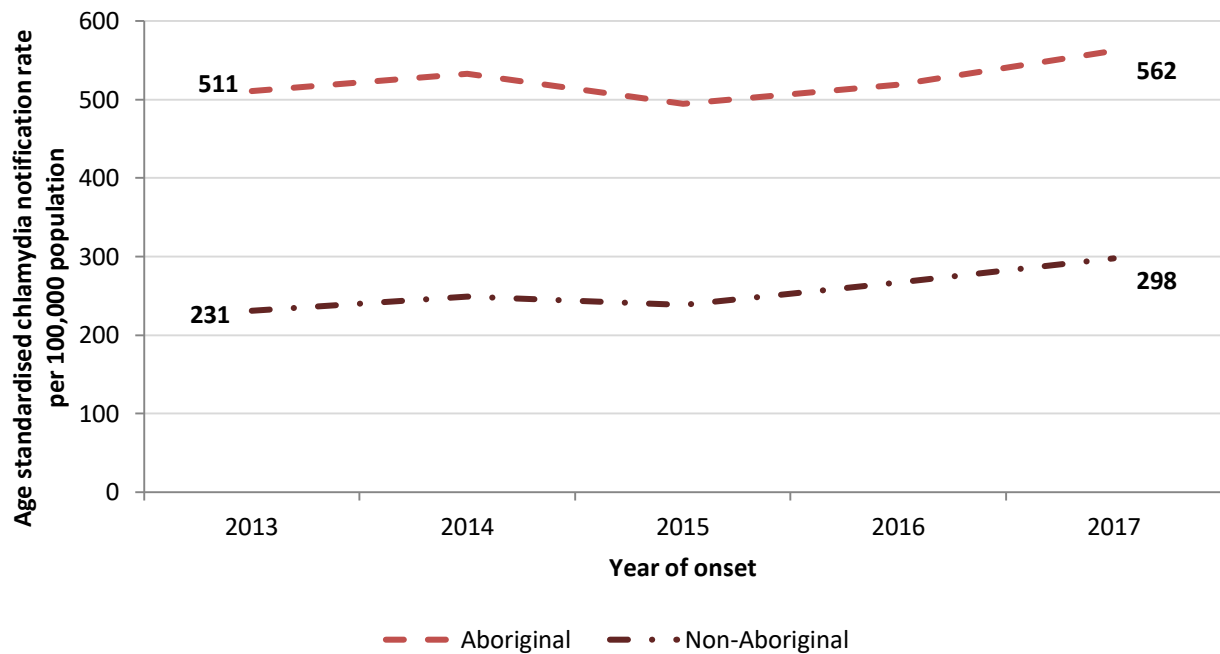


Data source: Communicable Diseases Register, NSW Ministry of Health (via SAPHaRI); data extracted 17 October 2018

- In 2017, 26,699 notifications for chlamydia were recorded in the Communicable Diseases Register (CDR). Of these, 1,558 (5.8%) were among Aboriginal people, 20,382 (76.4%) were among non-Aboriginal people and Aboriginal status was not known for 4,759 (17.8%) people. Of those notifications where Aboriginal status was not known in 2016, 93% were living in metropolitan Sydney.
- These data were presented in the January to June 2018 data report.

Note: Trends in the Aboriginal population are difficult to interpret due to variation in the yearly number of people for whom Aboriginal status was not known, and the relatively high proportion of incomplete data compared to the proportion in Aboriginal people.

Figure 37: Chlamydia notification rate by Aboriginality, NSW, 2013 - 2017



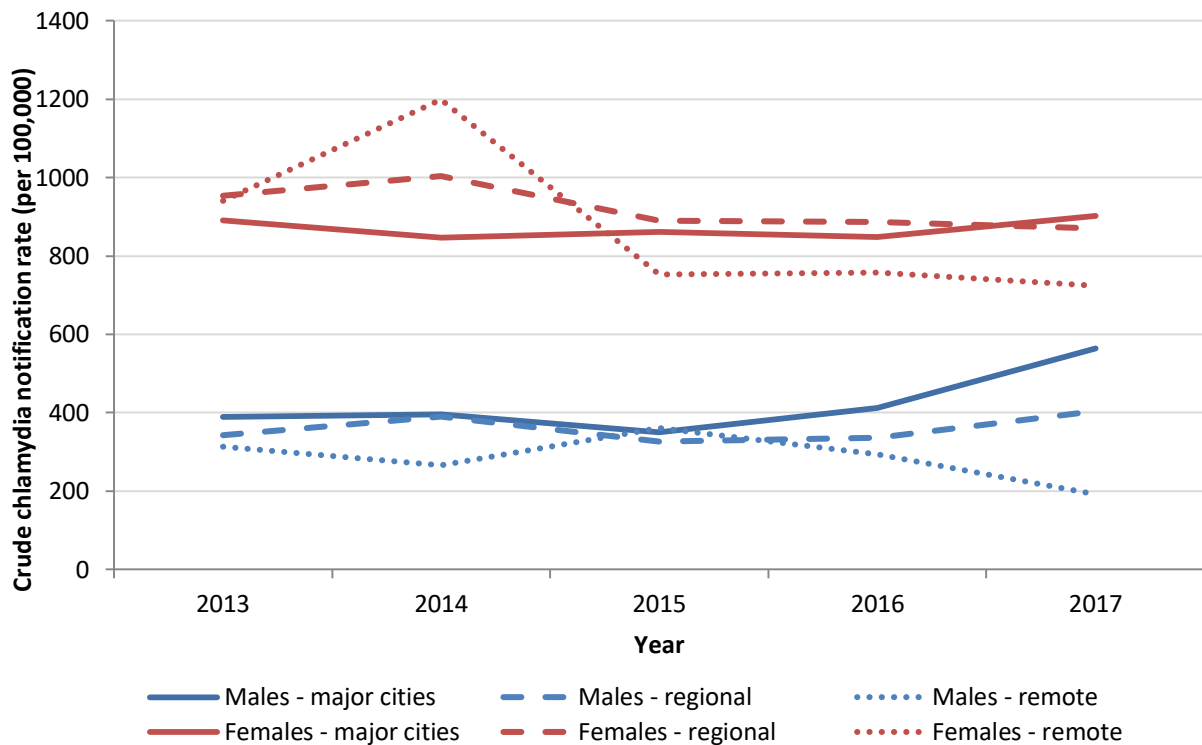
Data source: Communicable Diseases Register, NSW Ministry of Health, and ABS (via SAPHaRI); data extracted 17 October 2018.

Note: Excludes records where Aboriginal status was not stated; rates standardised to the Australian Standard Population 2001.

- Notification rates of chlamydia increased among both Aboriginal and non-Aboriginal people between 2016 and 2017.
- Amongst those whose Aboriginal status was known, the chlamydia notification rate was 1.9 times higher among Aboriginal people than among non-Aboriginal people (562 per 100,000 vs 298 per 100,000) in 2017. Since 2013, gonorrhoea notification rates among non-Aboriginal people have increased by 29% and rates among Aboriginal people have increased by 10%.
- These data were presented in the January to June 2018 data report.

Note: These notification rates are influenced by variations in the number of people for whom Aboriginal status was not known (see Figure 36), and are likely to be an underestimation.

Figure 38: Crude chlamydia notification rates in the Aboriginal population, by gender and remoteness area, NSW, 2013 - 2017



Data sources: Communicable Diseases Register, NSW Ministry of Health (via SAPHaRI), data extracted 17 October 2018. Transgender persons not included. Population data are derived from ABS projections (3238.0) and 2011 census estimates, and assumes proportions by remoteness and gender have remained constant since 2011.

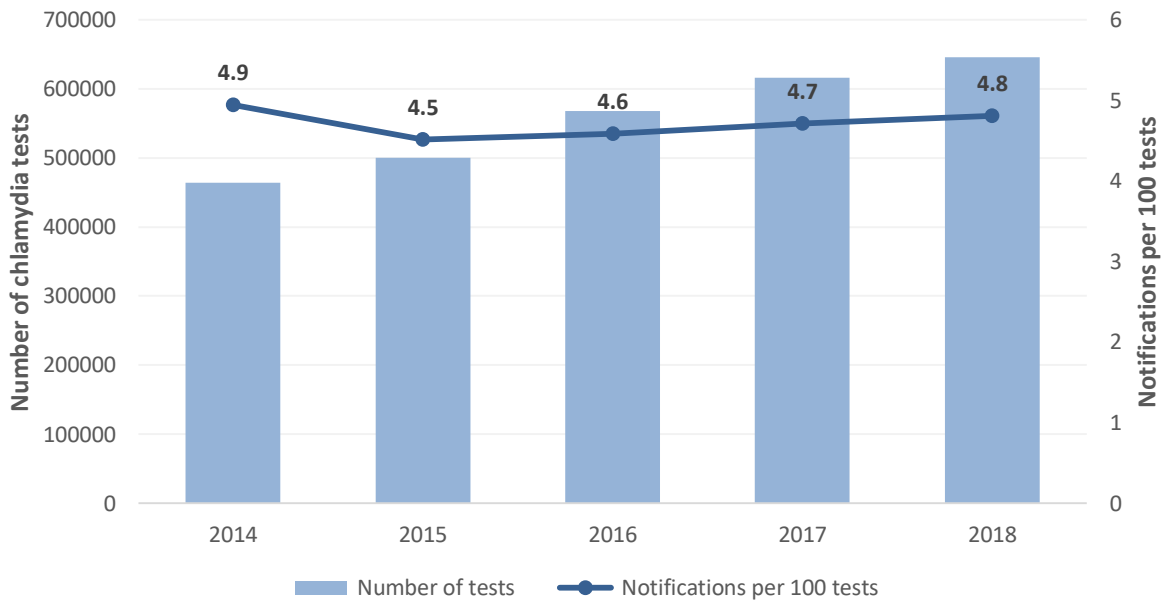
- In 2017, the highest chlamydia notification rates in Aboriginal people were among females living in major cities, regional and remote areas, and, in regional and remote areas were more than double their male counterparts.
- Chlamydia notification rates among males and females in remote areas have declined whilst notification rates among males and females in major cities have increased
- These data were presented in the January to June 2018 data report

Note: As the number of notifications in the Aboriginal population is relatively small, especially among males and females in remote areas, trends should be interpreted with caution. Changes in notification rates may be due to variation in incidence of disease, screening rates and/or the number of people for whom Aboriginal status was not known (see Figure 33).

3.4 Chlamydia testing

In 2012, NSW Health commenced collection of monthly testing data for selected notifiable conditions from 15 NSW public and private laboratories under the NSW Denominator Data Project. These laboratories account for more than 90% of the total notifications for the selected conditions in NSW. Information from laboratories does not provide any indication on whether there are repeat tests on the same individual.

Figure 39: Number of chlamydia tests and notification to test ratio¹⁵, NSW, 1 January 2014 – 31 December 2018



Data source: NCIMS and NSW Denominator Data Project, NSW Health; data extracted 1 March 2018.
Note: Testing multiple sites results in multiple tests being counted per person.

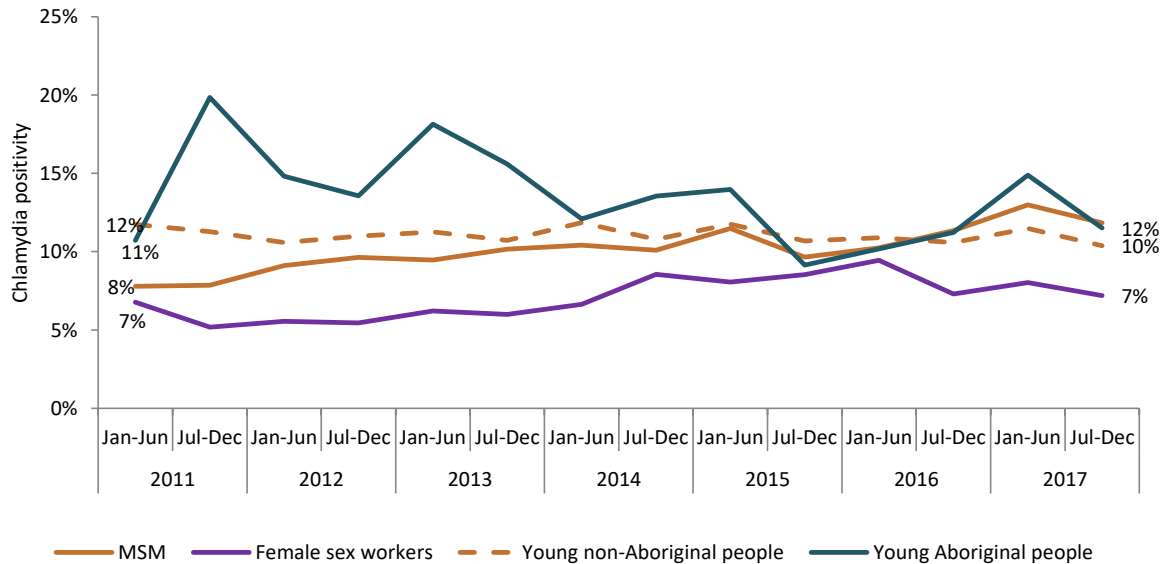
In 2018:

- The number of chlamydia tests (NAAT) performed in NSW continued to increase.
- A total of 646,833 tests for chlamydia were performed in 15 laboratories in NSW, an increase of 4.9% compared to 2017 (615,880).
- There were 4.8 chlamydia notifications per 100 chlamydia tests. The number of notifications per 100 chlamydia tests has remained stable over time.

¹⁵ See **Appendix B: Table 6** for more details about methodology

3.5 Chlamydia positivity among men who have sex with men, female sex workers and young people

Figure 40: Proportion of individual patients attending PFSHSs and GP clinics¹⁶ tested for chlamydia with a positive result (chlamydia positivity¹⁷), by priority population¹⁸, 1 January 2011 - 31 December 2017



Data source: ACCESS Database, The Kirby Institute and the Burnet Institute.

- Chlamydia positivity among MSM increased from 8% in the first half of 2011 to 12% in the second half 2017
- Positivity among female sex workers increased from 7% in early 2011 to 9% in early 2016 it then decreased to 7% in late 2017.

¹⁶ GP clinics included those serving at least 50 gay and bisexual male patients annually

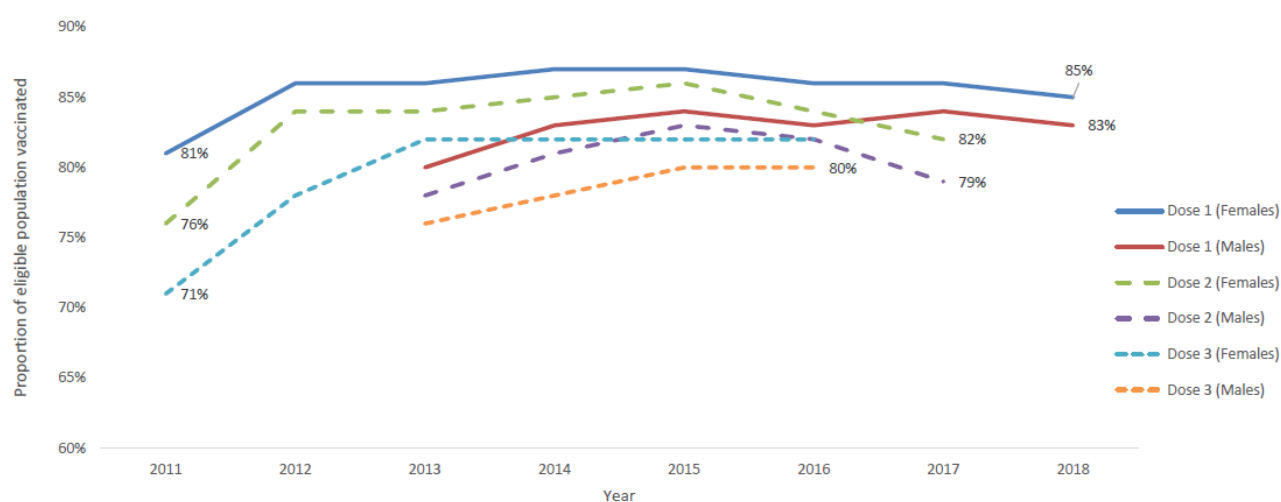
¹⁷ Positivity is the proportion of individuals (i.e., de-duplicated) tested in each six-month period with any positive result

¹⁸ While priority populations are not mutually exclusive those other than MSM exclude MSM-identified patients

4 Maintain high coverage of HPV vaccination for Year 7 school students

Infection with human papillomavirus (HPV) is very common in both men and women, with initial infection with any one of many types of HPV occurring close to the time of sexual debut. The National HPV Vaccination Program began in 2007 for females, and was extended to include males in 2013.

Figure 41: Year 7 HPV vaccination by dose and gender, 2011 - 2018¹⁹



Data source: Local Health Districts

Note: See **Appendix E** for full data for the HPV vaccination rate by gender

- The data indicate that 82% of females and 79% of males in Year 7 in 2017 completed the two-dose course of HPV vaccine, including catch-up vaccination in Year 8 in 2018.
- For all doses the proportion of the eligible population receiving the vaccination is higher for females than for males.
- Since 2017 a two-dose course of HPV vaccine at least 6 months apart has been offered in NSW to Year 7 students based on the latest international studies that demonstrate that this gives equivalent protection to a three-dose course of vaccine given at 0, 2 and 6 months for most students.

Note: Data on HPV dose 1 coverage for males and females in 2018 is included in **Appendix E Table 12**. Final course completion data are not available as catch-up vaccination is being provided in Year 8 in 2019.

¹⁹ The coverage rates for NSW may underestimate the true vaccination coverage as they represent only those vaccinations administered through the school program and do not include doses administered by general practitioners or other immunisation providers.

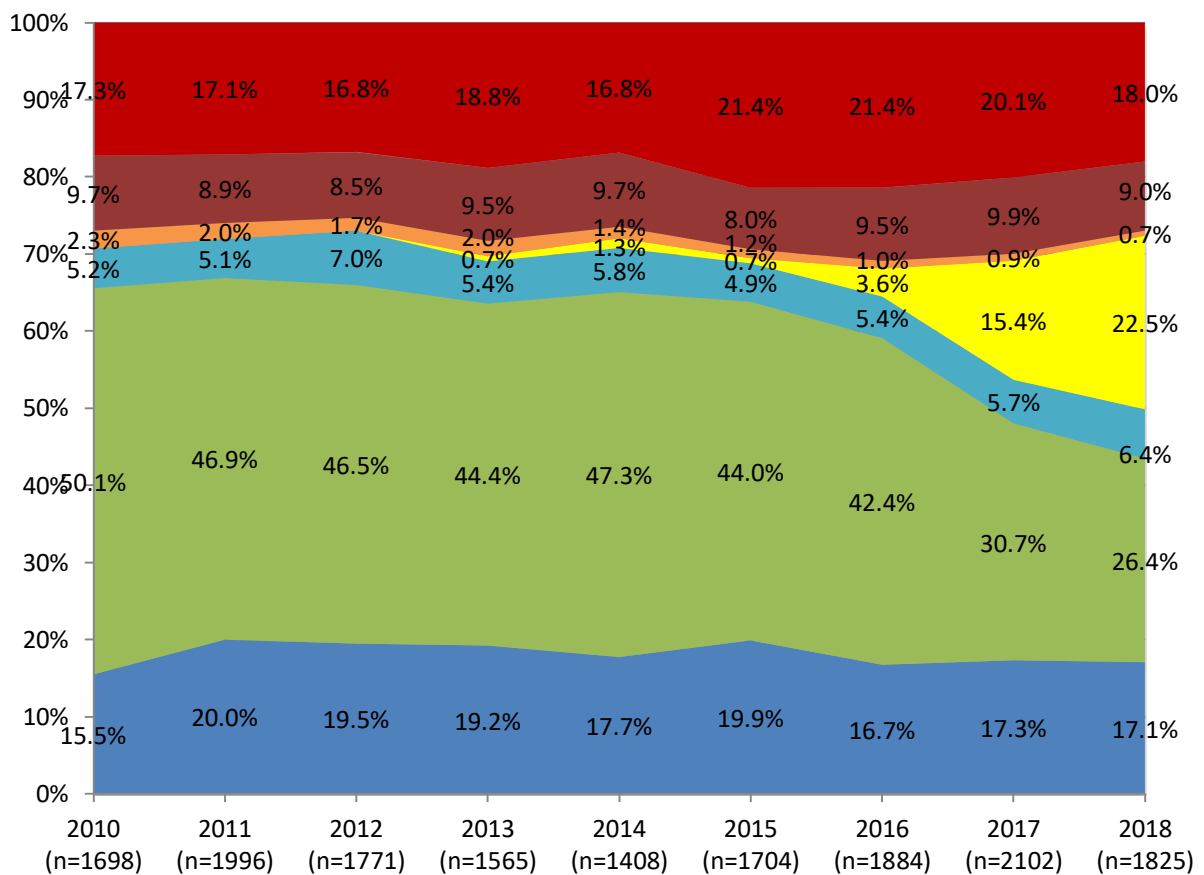
The HPV vaccination coverage target for 2017/18 is 75%.

From 2012, extended catch-up vaccination has been offered to students who commenced the course of HPV vaccine in Year 7 to support course completion.

4.1 Condom use among men who have sex with men

Condom use and other HIV risk reduction strategies used by gay and bisexual men are measured through the annual Sydney Gay Community Periodic Survey (SGCPS), conducted each year during February/March. With the introduction of pre-exposure prophylaxis (PrEP) in NSW and the focus on the preventative benefits of HIV treatment in the current NSW HIV Strategy, reporting of condomless anal intercourse with casual partners (CAIC) in the SGCPS has been modified, distinguishing between HIV-positive men who are virally suppressed or not and HIV-negative men who are protected by PrEP or not.

Figure 42: Proportion of MSM with casual partners reporting consistent condom use and any condomless anal intercourse in the previous six months



- CAIC (any receptive): HIV-negative/untested not on PrEP
- CAIC (insertive only): HIV-negative/untested not on PrEP
- CAIC: HIV-positive not on ART/DVL
- CAIC: HIV-negative on PrEP
- CAIC: HIV-positive on ART/UVL
- Consistent condom use
- No anal intercourse

Data source: [Sydney Gay Community Periodic Survey](#), Centre for Social Research in Health, UNSW Sydney.

Note: CAIC = condomless anal intercourse with casual male partners. ART = antiretroviral treatment. UVL = undetectable viral load. Consistent condom use includes men who report condom use for anal sex with casual male partners in the 6 months prior to survey and no condomless anal intercourse with those partners.

- Among gay men with casual male partners, the proportion avoiding anal intercourse has remained relatively stable since 2010.
- The proportion of gay men with casual partners reporting consistent condom use has declined, particularly since 2016, falling to 26.4% in 2018.
- The proportion of HIV-positive men not on treatment or with a detectable viral load who reported CAIC declined to 0.7% of men with casual partners in 2018.
- Between 2016 and 2018, HIV-negative men on PrEP who reported CAIC increased from 3.6% to 22.5% of men with casual partners.
- In 2018, HIV-negative men not using PrEP who reported any CAIC (insertive or receptive) fell to 27.0% of casual partners.
- 2018 was the first year in which over half of men reporting CAIC were HIV-positive, on treatment and with an undetectable viral load or HIV-negative men using PrEP i.e. the majority of CAIC was protected by PrEP or HIV treatment.

4.2 Condom use among young people

It's Your Love Life is a repeat cross-sectional survey of sexual health among young people aged 15 to 29 years and living in NSW (or ACT) who self-identify as heterosexual. The survey is conducted annually by the Centre for Social research in Health, UNSW Sydney, with the aim of monitoring the STI related knowledge, attitudes and practices of young people over time, including condom use and testing for STI. In all, 7,754 young men and women responded to either of the three surveys conducted so far, with 2,119 respondents in 2016, 2,831 in 2017 and 2,804 in 2018 (Adam et al., 2017, 2018, and Adam et al., in press).

Table 2: Sample characteristics

	2016	2017	2018
Age			
Mean	20.8	20.9	21.1
Standard deviation	4.82	4.16	4.10
Range	15-29	15-29	15-29
Gender			
Male	35.3%	40.0%	51.9%
Female	64.7%	60.0%	48.1%

- The mean age was similar across the survey rounds (around 21 years old), while the proportion of male respondents increased over time from 35.3% in 2016 to 51.9% in 2018 as a result of a deliberate recruitment strategy aimed at increasing the participation of young men.
- The 2018 survey can be considered as more representative of the target population than previous surveys, as similar proportions of male and female respondents were recruited in 2018.

Condomless sexual intercourse with casual partners

Table 3: Proportion of heterosexual young people who reported condomless sexual intercourse with casual partners in the past 12 months*

2016			2017			2018		
All (n=1,167)	Males (n=376)	Females (n=791)	All (n=788)	Males (n=254)	Females (n=534)	All (n=1,996)	Males (n=979)	Females (n=1,017)
16.6%	20.7%	14.7%	17.6%	22.8%	15.2%	20.1%	20.3%	20.0%

Data source: It's Your Love Life Periodic Survey

Note: *Among 3,951 respondents who were sexually active in the past 12 months

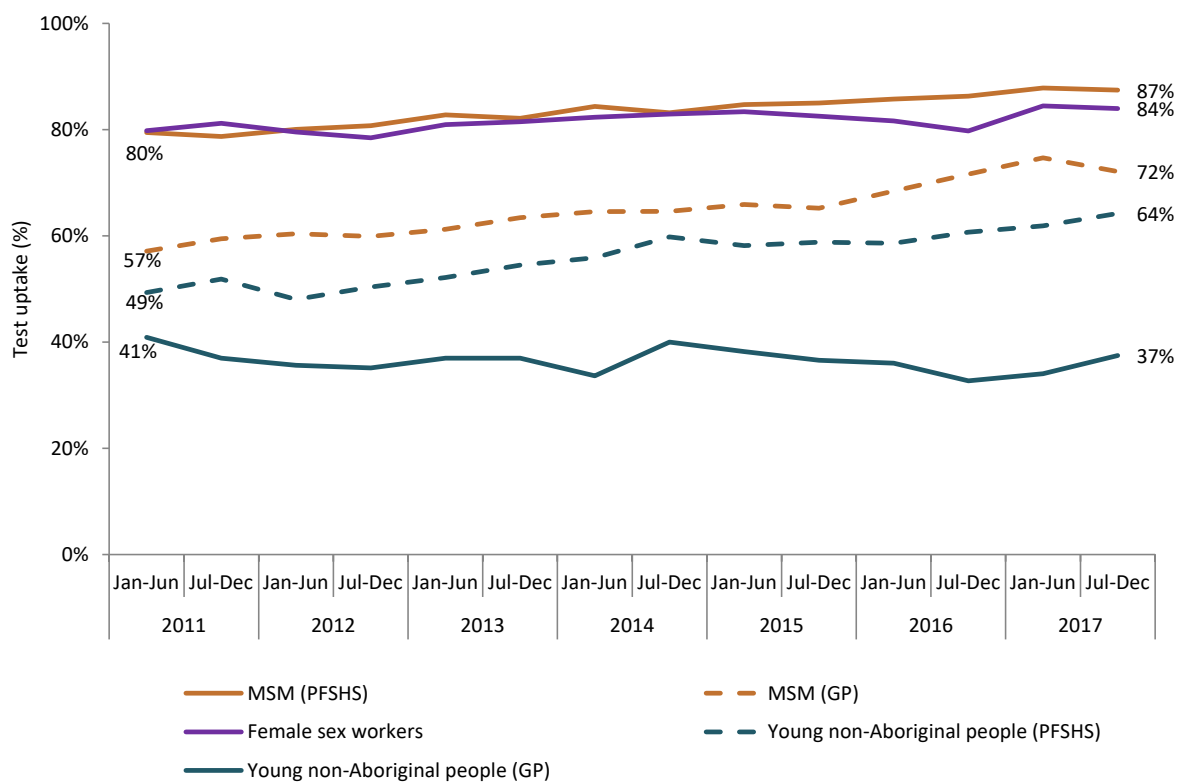
- In 2018, 20.1% of the respondents who were sexually active in the past 12 months reported condomless sexual intercourse with casual partners in the past 12 months, compared to 17.6% in 2017 and 16.6% in 2016.
- Statistical testing that controlled for differences in sample characteristics between survey rounds confirmed that there has been a significant increase in condomless sexual intercourse with casual partners over time. This significant trend was due to an increase in the proportion of females reporting condomless sexual intercourse with casual partners between 2017 and 2018. No significant difference in the proportion of male respondents reporting condomless sexual intercourse with casual partners was detected between any survey rounds.

5. Increase comprehensive STI testing in priority populations in accordance with risk

5.1 Comprehensive STI testing in priority populations

Integrating comprehensive STI screening²⁰ into routine care within general practice and primary care is a key activity within the Strategy. It ensures timely diagnosis and treatment of STIs among priority populations.

Figure 43: Proportion of individual patients attending PFSHSs and GP clinics tested for chlamydia, gonorrhoea²¹ and syphilis, by priority population²², 1 January 2011 - 31 December 2017



Data source: ACCESS Database, The Kirby Institute and the Burnet Institute

- Uptake of a full screen for bacterial STIs was consistently highest among MSM (87%) and female sex workers (84%).
- Among young, non-Aboriginal people attending GP clinics, test uptake decreased slightly from 41% tested in the first half of 2011 to 37% tested in the last half of 2017.

²⁰ Comprehensive ST testing is defined in this context as testing for chlamydia trachomatis, Neisseria gonorrhoea and syphilis (see Appendix C: Case definitions for full details) at any anatomical site.

²¹ Testing for chlamydia and gonorrhoea included testing at any anatomical site

²² While priority populations are not mutually exclusive those other than MSM exclude MSM-identified patients

5.2 STI testing among young people

Data on testing for STI or HIV among heterosexual young people were extracted from the It's Your Love Life periodic survey. Respondents who ever had oral, vaginal or anal sex were asked whether they had ever tested for STI or HIV, and whether their last test was in the past 12 months.

In 2018, 43.7% of the respondents who ever had oral, vaginal or anal sex reported that they had tested for STI or HIV, compared to 47.5% in 2017 and 42.8% in 2016 (Table 3). The decrease in the proportion of respondents ever tested observed in 2018 survey was due to a larger proportion of men who responded to this survey, compared to previous survey rounds; men are less likely to have tested than women. Statistical testing that controlled for differences in sample characteristics between survey rounds however showed that the proportion of respondents who had ever tested for STI or HIV increased significantly over time, with most of the increase occurring between 2016 and 2017. This increase in testing rates occurred in females only; the proportion of males who had ever tested did not significantly change over time.

Table 4: Proportion of heterosexual young people ever tested for STI or HIV*

2016			2017			2018		
All (n=1,514)	Males (n=516)	Females (n=998)	All (n=1,483)	Males (n=553)	Females (n=930)	All (n=1,999)	Males (n=980)	Females (n=1,019)
42.8%	36.4%	46.1%	47.5%	39.6%	52.2%	43.7%	34.9%	52.2%

Data source: It's Your Love Life Periodic Survey

Note: *Among 4,996 respondents who ever had oral, vaginal or anal sex.

- The proportion of sexually active respondents who had tested for STI or HIV in the past 12 months was 27.5% in 2018, and this raw figure is comparable to what was observed in previous survey rounds (2017: 27.3% and 2016: 25.1%)
- Statistical testing that controlled for differences in sample characteristics between survey rounds however showed that the proportion of respondents tested for STI or HIV in the past 12 months had increased significantly over time. Between 2016 and 2017, a significant increase in testing for STI or HIV in the past 12 months was observed in both males and females. Between 2017 and 2018 an increase was observed in females only

Table 5: Proportion of heterosexual young people who tested for STI or HIV in the past 12 months*

2016			2017			2018		
All (n=1,255)	Males (n=419)	Females (n=836)	All (n=1,482)	Males (n=552)	Females (n=930)	All (n=1,999)	Males (n=980)	Females (n=1,019)
25.1%	17.7%	28.8%	27.3%	21.7%	30.6%	27.5%	19.5%	35.1%

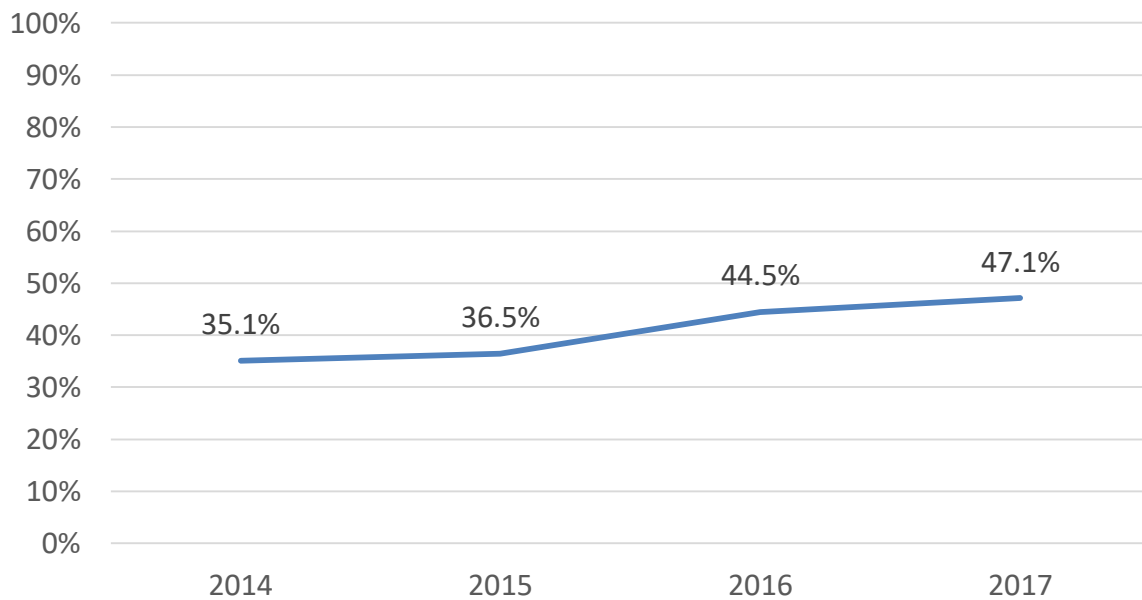
Note: *Among 4,736 respondents who ever had oral, vaginal or anal sex.

5.3 Comprehensive STI testing among high risk MSM

According to the [Australian STI Management Guidelines for Use in Primary Care](#), high risk men who have sex with men should be screened for STIs up to four times a year, and it is recommended that HIV-positive MSM be screened at the same frequency. The Sydney Gay Community Periodic Survey measures the frequency of STI testing among MSM. High risk behaviour is defined as recently engaging in any of the following:

- condomless anal sex with casual partners;
- having more than 10 sexual partners;
- participating in group sex;
- using recreational drugs during sex.

Figure 44: Proportion of high risk MSM reporting comprehensive STI testing more than once in the previous 12 months



Data source: Sydney Gay Community Periodic Survey, Centre for Social Research in Health, UNSW Sydney.

From 2014 to 2017, the proportion of high risk MSM and HIV-positive MSM reporting more than one comprehensive STI screen has increased by 12%.

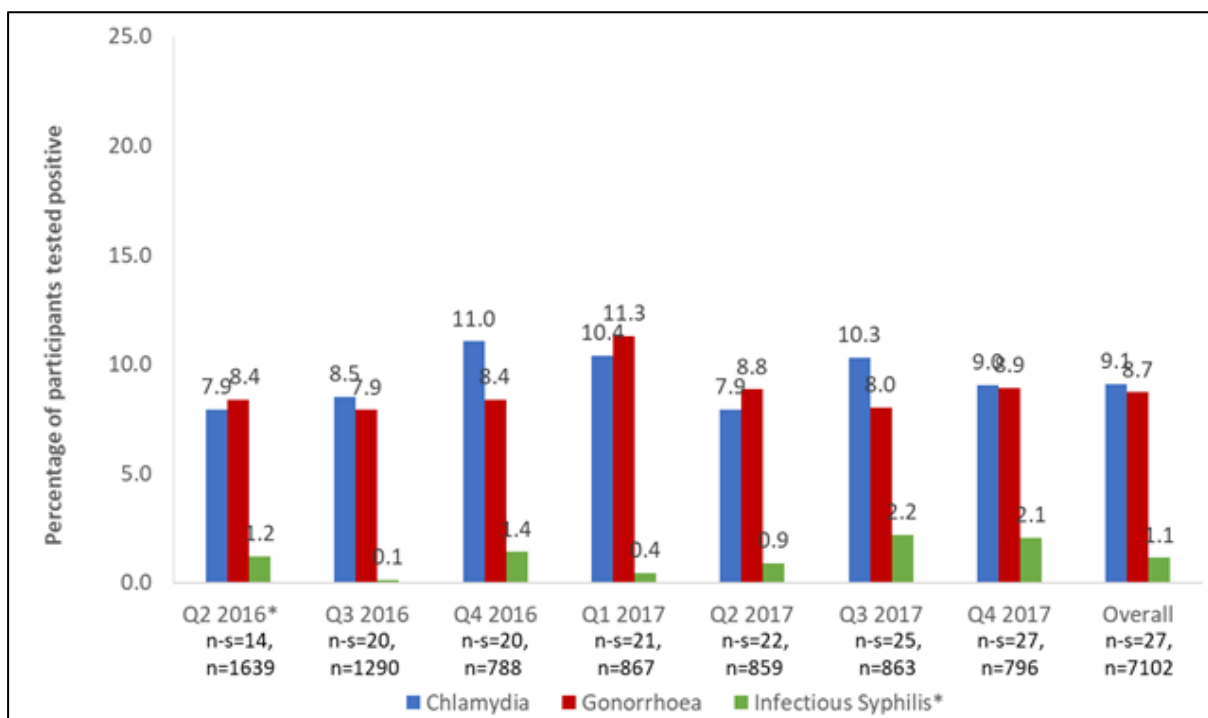
5.4 What is the prevalence of STIs among EPIC-NSW participants?

Expanded PrEP Implementation in Communities in NSW (EPIC-NSW) is NSW’s implementation trial to assess the impact of the rapid expansion in access to pre-exposure prophylaxis (PrEP) amongst those at high risk of acquiring HIV.

HIV and sexually transmissible infection testing is recommended for all EPIC-NSW participants at baseline (enrolment), 1 month (HIV only) and every three months, in accordance with the NSW Health Guidelines on the Pre-Exposure Prophylaxis of HIV with Antiretroviral Medications.

Of the 8,206 EPIC-NSW participants up to the end of Quarter 4 2017, STI testing data were available for 7,596 (92.6%) participant enrolled in 27 sites. The sites are: Albion Street, Albury Sexual Health, Brookong Centre Wagga Wagga, Clinic 16, Coffs Harbour Sexual Health, Dubbo Sexual Health, HNE Sexual Health, Holden St Clinic, Illawarra Shoalhaven Sexual Health, Kirketon Road Centre, Lismore Sexual Health, Liverpool Sexual Health, Nepean Sexual Health, Orange Sexual Health, RPA Sexual Health, Short Street Clinic, Site 203, Site 206, Site 215, Site 229, Site 266, Site 267, Site 271, Site 272, Site 276, Sydney Sexual Health and Western Sydney Sexual Health.

Figure 45: Proportion of individuals tested for chlamydia, gonorrhoea and infectious syphilis* at baseline with a positive result, by quarter, 1 March 2016 to 31 December 2017



Note: CT, chlamydia; NG, gonorrhoea; SY, infectious syphilis. n-s, the number of sites. *Q2 2016 data was from 1 March 2016 to 30 June 2016. *Infectious syphilis was based on pathology test results and clinical information available from public clinics only.

Of the EPIC-NSW participants tested for STIs at baseline between 1 March 2016 and 31 December 2017:

- 9.1% had a positive test result for chlamydia and 8.7% for gonorrhoea
- 1.1% had a positive test result at public clinics for infectious syphilis

Note: There has been a slight increase in the overall diagnosis rate for infectious syphilis, but this is based on only a handful of new cases, with the small numerator. The prevalence of STI rates

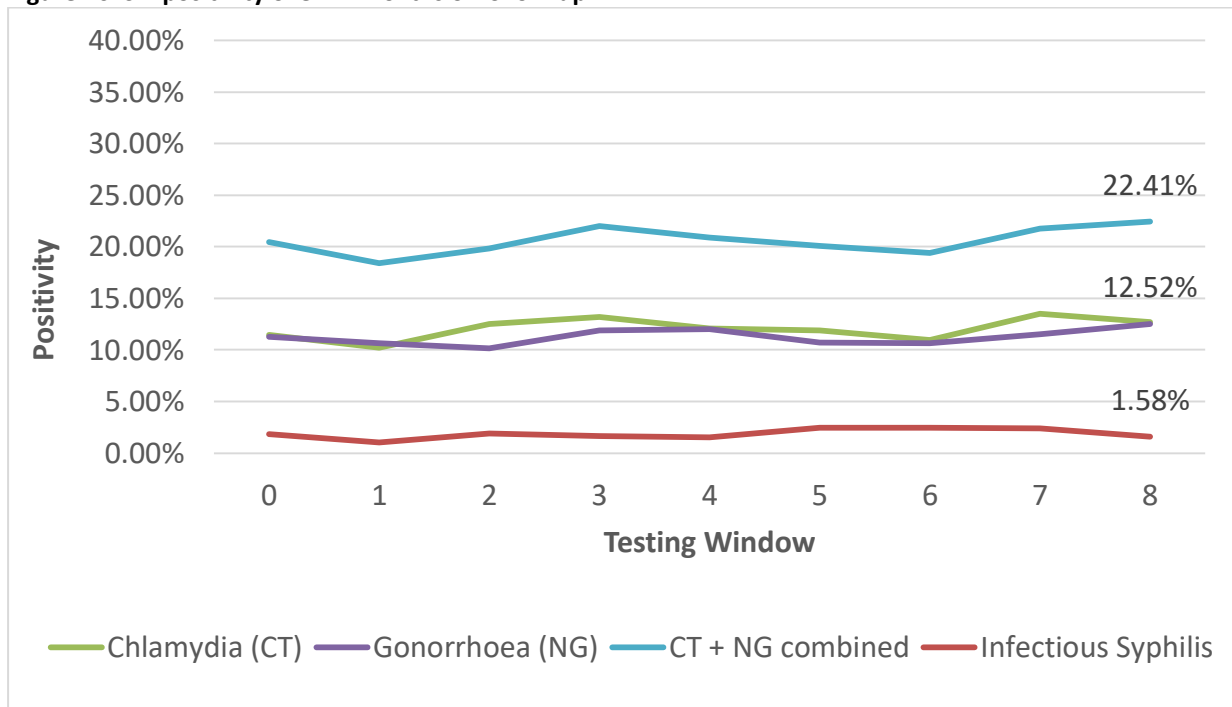
remained reasonably stable over time, with some fluctuations by quarter, suggesting the program is continuing to reach men at risk of HIV.

STI positivity over 24 months of follow-up in EPIC-NSW participants

This report is on STI longitudinal trends in chlamydia, gonorrhoea, and infectious syphilis positivity among the first 3700 participants enrolled in EPIC-NSW during their first 24 months of study follow-up. Enrolment was completed by 31 October 2016, and follow-up data was included up until 31 December 2018.

A total of 3326 (94.0%) of participants had a record of one or more STI tests and were included in this analysis. Not every participant had an STI test conducted at baseline, as this was not a study eligibility requirement.

Figure 46: STI positivity over 12 months of follow-up



Note: Testing window 1 represents the first recommended STI test after enrolment, at three months after enrolment ±45 days. Each subsequent window covers a similar three-month period.

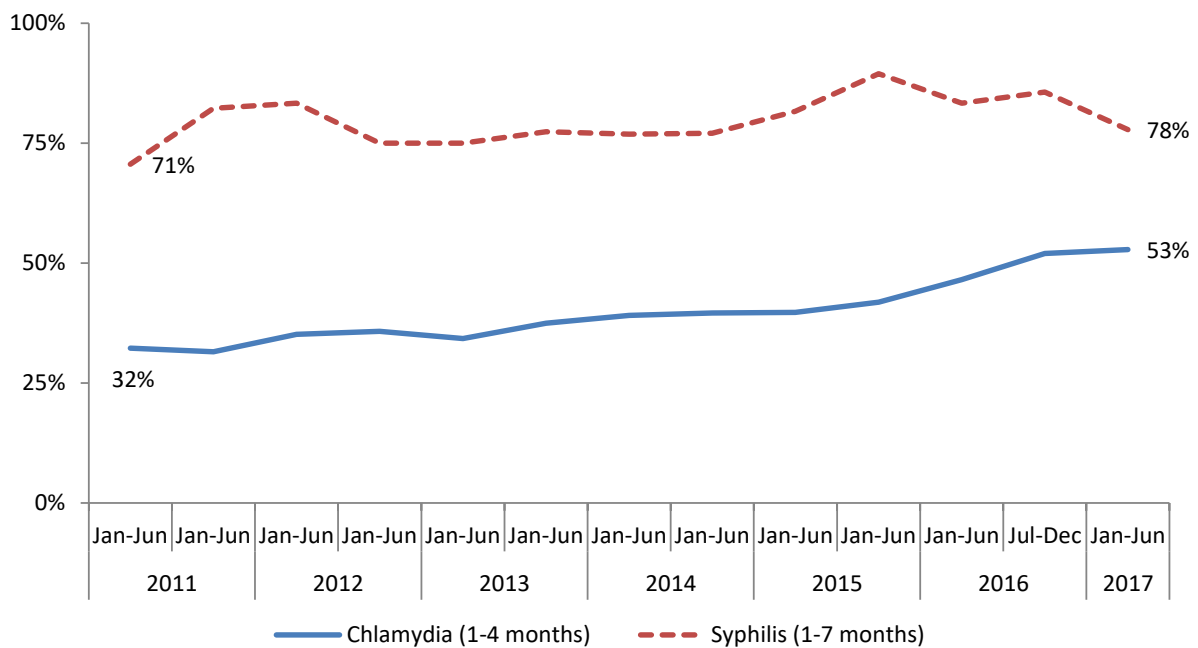
- The number of chlamydia/gonorrhoea tests conducted in each testing window declined over time; from 3326 in testing window 0, to 1984 in testing window 8. Data on infectious syphilis were only available from public clinics, with 1562 tests conducted in window 0 and 759 in window 8.
- Chlamydia and gonorrhoea positivity ranged from 10-12.5% per window, and infectious syphilis positivity ranged from 1-2.5%, with fluctuations over time.
- In each 3-month testing window about 20% of participants who were tested were diagnosed with chlamydia and/or gonorrhoea, and over time the rate of detection remained fairly stable.

6. Increase the proportion of people diagnosed with chlamydia and gonorrhoea who get re-tested within 1-4 months after diagnosis

6.1 Re-testing for chlamydia and gonorrhoea

Re-testing for repeat chlamydial and gonorrhoea infections is recommended to detect reinfection of chlamydia and gonorrhoea²³.

Figure 47: Proportion of patients attending PFSHs and GP clinics²⁴ diagnosed with an STI and re-tested²⁵ recommended time frame, 1 January 2011 - 30 June 2017²⁶



Data source: ACCESS Database, The Kirby Institute and the Burnet Institute

- Retesting following an infectious syphilis diagnosis among those attending GP clinics was 78% in the early half of 2017, which increased by 7 per cent when compared to the first half of 2011.
- Re-testing following a chlamydia diagnosis was 53% in early 2017, which increased by 21 per cent when compared to early 2011 (32%).

²³ http://stipu.nsw.gov.au/wp-content/uploads/STIGMA_Testing_Guidelines_Final_v5.pdf.

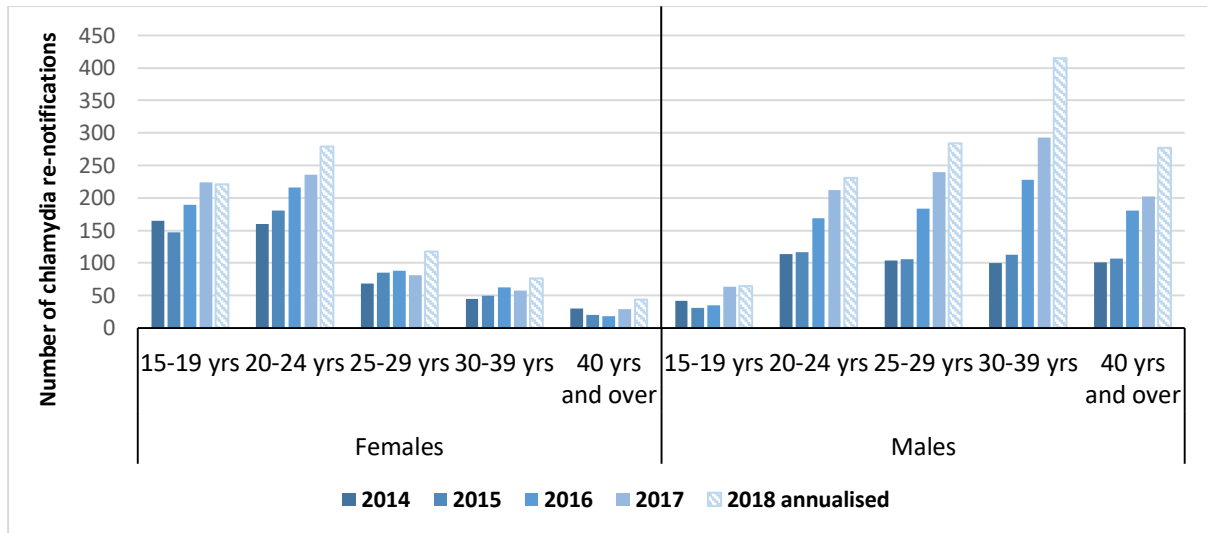
²⁴ GP clinics included those serving at least 50 gay and bisexual male patients annually

²⁵ Only re-testing at participating ACCESS sites is represented here

²⁶ Because of the re-testing timeframe, data from the second half of 2017 have been excluded

6.2 Re-notifications of chlamydia

Figure 48: Number of chlamydia re-notifications within 1 to 4 months following initial notification, persons aged 15 years and over, by gender and year of onset of first notified infection, NSW, 2014-2018.

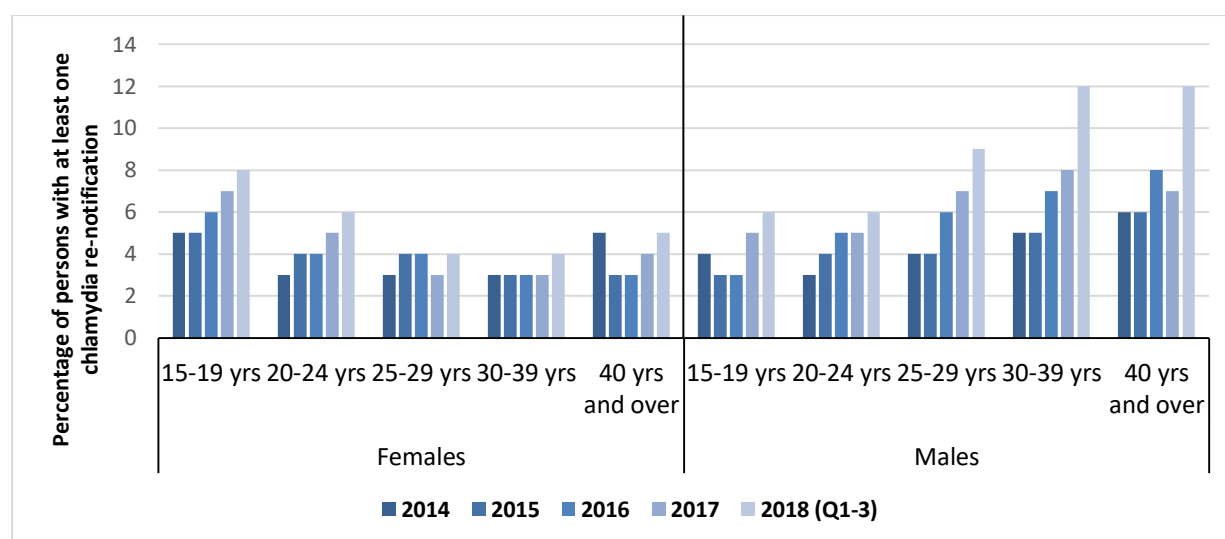


Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 1 April 2018.

Note: Excludes non-NSW residents, persons reported as transgender (due to small numbers), and persons whose age or sex was not reported. Year of onset is based on calculated onset date. Excludes first notifications with an onset date 1 October-31 December to allow for re-notifications to occur within the 2018 reporting year. 2018 numbers are annualised based on quarters 1-3.

- Between 2014 and 2018, the number of chlamydia notifications that occurred one to four months after the time of first diagnosis increased for males and females in all age groups. In 2018, there were 2,008 re-notifications of chlamydia, 81% (n=1347) of which occurred in men. This represents a more than 2-fold increase on re-notification numbers five years ago for both genders combined, with males experiencing a larger increase than females at 2.8 times and 1.6 times as high as 2014 levels, respectively.
- In 2018, the highest number of re-notifications occurred in males aged 30-39 years. In women, the number of re-notifications was highest among 20-24 year old females. The highest relative increase in the time period 2014 to 2018 was also among males aged 30-39 years with 2018 re-notifications 4.2 times as high as 2014 re-notifications, followed by males in the adjacent age groups 20-24 years and 40 years and older with increases of 2.7. Increases among females were smaller and more uniform at 30% to 70% across age groups.

Figure 49: Proportion of persons with at least one chlamydia notification who had at least one re-notification within 1 to 4 months following initial notification, persons aged 15 years and over, by gender and year of onset of first notified infection, NSW, 2014-2018



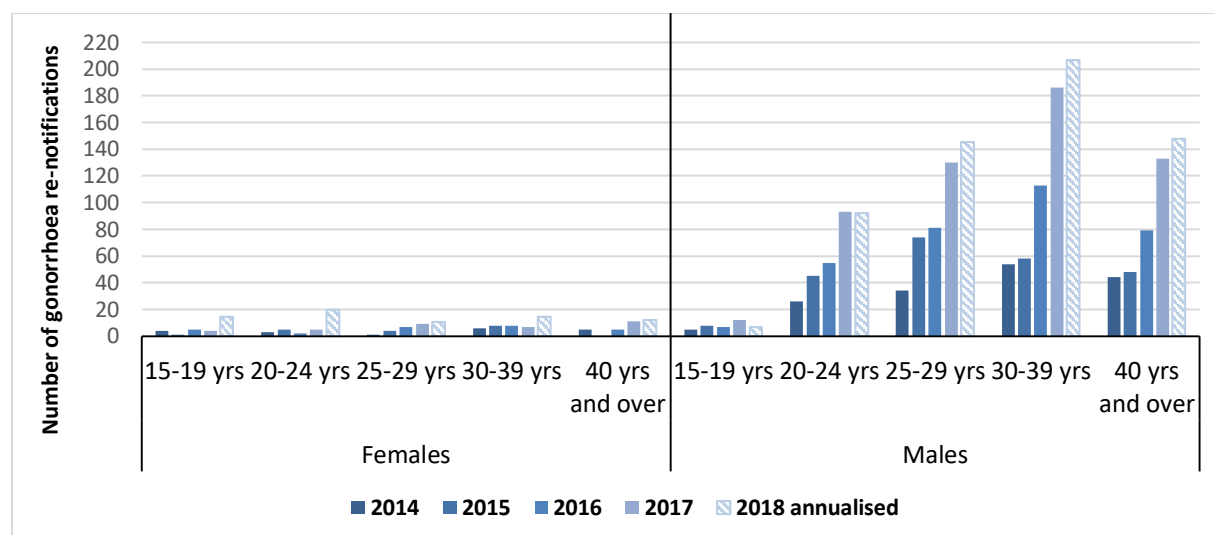
Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 1 April 2018.

Note: Excludes non-NSW residents, persons reported as transgender (due to small numbers), and persons whose age or sex was not reported. Year of onset is based on calculated onset date. Excludes first notifications with an onset date 1 October-31 December to allow for re-notifications to occur within the 2018 reporting year. 2018 numbers are annualised based on quarters 1-3.

- Similar to overall increases in re-notification numbers over the last five years, the proportion of persons with at least one chlamydia notification in a calendar year who were re-notified has increased in most age groups. This suggests that increasing re-notifications are not only driven by an overall increase in notifications, but that re-infections are also becoming more common.
- Among males aged 30-39 years and over 40 years who were notified with chlamydia at least once in 2018, 12% were re-notified at least once. For both age groups, the proportion of persons re-notified has doubled since 2014. In females, 15-19 year-olds continued to have the highest proportion of re-notifications in 2018 at 8%, representing a 60% increase since 2014. While the percentage of persons re-notified remained lower in 20 to 24 year olds compared to younger women, this age group experienced the greatest relative increase in females with a doubling of the percentage re-notified since 2014.
- Chlamydia re-notification patterns are strongly influenced by initial screening practices and by clinical management once diagnosed, including partner notification and re-testing. Changes in STI screening patterns with the introduction of pre-exposure prophylaxis for HIV (PrEP) are likely to have contributed to the marked increase in both absolute numbers of re-notifications in males and the percentage of males that were re-notified at least once.

6.3 Re-notifications of gonorrhoea

Figure 50: Number of gonorrhoea re-notifications within 1 to 4 months following initial notification, persons aged 15 years and over, by sex and year of onset of first notified infection, NSW, 2014-2018.

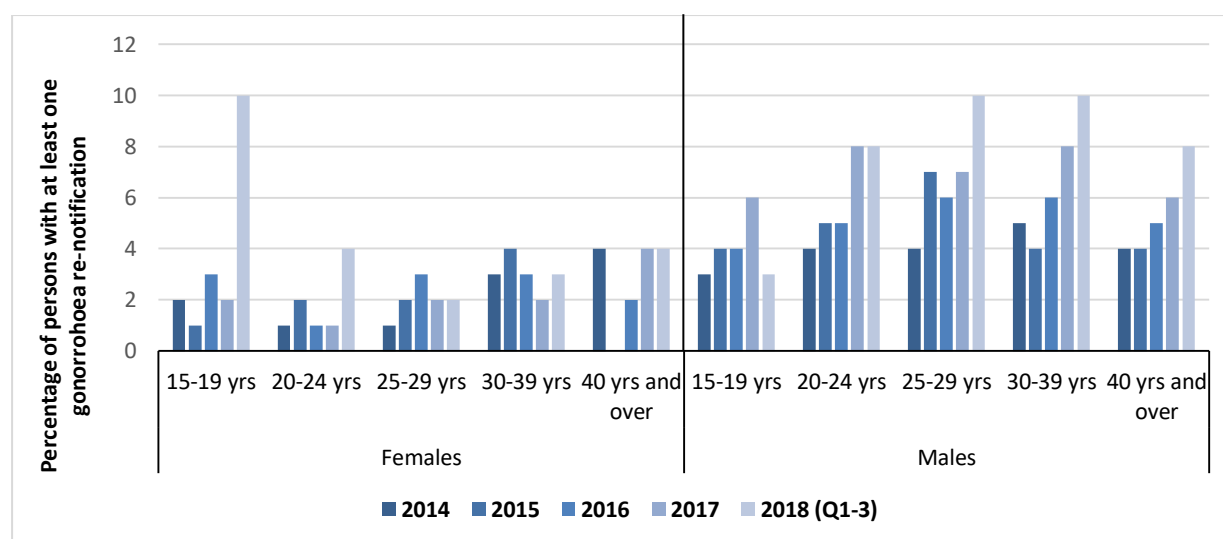


Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents, persons reported as transgender (due to small numbers), and persons whose age or sex was not reported. Year of onset is based on calculated onset date. Excludes first notifications with an onset date 1 October-31 December to allow for re-notifications to occur within the 2018 reporting year. 2018 numbers are annualised based on quarters 1-3.

- Between 2014 and 2018, the number of gonorrhoea notifications that occurred one to four months after the time of first diagnosis increased for males and females in all age groups, except in males aged 15-19 years. In 2018, there were 671 re-notifications of gonorrhoea, 89% (n=599) of which occurred in men. This represents an almost 4-fold increase on re-notification numbers in 2014, with relative increases similar for males and females.
- In 2018, the highest number of re-notifications occurred in males aged 30-39 years. In women, the number of re-notifications was highest among 20-24 year old females. Among males, the highest relative increase in the time period 2014 to 2018 was in the age group 25-29 years with 2018 re-notifications 4.3 times as high as 2014 re-notifications, followed by 30-39 year-olds with an increase of 3.8. Small annual re-notification numbers among women mean that estimates of relative increases are unstable; however, the number of re-notifications in the age groups 15-19 years, 20-24 years, and 30-39 years jumped to 15-20 in each age bracket in 2018 after previously fluctuating at lower levels.

Figure 51: Proportion of persons with at least one gonorrhoea notification who had at least one re-notification within 1 to 4 months following initial notification, persons aged 15 years and over, by sex and year of onset of first notified infection, NSW, 2014-2018



Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents, persons reported as transgender (due to small numbers), and persons whose age or sex was not reported. Year of onset is based on calculated onset date. Excludes first notifications with an onset date 1 October-31 December to allow for re-notifications to occur within the 2018 reporting year. 2018 numbers are annualised based on quarters 1-3.

- Similar to overall increases in re-notification numbers over the last five years, the proportion of persons with at least one gonorrhoea notification in a calendar year who were re-notified has increased in most age groups. This suggests that increasing re-notifications are not only driven by an overall increase in notifications, but that re-infections are also becoming more common.
- Among males aged 25-29 years and over 20-29 years who were notified with gonorrhoea at least once in 2018, 10% were re-notified at least once. For both age groups, the proportion of persons re-notified has doubled since 2014. In females, 15-19 year-olds had the highest proportion of re-notifications in 2018 at 10%, on par with males and a considerable increase from proportions observed in previous years. Re-notification percentages in females need to be interpreted with caution due to the small number of underlying re-notifications. By comparison, increases in older age groups in females were more suggestive of fluctuations due to small numbers.
- As for chlamydia, gonorrhoea re-notification patterns are strongly influenced by initial screening practices and by clinical management once diagnosed, including partner notification and re-testing. Changes in STI screening patterns with the introduction of pre-exposure prophylaxis for HIV (PrEP) are likely to have contributed to the marked increase in both absolute numbers of re-notifications in males and the percentage of males that were re-notified at least once.

7. Increase the proportion of people diagnosed with syphilis who get re-tested within 1-6 months after diagnosis

7.1 Re-notifications of infectious syphilis

The number of re-notifications of infectious syphilis within 1 to 6 months from the time of initial diagnosis remained stable over the last five years, with six to eight re-notifications recorded per calendar year. All re-notifications occurred in males in the period 2014-2018. The percentage of males with at least one re-notification following an initial diagnosis of infectious syphilis remained stable at around 1% each year. Due to small numbers, re-notifications for infectious syphilis should be interpreted with caution.

As for chlamydia and gonorrhoea, syphilis re-notification patterns can be influenced by initial screening practices and by clinical management once diagnosed. However, re-notifications of syphilis are also dependent on the correct classification as re-infections rather than as part of an ongoing episode of infection with continued clinical monitoring.

8. Increase the proportion of Aboriginal people diagnosed with chlamydia or gonorrhoea who get tested for HIV and syphilis

8.1 Proportion of Aboriginal people diagnosed with chlamydia or gonorrhoea who get tested for HIV and syphilis

Note: These data are still being collected and will be included in later reports.

9. Monitor the epidemiology of lymphogranuloma venereum (LGV)

Lymphogranuloma venereum (LGV) is a sexually transmissible infection that is caused by serovars L1, L2 and L3 of *Chlamydia trachomatis*. LGV is a comparatively rare STI in developed countries, including in Australia. However, increases primarily in men who have sex with men have been observed across Europe, the UK, and North America since a first cluster of rectal infections was reported in the Netherlands in 2003²⁷. In NSW, an increase in cases prompted the release of clinician alerts in 2010 and 2017, advising LGV-specific testing for MSM presenting with symptoms of proctitis.

LGV is not included in the NSW Sexually Transmissible Infections Strategy 2016 – 2020. Therefore, disease control indicators have not yet been established and reporting is still under development. In NSW, LGV is a notifiable disease under the *NSW Public Health Act 2010*. A confirmed case requires demonstration of *Chlamydia trachomatis* serovars L1 to L3 by immunofluorescence assays, enzyme immunoassays, molecular assays, culture, or serology. In practice, LGV testing in NSW is currently undertaken at two laboratories using PCR. Only confirmed cases of LGV are counted when reporting LGV notification data. Patient care and contact tracing are the responsibility of the treating doctor. Information on demographics (e. Aboriginal and Torres Strait Islander status) and risk exposures (e.g. sexual exposure, place of acquisition) is not routinely collected.

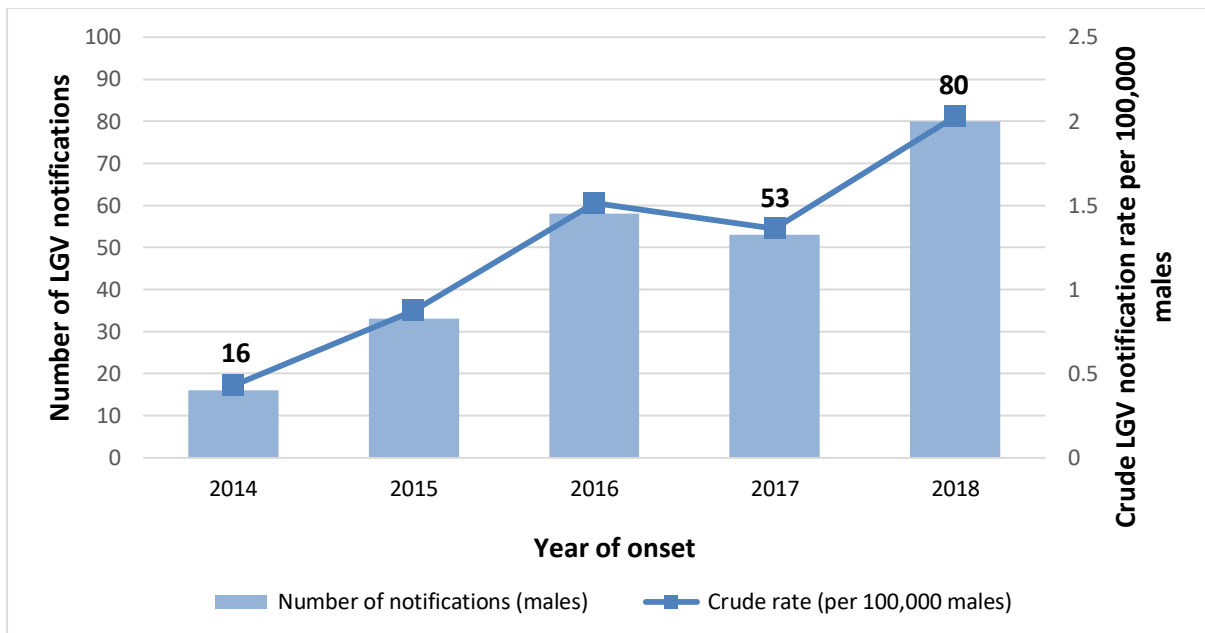
Although LGV is generally assumed to be symptomatic, asymptomatic rectal infections have been reported in more than a quarter of cases studied in the Netherlands and the UK.^{28,29} In Australia, routine screening of asymptomatic patients is not recommended. Samples that are positive for any *Chlamydia trachomatis* serovar are not automatically tested for LGV if LGV-specific tests are not ordered. As a result, changes in notification data over time may partially reflect changes in testing practices. In addition, the small number of notifications per year leads to considerable fluctuations in rates and percentages. Most characteristics of LGV notifications are therefore aggregated over the entire five year reporting period.

²⁷ Nieuwenhuis RF, Ossewaarde JM, Götz HM, Dees J, Thio HB, Thomeer MG, den Hollander JC, Neumann MH, van der Meijden WI. Resurgence of lymphogranuloma venereum in Western Europe: an outbreak of *Chlamydia trachomatis* serovar I2 proctitis in The Netherlands among men who have sex with men. *Clinical infectious diseases*. 2004;39(7):996-1003.

²⁸ Saxon C, Hughes G, Ison C; UK LGV Case-Finding Group. Asymptomatic Lymphogranuloma Venereum in Men who Have Sex with Men, United Kingdom. *Emerging Infectious Diseases*. 2016;22(1):112–116.

²⁹ de Vrieze NHN, van Rooijen M, Schim van der Loeff MF, et al Anorectal and inguinal lymphogranuloma venereum among men who have sex with men in Amsterdam, the Netherlands: trends over time, symptomatology and concurrent infections *Sexually Transmitted Infections* 2013;89:548-552.

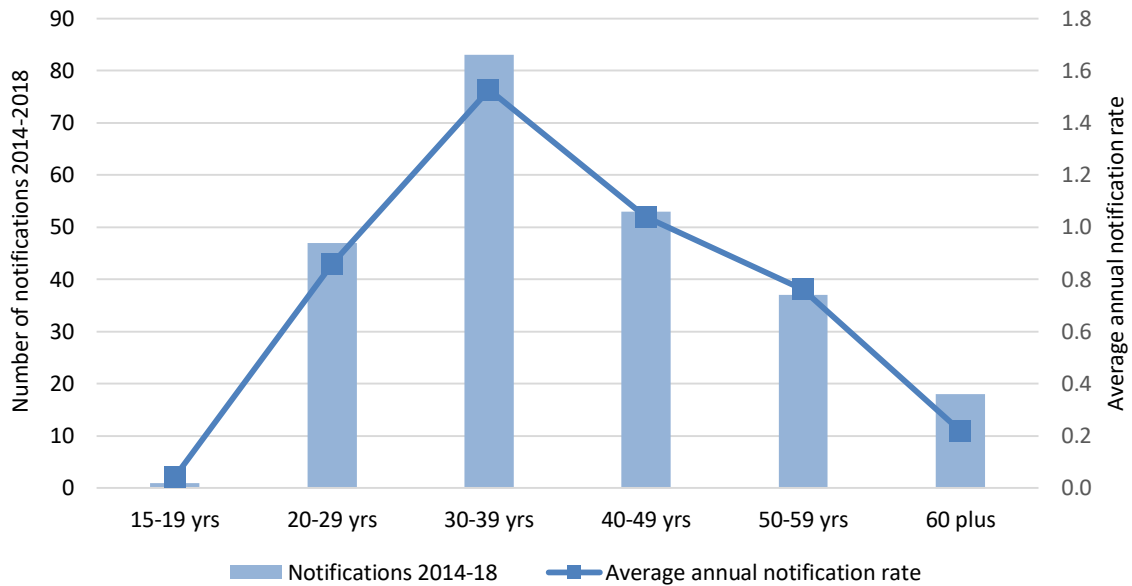
Figure 52: Number and rate of LGV notifications in males by year of onset, NSW, 1 January 2014 - 31 December 2018



Data source: Data source: NCIMS and ABS population estimates (via SAPHARI), NSW Health; data extracted 1 April 2019.
Note: Excludes non-NSW residents. Year of onset is based on calculated onset date.

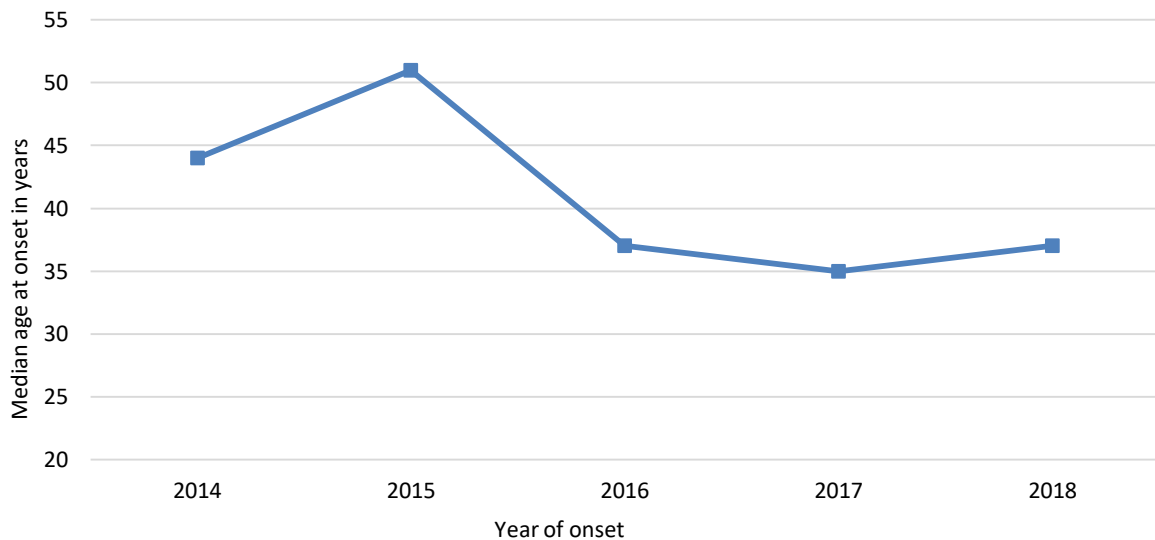
- From 1 January 2018 to 31 December 2018, 80 cases of LGV were notified to NSW Health. This represents a 51% increase from the 53 cases notified in 2017, and five times the 2014 total of 16 cases (Figure 1). All cases notified in 2018 were diagnosed in males. A total of 240 cases of LGV were notified in the five year period 2014-2018.
- The notification rate increased from 0.4 cases per 100,000 males in 2014 to 2 cases per 100,000 males in 2018. Only one female case of LGV was notified in NSW in the period 2014-2018, which has been excluded from all rate calculations.
- Aboriginal and Torres Strait Islander status was known for 57% (n=136) of notifications. In the five year period 2014-2018, four cases of LGV in Aboriginal and Torres Strait Islander males were notified.

Figure 53: Average annual age-specific LGV notification rates in males aged 15 years and over, NSW, 1 January 2014 - 31 December 2018



Data source: NCIMS and ABS population estimates (via SAPHaRI), NSW Health; data extracted 1 April 2019.
Note: Excludes non-NSW residents and persons whose age at diagnosis was not known.

Figure 54: Median age of people aged 15 years and over notified with LGV, NSW, 1 January 2014 - 31 December 2018

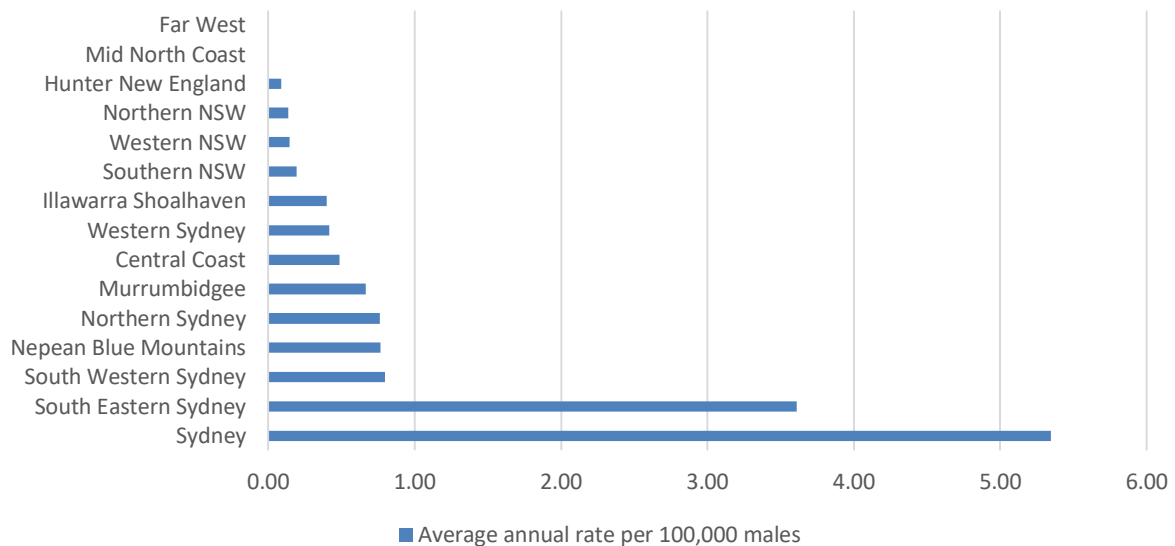


Data source: NCIMS and ABS population estimates (via SAPHaRI), NSW Health; data extracted 1 April 2019.
Note: Excludes non-NSW residents and persons whose age at diagnosis was not known.

- During the time period 2014-2018, the highest average annual LGV notification rate occurred in the 30-39 years age group at 1.5 cases per 100,000 males, followed by the 40-49 years age group at 1 case per 100,000 males (Figure 53). The median age at onset varied considerably during this

time, ranging from 51 years in 2015 to 35 years in 2017 (Figure 54). Small case numbers and changes in testing practices over the past five years may contribute to these fluctuations.

Figure 55: Average annual LGV notification rates in males by LHD, NSW, 1 January 2014 - 31 December 2018



Data source: NCIMS, NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents and notifications from Justice Health. For Justice Health notifications, see Table in Appendix D: Notification data.

- In 2014-2018, the majority of notifications occurred in the Sydney and South Eastern Sydney Local Health Districts, which also have the highest average annual rates at 5.4 and 3.6 per 100,000 males, respectively. (Figure 55) Similar to other STIs, it should be noted that gay men, who are at increased risk of acquiring STIs generally and LGV in particular, are unequally distributed among local health districts. Continuing high notification rates among males in the Sydney and South Eastern Sydney Local Health Districts in particular reflect large concentrations of gay men in these areas.
- A number of regional local health districts did not report any or only a single LGV notification over the five year reporting period. Rates in these areas should be interpreted with caution as small fluctuations in notification numbers cause considerable changes in rates. Also see **Appendix D Table 11** for a detailed overview of total notification numbers and rates in males by local health district.

Appendix A: Indicators for monitoring and reporting

Table 5: Indicators for monitoring and reporting of the NSW STI Strategy 2016-2020

NSW STI Strategy 2016-2020 indicator	Monitoring tool
Reduce gonorrhoea infections	NSW Notifiable Conditions Information Management System ACCESS Database
Reduce infectious syphilis infections	NSW Notifiable Conditions Information Management System ACCESS Database
Reduce pelvic inflammatory disease associated with chlamydia	NSW Health data collection systems
Maintain high coverage of HPV vaccination for Year 7 school students	HealthStats NSW
Maintain levels of condom use for preventing the transmission of STIs	Sexual health survey of young people in NSW aged 15-29 years Sexual health survey of gay and homosexually active men in NSW
Increase comprehensive STI testing in priority populations in accordance with risk	NSW Health data collection systems Sexual health survey of gay and homosexually active men in NSW ACCESS Database
Increase the proportion of people diagnosed with chlamydia and gonorrhoea who get re-tested within 1-4 months after diagnosis	NSW Health data collection systems ACCESS Database
Increase the proportion of people diagnosed with syphilis who get re-tested within 1-6 months after diagnosis	NSW Health data collection systems
Increase the proportion of Aboriginal people diagnosed with chlamydia or gonorrhoea who get tested for HIV and syphilis	NSW Health data collection systems ACCESS Database

Appendix B: Data sources

Table 6: Details on data sources included in this report

Name	Custodian	Description
NSW Health denominator data project	Health Protection NSW, NSW Health	<p>Monthly aggregated testing data for selected notifiable conditions from 15 NSW public and private laboratories. These laboratories account for more than 90% of the total notifications for the selected conditions in NSW. Information from laboratories does not provide any indication on whether there are repeat tests or multiple site tests for the same individual.</p> <p>The notification to test ratio has been calculated by dividing the overall positive results notified to NSW Health by all laboratories by the total number of tests performed as reported from the participating laboratories, and multiplying by 100. Notifications are for individual people with gonorrhoea/chlamydia reported from all laboratories. However, the testing data are for individual tests reported from participating laboratories and may include multiple specimens per individual. As such, the notification to test ratio may be an underestimate of the per cent of people tested that were positive in NSW for the condition.</p>
NSW Health HIV Strategy Monitoring Database	NSW Ministry of Health, NSW Health	Aggregated testing data for public sexual health clinics by priority populations.
ACCESS Study	The Kirby Institute	Testing data for unique individuals attending public sexual health clinics by priority populations, and for select GP practices with high and medium case load of GBM in Sydney. ACCESS is a living database and retrospective and prospective data can change as new services are introduced or discontinued, data analyses evolve, and organisational structures are updated, which may introduce variations between reporting periods.
Sydney Gay Community Periodic Survey	Centre for Social Research in Health	Data on sexual, drug use and testing practices related to the transmission of HIV and other STIs among gay men in Sydney (self-reported).
It's Your Love Life Survey	Centre for Social Research in Health	Data about sexual health and health behaviours among approximately 4,000 young people living in NSW.

Name	Custodian	Description
Communicable Diseases Register (CDR)	Health Protection NSW, NSW Health	The Communicable Diseases Register (CDR) contains de-identified records from the NSW Notifiable Conditions Information Management System (NCIMS), linked to emergency department, hospitalisation and deaths data, and includes the Enhanced Reporting of Aboriginality (ERA) variable. Record linkage was carried out by the Centre for Health Record Linkage (www.cherel.org.au), NSW Ministry of Health. Data are currently available to the end of 2017.
NSW Notifiable Conditions Information Management System (NCIMS)	Health Protection NSW, NSW Health	<p>The NSW Notifiable Conditions Information Management System (NCIMS) contains records of all people notified to NSW Health with a notifiable condition under the NSW <i>Public Health Act</i>. Notification data may not reflect the true incidence of notifiable sexually transmitted diseases as they only represent a proportion of notifiable diseases in the population, however they are useful for monitoring trends over time.</p> <p>Re-infection periods: A person is only re-notified with chlamydia, gonorrhoea or infectious syphilis if the infection is acquired outside of the re-infection period as follows:</p> <p>Chlamydia - 29 days</p> <p>Gonorrhoea- 29 days</p> <p>Infectious syphilis- 89 days</p> <p>Multiple sites: A person who is notified with more than one site of infection simultaneously is counted as one notification.</p>

Appendix C: Case definitions

The STI notifications in this report meet the case definitions in the relevant Control Guideline for Public Health Units as listed below:

Gonorrhoea

<http://www.health.nsw.gov.au/Infectious/controlguideline/Pages/gonorrhoea.aspx>

Infectious syphilis – less than two years duration

<http://www.health.nsw.gov.au/Infectious/controlguideline/Pages/syphilis.aspx>

Syphilis - more than 2 years or unknown duration

<http://www.health.nsw.gov.au/Infectious/controlguideline/Pages/syphilis.aspx>

Chlamydia

<http://www.health.nsw.gov.au/Infectious/controlguideline/Pages/chlamydia.aspx>

Appendix D: Notification data tables

Table 7: Number of infectious syphilis, gonorrhoea, chlamydia, and LGV notifications by sex, age group and local health district, NSW, 1 January 2013 - 31 December 2018

	Infectious syphilis					Gonorrhoea					Chlamydia					LGV				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
TOTAL	784	746	874	1115	1480	4835	5418	6940	9004	10164	22876	22525	25927	28826	30878	16	33	58	53	80
Female	26	20	33	45	72	804	860	1274	1483	1818	12335	12148	12986	13637	14364	0	0	0	1	0
Male	757	724	836	1062	1396	4023	4546	5647	7488	8308	10524	10371	12923	15155	16451	16	33	58	52	80
Transgender*	1	2	4	7	9	7	7	15	17	18	0	2	8	12	23	0	0	0	0	0
Unknown	0	0	1	1	3	1	5	4	16	20	17	4	10	22	40	0	0	0	0	0
00-04	0	0	0	0	0	3	2	3	5	5	2	0	1	2	8	0	0	0	0	0
05-09	0	0	0	0	0	2	0	2	2	2	1	0	1	2	0	0	0	0	0	0
10-14	0	1	0	0	0	16	6	2	3	3	100	69	60	64	64	0	0	0	0	0
15-19	11	8	12	20	29	320	302	312	409	358	4393	3875	3932	4152	4158	0	0	1	0	0
20-24	76	85	98	106	147	968	1051	1240	1539	1673	7953	7603	8508	8977	9369	0	2	2	3	4
25-29	109	111	133	209	272	1005	1261	1565	2057	2294	4618	4804	5629	6468	7038	2	3	10	10	11
30-34	126	118	137	189	237	809	910	1239	1560	1883	2328	2495	3068	3621	4052	2	2	8	11	19
35-39	94	95	134	145	212	498	597	847	1167	1323	1216	1299	1745	1968	2272	1	4	13	11	12
40-44	114	84	100	147	155	437	460	634	804	889	861	880	1096	1304	1399	3	1	7	6	8
45-49	98	103	100	108	146	351	357	435	604	702	569	629	784	995	1012	4	4	5	4	11
50-54	74	79	68	90	112	225	240	326	415	446	391	422	554	591	675	2	7	3	5	4
55-59	51	27	52	51	75	101	142	171	239	287	215	229	282	357	427	1	5	7	1	2
60-64	17	28	19	29	55	59	57	90	116	156	127	128	139	157	215	1	0	2	1	3
65-69	8	5	8	8	22	31	20	45	47	82	66	61	76	112	119	0	2	0	0	2
70-74	4	2	10	9	11	9	9	13	23	40	20	20	24	43	52	0	3	0	1	2
75-79	1	0	2	1	5	1	0	8	10	11	5	6	14	9	7	0	0	0	0	1
80-84	0	0	0	0	1	0	3	3	2	7	6	2	4	1	6	0	0	0	0	0
85 and over	1	0	1	2	1	0	1	2	0	3	3	0	3	1	0	0	0	0	0	0
Unknown	0	0	0	1	0	0	0	3	2	0	2	3	7	2	5	0	0	0	0	1
Central Coast	5	12	20	17	5	76	99	132	211	207	1037	913	1040	1031	1046	0	1	0	2	1

Far West	1	0	1	0	0	7	2	0	10	6	138	109	70	80	108	0	0	0	0	0
Hunter New England	18	19	34	43	59	267	258	384	393	553	2855	2879	2974	2946	3219	0	0	1	0	1
Illawarra Shoalhaven	24	24	29	29	44	73	116	124	167	266	1188	1203	1157	1313	1380	0	1	1	0	2
Justice Health	1	1	0	0	0	22	24	26	25	36	179	164	179	160	259	0	0	0	0	0
Mid North Coast	7	1	0	4	11	37	36	26	59	74	630	583	570	662	638	0	0	0	0	0
Murrumbidgee	5	6	15	16	11	34	29	50	69	72	854	884	819	817	898	0	0	0	0	0
Nepean Blue Mountains	23	6	17	21	35	133	146	183	227	322	822	788	843	1032	1082	0	1	0	3	3
Northern NSW	9	12	11	14	20	72	86	135	158	147	811	873	930	967	931	0	0	0	0	1
Northern Sydney	33	47	59	67	131	417	415	627	662	808	2014	1997	2374	2567	2766	2	4	2	3	6
Other NSW	3	3	7	4	8	38	36	52	56	63	263	192	226	225	302	0	0	0	0	0
South Eastern Sydney	273	296	344	443	556	1449	1757	2054	2800	3023	3719	3617	5133	6112	6603	5	11	24	18	24
South Western Sydney	36	13	47	60	64	465	444	627	800	955	2214	2233	2312	2731	3020	1	3	3	4	8
Southern NSW	4	5	3	8	14	19	34	57	60	72	409	423	474	503	494	0	0	0	0	1
Sydney	304	261	239	311	391	1070	1353	1685	2289	2340	2713	2783	3794	4316	4563	7	12	20	20	28
Western NSW	5	6	9	11	9	94	80	45	57	66	976	910	790	776	819	0	0	1	0	0
Western Sydney	34	35	39	67	122	584	527	759	986	1190	2233	2138	2421	2748	3009	0	0	6	2	3

Data source: NCIMS, NSW Health; data extracted 1 April 2019; Data are provisional and subject to change.

*'Transgender' is recorded according to information provided on the notification, and overall numbers reported as transgender may be an underestimation.

Excludes non-NSW residents

Table 8: Gonorrhoea notification rate by LHD and sex, NSW, 1 January 2014 - 31 December 2018

Local Health District		Year					
		2014	2015	2016	2017	2018	% change 17/18
Far West	Male	13.1	6.6	0.0	39.9	19.9	-50%
	Female	32.9	6.7	0.0	26.9	20.2	-25%
	Total	23.0	6.6	0	33.4	20.0	-40%
Western NSW	Male	37.5	34.6	24.4	29.3	34.7	+19%
	Female	30.3	23.0	7.8	11.4	12.0	+6%
	Total	64.6	56.9	80.0	101.1	118.9	+18%
Murrumbidgee	Male	22.6	20.8	30.8	38.9	40.4	+4%
	Female	5.9	3.3	10.8	18.2	19.0	+4%
	Total	14.2	12.1	20.7	28.5	29.7	+4%
Mid North Coast	Male	26.0	20.1	19.0	30.0	37.1	+24%
	Female	9.2	13.6	5.4	24.1	30.0	+25%
	Total	17.4	16.8	12.0	27.0	33.5	+24%
Southern NSW	Male	14.8	26.5	38.9	41.2	55.7	+35%
	Female	4.0	6.9	16.6	16.4	12.4	-24%
	Total	9.4	16.7	27.8	28.8	34.1	+18%
Northern NSW	Male	34.9	42.4	62.8	67.4	70.6	+5%
	Female	14.7	16.6	29.0	38.5	27.1	-30%
	Total	24.6	29.2	45.5	52.7	48.4	-8%
Hunter New England	Male	46.3	38.2	59.3	63.2	86.4	+37%
	Female	13.4	19.0	25.1	22.1	32.1	+45%
	Total	29.7	28.5	42.1	42.6	59.3	+39%
Central Coast	Male	34.9	43.2	53.7	76.6	89.3	+17%
	Female	11.8	17.0	25.6	48.3	32.4	-33%
	Total	23.0	29.8	39.4	62.1	60.2	-3%
Illawarra Shoalhaven	Male	27.5	40.8	43.9	57.8	90.5	+57%
	Female	9.5	17.3	17.6	24.2	38.9	+61%
	Total	18.4	28.9	30.6	40.8	64.5	+58%
Nepean Blue Mountains	Male	56.1	62.1	73.5	91.2	119.6	+31%
	Female	18.2	18.5	25.3	29.2	50.2	+72%
	Total	37.0	40.1	49.8	60.8	84.9	+40%
Northern Sydney	Male	78.7	74.1	111.6	122.5	143.2	+17%
	Female	16.5	18.8	27.4	23.0	32.2	+40%
	Total	47.0	46.0	68.6	71.6	86.4	+21%
South Western Sydney	Male	80.5	74.7	100.6	126.2	148.6	+18%
	Female	20.9	20.0	30.0	36.9	41.8	+13%
	Total	50.4	47.1	65.0	81.4	95.4	+17%
Western Sydney	Male	99.2	88.7	123.7	155.1	181.9	+17%
	Female	29.2	24.0	34.9	46.1	53.7	+6%
	Total	33.9	28.8	16.1	20.3	23.4	+15%
	Male	292.3	352.7	389.0	540.4	566.4	+5%
	Female	34.5	38.2	59.9	63.7	78.6	+24%
	Total	163.3	195.1	224.7	302.6	322.8	+7%

Sydney	Male	305.4	386.6	450.4	619.9	609.7	-2%
	Female	37.0	35.7	64.3	66.6	81.3	+22%
	Total	171.0	210.9	256.7	343.4	345.8	+1%

Data source: NCIMS, NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents and notifications from Justice Health. Year of onset is based on calculated onset.

Table 9: Infectious syphilis notification rates by LHD, NSW, 1 January 2014 - 31 December 2018

Local Health District	Year					
	2014	2015	2016	2017	2018	%change 17/18
Far West	3.3	0.0	3.4	0.0	0.0	0
Central Coast	1.5	3.6	6.0	5.0	1.5	-71
Western NSW	1.8	2.2	3.2	3.9	3.2	-19
Murrumbidgee	1.7	2.1	5.1	5.4	3.7	-32
Mid North Coast	3.3	0.5	0.0	1.8	5.0	172
Hunter New England	2.0	2.1	3.7	4.7	6.3	36
South Western Sydney	3.9	1.4	4.9	6.1	6.4	5
Northern NSW	3.1	4.1	3.7	4.7	6.6	41
Southern NSW	2.0	2.5	1.5	3.8	6.6	73
Nepean Blue Mountains	6.4	1.6	4.6	5.6	9.2	64
Illawarra Shoalhaven	6.1	6.0	7.2	7.1	10.7	50
Western Sydney	3.8	3.8	4.1	6.9	12.2	77
Northern Sydney	3.7	5.2	6.5	7.2	14.0	93
Sydney	48.6	40.7	36.4	46.7	57.8	24

Data source: NCIMS, NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents and notifications from Justice Health. Year of onset is based on calculated onset.

Table 10: Chlamydia notification rates by LHD and sex, NSW, 1 January 2014 - 31 December 2018

Local Health District	Sex	Year					%change 17/18
		2014	2015	2016	2017	2018	
Southern NSW	Male	160	152	198	195	203	4
	Female	246	264	263	287	265	-8
	Total	203	208	231	242	234	-3
Western NSW	Male	242	239	206	203	204	1
	Female	462	414	359	350	376	8
	Total	352	327	283	276	290	5
Murrumbidgee	Male	222	232	212	226	232	3
	Female	367	374	346	328	375	14
	Total	295	303	279	277	304	9
Mid North Coast	Male	215	185	192	232	240	4
	Female	374	355	331	370	334	-10
	Total	296	272	263	303	289	-5
Nepean Blue Mountains	Male	183	180	196	255	260	2
	Female	273	253	262	297	309	4
	Total	229	217	229	276	285	3
Northern NSW	Male	223	268	286	296	279	-6
	Female	330	324	340	347	333	-4
	Total	277	297	314	322	307	-5
Illawarra Shoalhaven	Male	251	247	241	282	281	0
	Female	347	352	329	358	385	8
	Total	300	300	285	321	334	4
Hunter New England	Male	239	241	270	270	284	5
	Female	394	393	380	368	405	10
	Total	317	318	326	319	345	8
Far West	Male	294	337	147	180	285	58
	Female	599	386	316	356	437	23
	Total	453	361	235	267	360	35
Central Coast	Male	234	226	253	254	295	16
	Female	391	321	365	350	313	-11
	Total	314	275	310	304	304	0
Western Sydney	Male	224	209	248	279	302	8
	Female	269	253	262	284	298	5
	Total	247	231	255	282	301	7
South Western Sydney	Male	218	204	216	266	305	15
	Female	261	269	262	289	297	3
	Total	240	237	240	278	302	9
Northern Sydney	Male	229	228	275	307	330	8
	Female	225	215	244	250	262	5
	Total	227	222	260	278	296	7
Sydney	Male	508	498	691	831	873	5
	Female	359	370	465	462	474	3
	Total	434	434	578	648	674	4
South Eastern Sydney	Male	473	448	696	861	924	7
	Female	366	355	427	459	484	5
	Total	419	402	562	661	705	7

Data source: NCIMS, NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents and notifications from Justice Health. Year of onset is based on calculated onset.

Table 11: Total notifications 2014-2018 (males and females) and average annual LGV notification rates in males by LHD, NSW, 1 January 2014 - 31 December 2018

Local Health District	2014-2018	
	Total number of notifications (males and females)	Average annual rate per 100,000 males
Far West	0	0.00
Mid North Coast	0	0.00
Hunter New England	2	0.09
Northern NSW	1	0.14
Western NSW	1	0.14
Southern NSW	1	0.19
Illawarra Shoalhaven	4	0.40
Western Sydney	11	0.42
Central Coast	4	0.49
Murrumbidgee	4	0.66
Northern Sydney	17	0.76
Nepean Blue Mountains	7	0.77
South Western Sydney	19	0.80
South Eastern Sydney	82	3.61
Sydney	87	5.35

Data source: NCIMS, NSW Health; data extracted 1 April 2019.

Note: Excludes non-NSW residents and notifications from Justice Health. Year of onset is based on calculated onset

Appendix E: Data table for the HPV vaccination rate by gender

Table 12: Year 7 HPV vaccination rate by LHD and gender, 2011 to 2018^[1]

NSW	Gender	Year							
		2011	2012	2013	2014	2015	2016	2017	2018
HPV (Year 7) - Dose 1	Females	81%	86%	86%	87%	87%	86%	86%	85%
	Males			80%	83%	84%	83%	84%	83%
HPV (Year 7) - Dose 2	Females	76%	84%	84%	85%	86%	84%	82%	³⁰
	Males			78%	81%	83%	82%	79%	³¹
HPV (Year 7) - Dose 3	Females	71%	78%	82%	82%	82%	82%	N/A ³²	N/A ³³
	Males			76%	78%	80%	80%	N/A ³⁴	N/A ³⁵

Data source: Local Health Districts

^[1] There have been significant changes to the NSW School Vaccination Program over time relating to the introduction or cessation of vaccines, changes in the recommended sex and ages for vaccination and policy changes to extend the opportunity to provide catch-up vaccination.

The coverage rates for NSW may underestimate the true vaccination coverage as they represent only those vaccinations administered through the school program and do not include doses administered by general practitioners or other immunisation providers.

The data for HPV vaccination for 2011 to 2012 relates to female students in Year 7 only as the program was expanded to include males from 2013.

From 2012, extended catch-up vaccination was offered to students who commenced the three-dose course of HPV vaccine in Year 7 to support course completion. HPV vaccination coverage for students in Year 7 from 2012 - 2017 includes catch-up vaccination for dose 2 and 3 in Year 8 in 2013 (to the end of term 2), and to the end of term 4 from 2014 onward.

Year 8 catch-up vaccination doses are not included in data reported for the 2018 year as catch-up data were not available at the time of publication.

³⁰ Data for HPV dose 2 for 2018 are not yet complete as catch-up vaccination is being provided in Year 8 in 2019 for courses commenced in 2018.

³¹ Ibid

³² In 2017 NSW introduced a two-dose course of HPV vaccine at least 6 months apart based on the latest international studies that demonstrate that this gives equivalent protection to a three-dose course of vaccine given at 0, 2 and 6 months for most students.

³³ Ibid

³⁴ Ibid

³⁵ Ibid