NSW Sexually Transmissible Infections Strategy 2016 – 2020

January to June 2016 Data Report

Executive summary

Sexually transmissible infections (STIs) remain a significant public health burden in NSW. If left untreated, STIs can be transmitted to sexual partners, increase the risk of the sexual transmission of HIV, and contribute to the development of severe complications such as infertility, ectopic pregnancy and congenital infection. They can also cause pain, discomfort and are stigmatising for the affected individual.

The NSW STI Strategy 2016-2020[1] (*the Strategy)* provides a framework to effectively respond to changes in STI epidemiology across NSW.

The Strategy outlines four goals:

1. To reduce gonorrhoea and syphilis infections and reduce the burden of disease of chlamydia infection.
2. Sustain the low rates of STIs amongst sex workers.
3. Sustain the virtual elimination of congenital syphilis.
4. Maintain high coverage of HPV vaccination.

The priority populations for the Strategy include Aboriginal people, gay and homosexually active men, sex workers and young people. The priority settings for action include publicly funded sexual health services, Aboriginal community controlled health services, antenatal settings, drug and alcohol services, mental health services and general practice and primary health care.

These Data Reports form the primary mechanism for reporting progress against the Strategy's targets. They will be developed on a biannual basis, and undergo a review process from experts from research, policy, clinical, community and peer organisations.

The review process will drive the implementation of the Strategy and provide the basis for the development and refinement of innovative practice, service models, improved health service quality, clinical safety and performance.

This report is the first in a series of reports that maps the epidemiological and behavioural data relevant to STIs against the targets of the Strategy. It is intended to provide a baseline against which subsequent progress will be measured.

[1] NSW Ministry of Health (2015). NSW Sexually Transmissible Diseases Strategy 2016-2020. Sydney: NSW Ministry of Health. http://stipu.nsw.gov.au/wp-content/uploads/STI-Strategy-2016-2020.pdf

Key progress to June 30, 2016

Gonorrhoea

- *From January to June 2016, the gonorrhoea notification rate was 90 per 100,000 population per annum, 27% higher than the rate in 2015 (71 per 100,000 population).*
- *The gender specific gonorrhoea notification rate for males in the first six months of 2016 was 146.9 per 100,000 males per annum, a 22% increase compared to 2015. The female gender specific rate in the first half of 2016 was 33.7 per 100,000 females per annum, a 49% increase compared to 2015.*
- *There was an increase in the gonorrhoea test positivity among men who have sex with men (MSM) in publicly funded sexual health clinics and medium to high caseload general practices between 2011 and June 2016.*

Infectious syphilis

- *From January to June 2016, the notification rate for infectious syphilis was 10.6 per 100,000 population per annum, 7% higher than the rate in 2015 (9.9 per 100,000 population).*
- *Between January and June 2016, 97% of infectious syphilis notifications were in males. The most commonly notified age group amongst males was 30-39 years and the sexual exposure of men diagnosed with infectious syphilis was predominantly male-to-male sex.*

Chlamydia and chlamydia-associated pelvic inflammatory disease (PID)

- *The annual number of women notified with chlamydia who were admitted to hospital with pelvic inflammatory disease increased from 151 in 2006 to a peak of 255 in 2011, then decreased to 224 in 2013.*
- *From January to June 2016, the chlamydia notification rate was 341 per 100,000 population per annum, 15% higher than the rate in 2015 (297 per 100,000 population).*
- *Between January and June 2016, 51% of chlamydia notifications were in females and 49% were in males, most frequently in the 20-24 years age group for both males and females. Notification rates of chlamydia increased between 2006 and 2013 in both Aboriginal and non-Aboriginal populations.*
- *The number of women re-notified with chlamydia increased between 2011 and 2015 from 251 to 365, though this may be due to increased re-testing for chlamydia.*

Key future priority areas

- The proportion of MSM with casual partners reporting any condomless anal intercourse has increased from 35% in 2014 to 41% in 2016. In 2016 63% of young people aged 15-29 had some condomless vaginal or anal intercourse with their casual partners. Further scaling up and strengthening of **initiatives to emphasise the central role of condoms in preventing the transmission of STIs is required.**
- In 2015 the completion rate for the three-dose human papillomavirus vaccination course was 82% for female and 80% for male Year 7 students. **Work should continue to increase the vaccination rate among males and females, with a focus on ensuring high coverage among vulnerable populations.**
- The monthly average number of tests for gonorrhoea and chlamydia (on average, 69,772 and 46,291 tests respectively) in January to June 2016 was higher than the monthly average for all previous years. However the rate of re-testing for these infections is low. **Efforts to increase the rate of testing and re-testing for gonorrhoea and chlamydia should continue, in accordance with STI testing guidelines.**
- Data from ACCESS shows that the rate of comprehensive STI screening has remained stable for most priority populations with the exception of men who have sex with men and heterosexual young people attending medium to high caseload GPs, where the proportion has increased, though there is still room for improvement. **Targeted strategies are required to improve comprehensive STI testing among priority populations, as well as re-testing of those diagnosed with chlamydia and gonorrhoea syphilis.**
- The available data (to 2013) for Aboriginal people in NSW indicates that the rate of diagnosis for chlamydia was twi times higher, and gonorrhoea 1.6 times higher compared to NSW's non-Aboriginal population. **Culturally appropriate strategies to address STIs among Aboriginal people and a continued effort to obtain current, comprehensive data about STIs among this population is a priority.**

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List of acronyms

ABS	Australian Bureau of Statistics
ART	Antiretroviral therapy
CDR	Communicable Disease Register
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
PID	Pelvic inflammatory disease
SAPHaRI	Secure Analytics for Population Health Research and Intelligence

Progress against the NSW Sexually Transmissible Infections Strategy 2016-2020

1 Reduce gonorrhoea infections

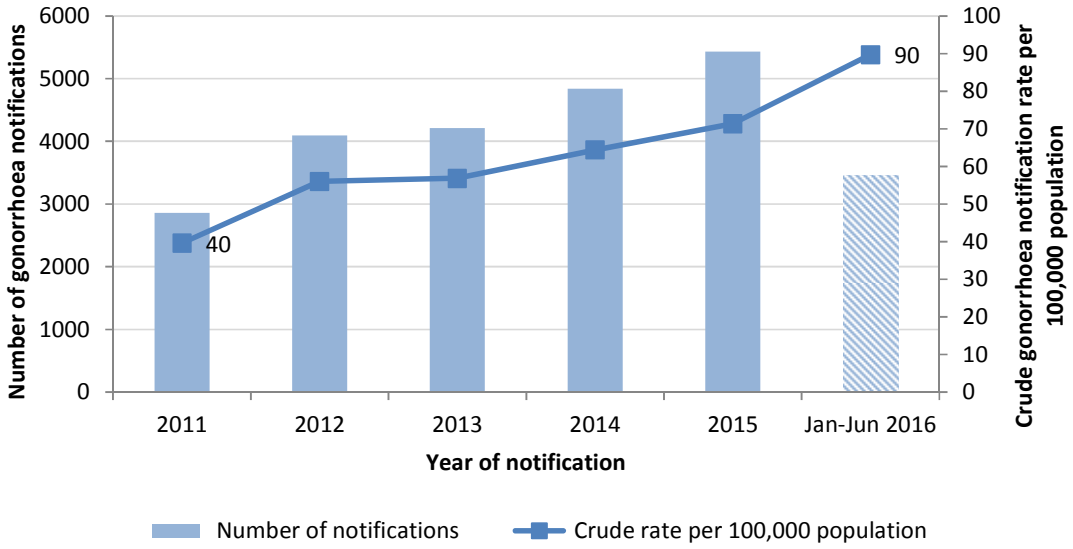
Prevention, testing and appropriate treatment and management are the cornerstones of gonorrhoea control and are embedded in the current STI strategy. Gonorrhoea notification data does not reflect the true incidence of gonorrhoea infection as it only represents a proportion of infections in the population, 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 gonorrhoea* from culture or detection by nucleic acid testing (NAT). Only confirmed cases of gonorrhoea are counted when reporting gonorrhoea notification data. Gonorrhoea infections are not routinely followed up by public health units so detailed information (e.g. sexual exposure) is difficult to ascertain.

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, NSW, 1 January 2011- 30 June 2016

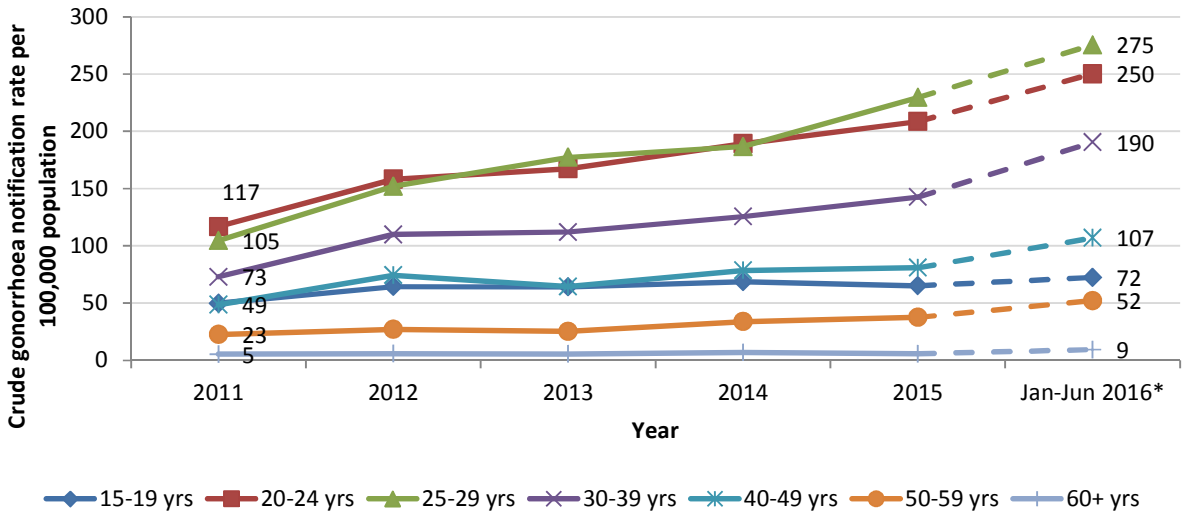


Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 10 Nov 2016.
Note: The rate is based on six months of data between Jan-June 2016 adjusted to an annual rate and is subject to change once data between July-Dec 2016 becomes available.

Comment

The number and rate of gonorrhoea notifications continue to rise. There has been an increasing trend in gonorrhoea notifications since 2013. From January to June 2016, a total of 3,429 gonorrhoea notifications were received by NSW Health. This represents a 27% increase in notifications compared to the same period in 2015 (Figure 1).

Figure 2: Age specific gonorrhoea notification rates, NSW, 1 January 2011- 30 June 2016



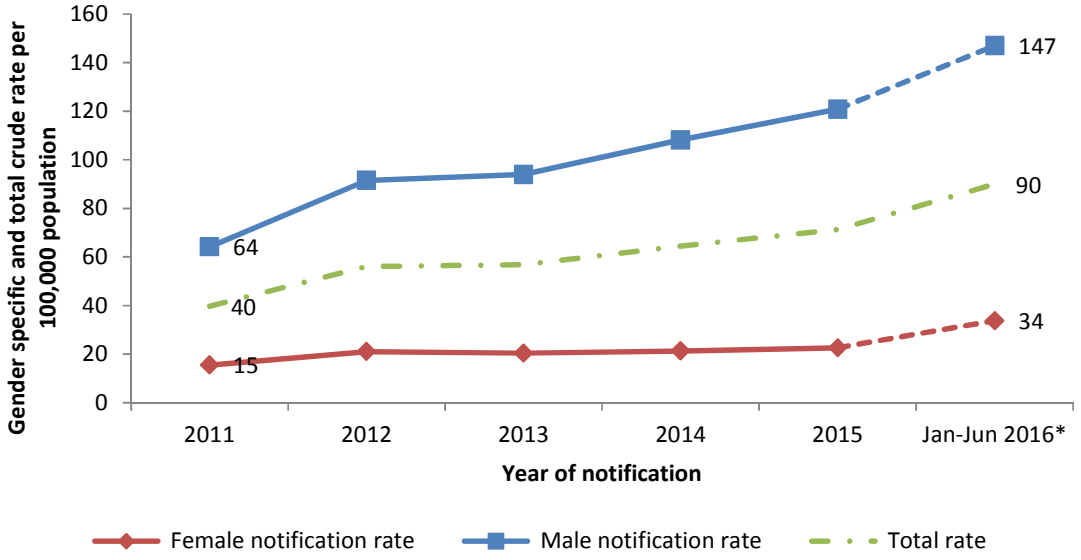
Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 10 Nov 2016.
**The rate is based on six months of data between Jan-June 2016 adjusted to an annual rate and is subject to change once data between July-Dec 2016 becomes available.*

Comment

In the first half of 2016, increases in the annualised gonorrhoea notification rate were observed across all age groups compared to 2015. The highest annualised gonorrhoea notification rate was among the 25-29 years age group (275 notifications per 100,000 population) followed by the 20-24 years age group (250 per 100,000 population) and the 30-39 years age group (190 per 100,000 population) (Figure 2).

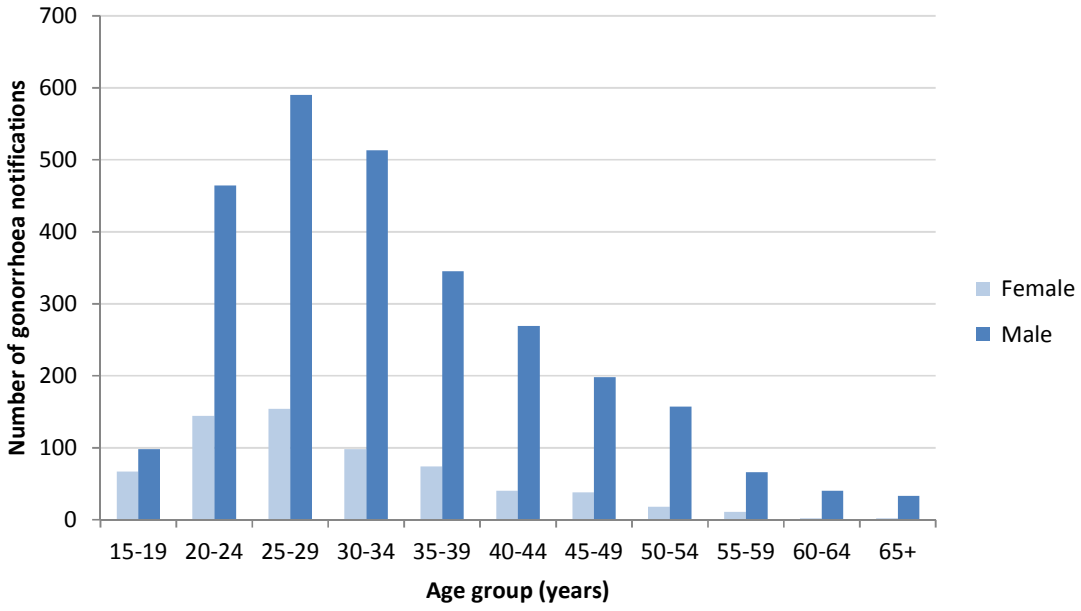
The largest relative increases in the annualised age specific gonorrhoea notification rates have occurred in the 50-59 years and 60+ years age groups (Figure 2). The annualised age specific rate for the 50-59 years age group was 52 per 100,000 population which represents a 37% increase compared to 2015. The annualised age specific rate for the 60+ years age group was 9.3 per 100,000 population which represents a 67% increase compared to 2015. The annualised age specific rate for the 30-39 years and 40-49 years age groups increased by 31% and 33% respectively.

Figure 3: Gender specific gonorrhoea notification rate, NSW, 1 January 2011- 30 June 2016



Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 10 Nov 2016.
** The rate is based on sic months of data between Jan-June 2016 adjusted to an annual rate and is subject to change once data between July-Dec 2016 becomes available.*
Note: Excludes persons reported as transgender (due to small numbers), and persons whose age or sex was not reported.

Figure 4: Number of gonorrhoea notifications by age group and gender, NSW, 1 January 2016- 30 June 2016



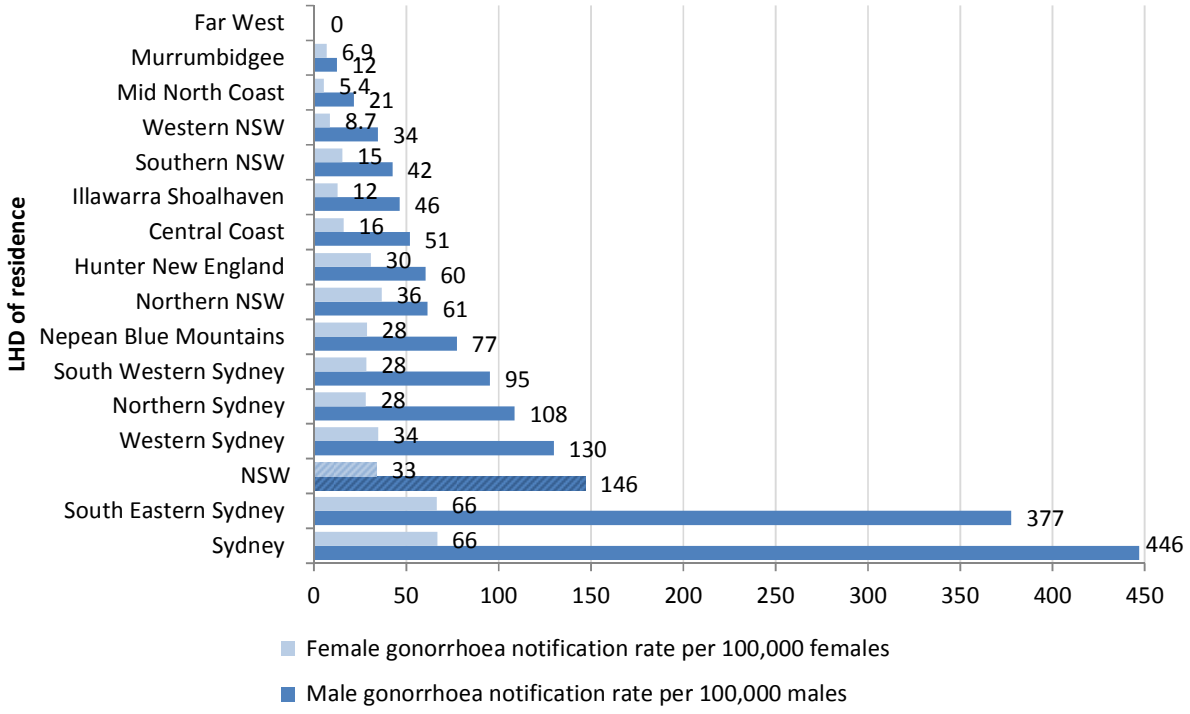
Data source: NCIMS, NSW Health; data extracted 10 Nov 2016.
Note: Excludes persons reported as transgender (due to small numbers), and persons whose age or sex was not reported.

Comment

Between January and June 2016, there were 2810 (80%) gonorrhoea notifications in males, 657 (19%) in females, five (<1%) in transgender persons and two (<1%) whose gender was not reported.

In January to June 2016, the largest relative increase in the annualised gonorrhoea notification rate was in females, with a gender specific rate of 34 per 100,000 females (Figure 3). This represents a 49% increase compared to 2015 and a 118% increase compared to 2011. The annualised gonorrhoea notification rate for males was 147 per 100,000 males, a 22% increase compared to 2015 and a 130% increase compared to 2011. The transmission of gonorrhoea in NSW is historically thought to be associated with male-to-male sex, however the observed higher relative increase in notifications in females compared to males may indicate that heterosexual transmission is increasing. In 2016, the majority of female gonorrhoea notifications were observed in the 20-24 years, 25-29 years and 30-34 years age groups; the same age groups in which the majority of male notifications were observed (Figure 4).

Figure 5: Crude gonorrhoea notification rate* per 100,000 population by local health district and gender, NSW, 1 January 2016- 30 June 2016

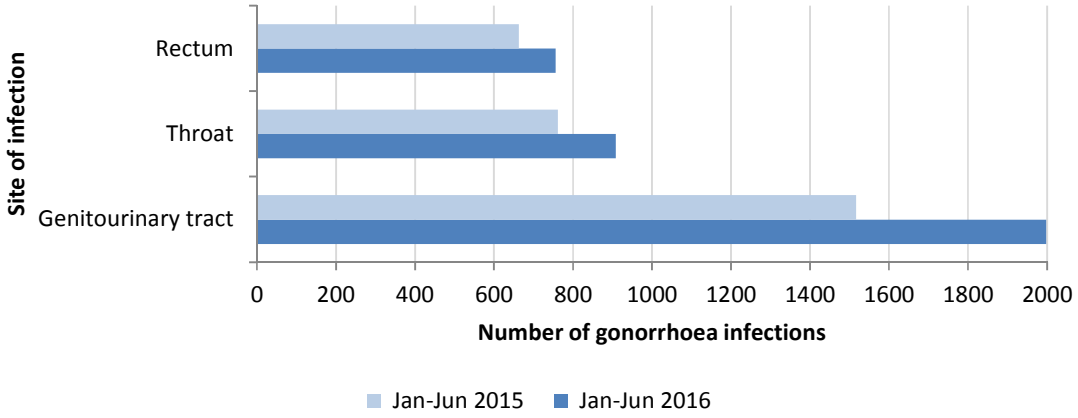


Data source: NCIMS and ABS population estimates (SAPHaRI), NSW Health; data extracted 6 Feb 2017
Note: Excludes non-NSW residents, persons whose place of residence in NSW was not known and notifications from Justice Health. For Justice Health notifications, see Table 12 in Appendix E: Notification data.
** The rate is based on 6 months of data between Jan-June 2016 adjusted to an annual rate and is subject to change once data between July-Dec 2016 becomes available.*

Comment

In January to June 2016, the Sydney and South Eastern Sydney Local Health Districts had the highest annualised gonorrhoea notification rates in both males and females (Figure 5). in the first half of 2016, the largest relative increase in gonorrhoea notifications (compared to 2015) was observed in the Northern NSW LHD, which had the third highest annualised female gonorrhoea notification rate (36 notifications per 100,000 females) behind Sydney and South Eastern Sydney Local Health Districts. A total of 75 gonorrhoea notifications were received, which represents a 103% increase in notifications compared to the same period in 2015 (see Table 12 in Appendix E: Notification data). Within this increase, there was a small (8%) increase in the proportion of females notified from January to June 2016 (28/75) compared to the same period in 2015 (25/86).

Figure 6: Number of gonorrhoea infections by site, NSW, 1 January- 30 June 2015 and 1 January-30 June 2016



Data source: NCIMS, NSW Health; data extracted 10 Nov 2016.
Notes: 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.

Table 1: Number of gonorrhoea infections by site combination, NSW, 1 January-30 June 2016

Site of infection	Number of infections
Genitourinary tract (GU) only	1822
Throat only	673
Rectum only	514
Rectum and throat	129
GU and rectum	70
GU and throat	64
GU and rectum and throat	42
Other (joints/conjunctiva) only	4
Other (conjunctiva) and rectum	1

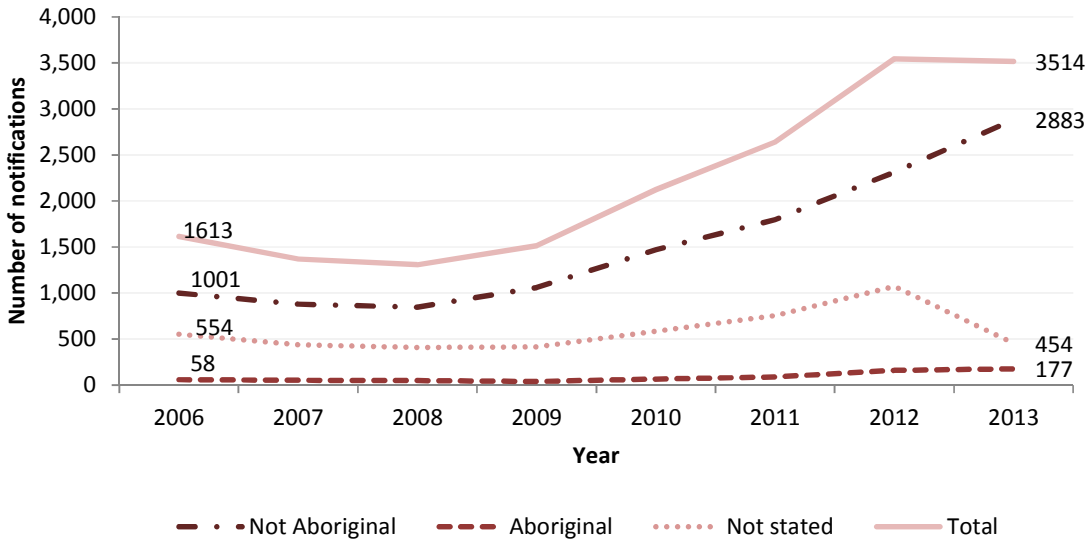
Data source: NCIMS, NSW Health; data extracted 10 Nov 2016.

Comment

The genitourinary tract is the main site of gonorrhoea infection notified to NSW Health. In 2016, the largest relative increases were observed in genitourinary and throat sites (32% and 19% respectively; see Table 4 in Appendix E: Notification data). A total of 306 co-infections were observed in 2016. The most commonly identified co-infection was rectum and throat.

1.2 Gonorrhoea notifications among Aboriginal people

Figure 7: Gonorrhoea notifications by Aboriginality, NSW, 2006-2013



Data source: Communicable Diseases Register, NSW Health; data extracted 1 Nov 2016.

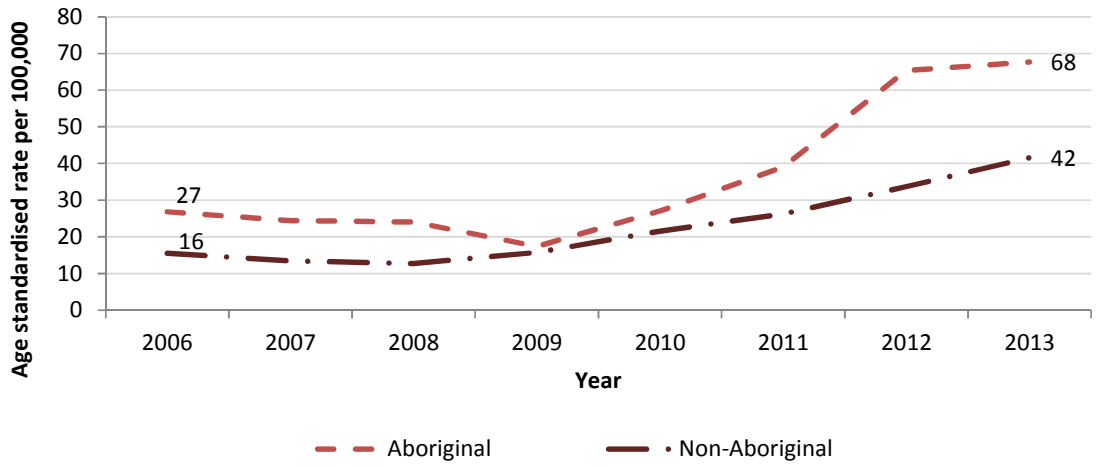
Comment

In 2013, 3,514 notifications for gonorrhoea were recorded in the Communicable Diseases Register (CDR). Of these, 177 (5%) were Aboriginal people, 2,883 (82%) were non-Aboriginal people and Aboriginal status was not stated for 454 (13%) people. Aboriginal status completeness was particularly high in 2013 due to an enhanced surveillance project that was conducted statewide.

The Communicable Diseases Register (CDR) has been established under the Public Health and Disease Registers provisions of the NSW *Public Health Act 2010*. It contains de-identified records from the NSW Notifiable Conditions Information Management System (NCIMS), linked to emergency department, hospitalisation and deaths data. Data are currently available to the end of 2013[2]. After data linkage, Aboriginality remained unknown for 27% of gonorrhoea records between 2006 and 2013.

[2] Work is currently underway to update the data contained in the Communicable Disease Register and this will be published in future reports.

Figure 8: Gonorrhoea notification rate by Aboriginality, NSW, 2006-2013



Data source: Communicable Diseases Register and ABS (via SAPHaRI, NSW Health); data extracted 1 Nov 2016.
Note: Excludes records where Aboriginal status was not stated; rates standardised to the Australian Standard Population 2001.

Comment

Notification rates of gonorrhoea between 2006 and 2013 increased overall among both Aboriginal and non-Aboriginal populations.

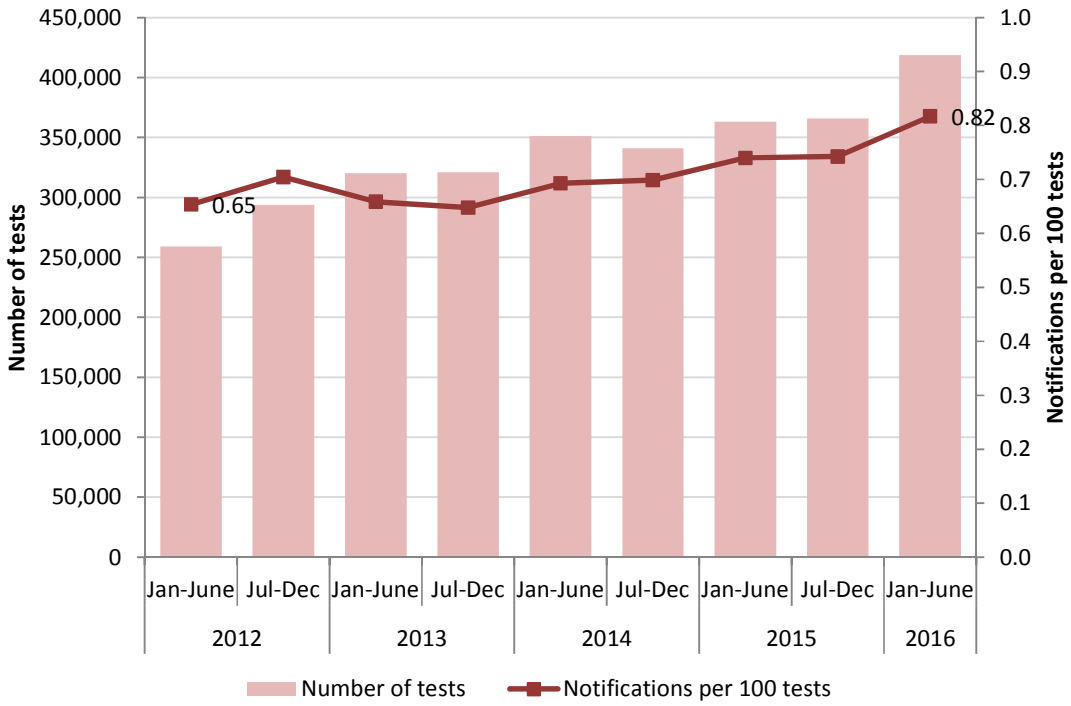
In 2013, the gonorrhoea notification rate among Aboriginal people was 67.6 per 100,000, which is 1.6 times higher than the rate among non-Aboriginal people (41.6 per 100,000).

1.3 Gonorrhoea 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. More details on the data sources contained within this report can be found in Table 3, Appendix B: Data sources.

Almost all specimens submitted for chlamydia testing are also tested for gonorrhoea.

Figure 9: Number of gonorrhoea tests and notification to test[3] ratio, NSW, January 2012 to June 2016



Data source: NCIMS and NSW Denominator Data Project, NSW Health.
Note: Testing multiple sites results in multiple tests being counted per person

Comment

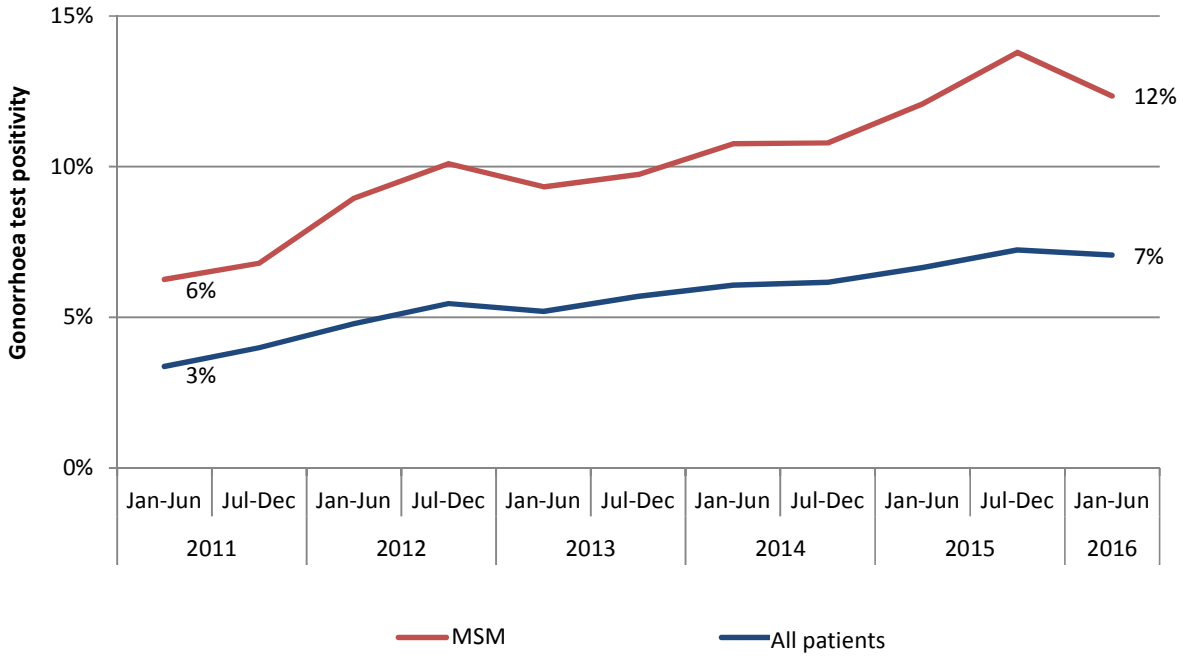
The number of gonorrhoea tests (NAT and culture) performed in NSW is continuing to increase. Between January and June 2016, 418,631 tests for gonorrhoea were performed in 15 laboratories in NSW, an average of 69,772 tests per month. The monthly average number of tests for January to June 2016 is higher than the monthly average for 2015 (60,752), 2014 (57,663), 2013 (53,431) and 2012 (46,079).

There were 0.82 gonorrhoea notifications per 100 gonorrhoea tests during the half of 2016, which is higher than the notification to test ratio for the full year of 2015 (0.74).

[3] 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 reported from all laboratories. However, the testing data are for individual tests reported from participating laboratories and may include multiple specimens per individual.

1.4 Gonorrhoea testing among men who have sex with men

Figure 10: Proportion of individual patients[4] attending PFSHSs and GP clinics[5] tested for gonorrhoea with a positive result[6] (gonorrhoea test positivity) among men who have sex with men and all patients, 1 January 2011 to 30 June 2016[7]



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

Note: MSM refers to men who have sex with men. The data for Aboriginal, female sex workers and young people are not displayed given the small numbers. Numerical data can be found in Table 4 in in the Appendix for numerical data.

Comment

Gonorrhoea test positivity among men who have sex with men doubled from 6% in early 2011 to 12% in early 2016.

[4] Patients only uniquely identified within a service.

[5] GP clinics included those serving at least 50 gay and bisexual male patients annually.

[6] Positivity calculated as the proportion of individuals tested (excluding repeat tests among individuals) with a positive result or recorded diagnosis (any anatomical site).

[7] See *Table 4: Number of individual patients attending publicly funded sexual health services and GP clinics tested for gonorrhoea with a positive result by priority population, 1 January 2011 to 30 June 2016* in the Appendix for numerical data.

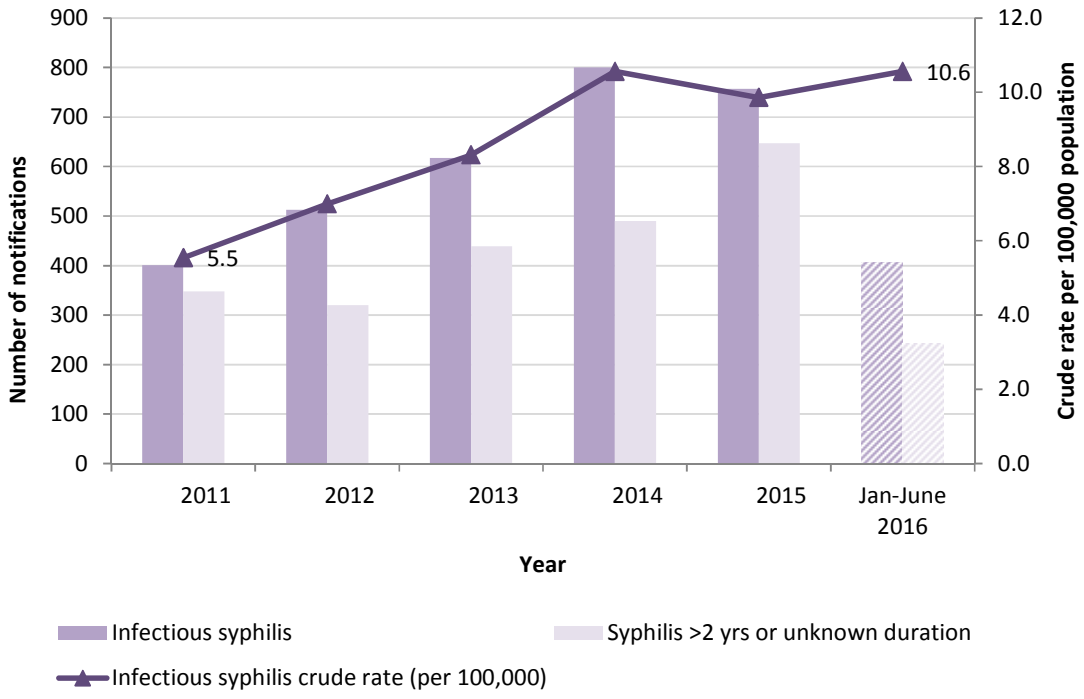
2 Reduce infectious syphilis infections

Prevention, testing and appropriate treatment and management 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 gonorrhoea, infectious syphilis – less than two years duration, syphilis – more than 2 years or unknown duration and chlamydia 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 syphilis infections which includes demographic, testing, treatment and risk exposure information.

2.1 Infectious syphilis notifications

Figure 11: Syphilis notifications, NSW, January 2011 to June 2016



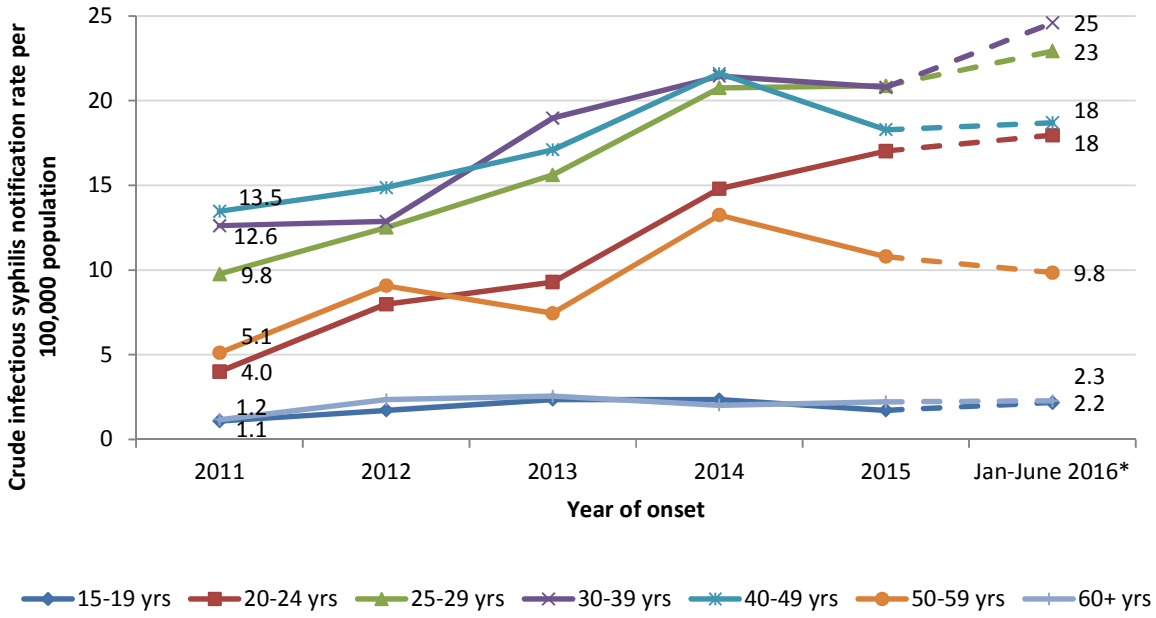
Data source: NCIMS and ABS (via SAPHaRI), NSW Health; data extracted 8 Nov 2016.
Note: The 2016 rate is based on 6 months of data (from Jan-June 2016) adjusted to an annual rate and is subject to change once data between July-Dec 2016 becomes available.

Comment

From January to June 2016, there were 407 infectious syphilis notifications in NSW. During this period the annualised infectious syphilis notification rate was 10.6 per 100,000 population, 7% higher than the rate 2015 (9.9 per 100,000) and similar compared to 2014 (10.6 per 100,000).

Infectious syphilis notifications dropped in 2015 compared to 2014, while notifications for 'syphilis greater than 2 years or unknown duration' increased. It is possible that in some cases the available information did not meet the requirements of the 'infectious syphilis' case definition and these were therefore classified as 'syphilis greater than 2 years or unknown duration'. For the period from 2011 to January to June 2016, the rate for infectious syphilis increased by 93% from 5.5 notifications per 100,000 population to 10.6 per 100,000 population.

Figure 12: Age specific infectious syphilis notification rates, NSW, 1 January 2011- 30 June 2016



Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 24 Nov 2016.

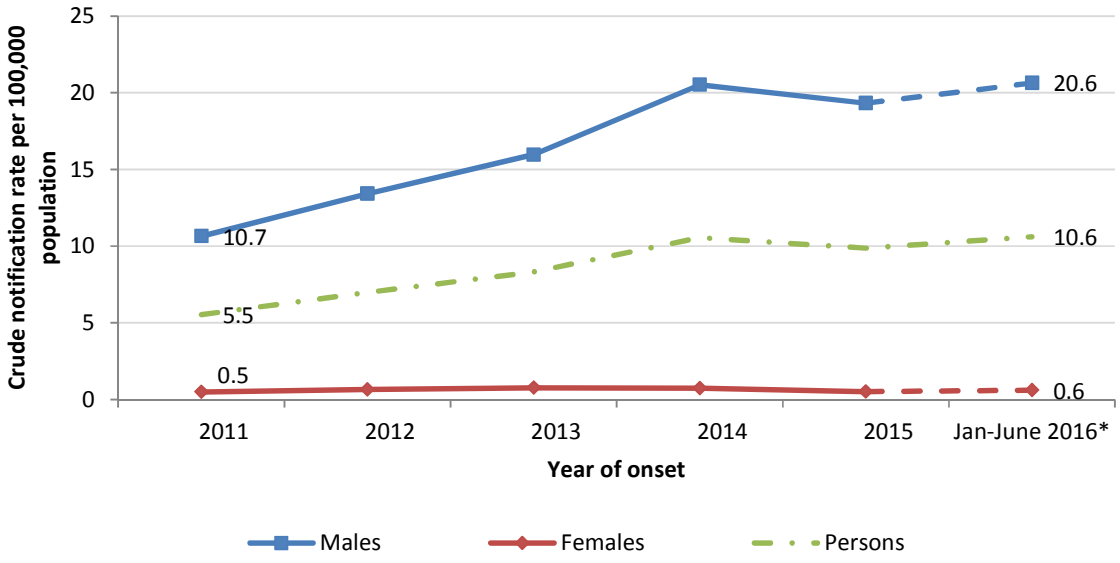
** The rate is based on 6 months of data between Jan-June 2016 adjusted to an annual rate and is subject to change once data between July-Dec 2016 becomes available.*

Comment

In January to June 2016 the highest annualised age specific infectious syphilis notification rates were among the 30-39 years age group (25 notifications per 100,000 population), followed by the 25-29 years age group (23 per 100,000 population). Infectious syphilis notification rates continue to increase in the 20-24 years, 25-29 years and 30-39 years age groups (Figure 12). The largest relative increase in the annualised age specific infectious syphilis notification rate was observed in the 30-39

years group. The annualised age specific rate for the 30-39 years age group was 24.6 per 100,000 population which represents an 18% increase compared to 2015. Infectious syphilis notification rates declined in the 50-59 years age group in 2016.

Figure 13: Gender specific infectious syphilis notification rate, NSW, 1 January 2011- 30 June 2016



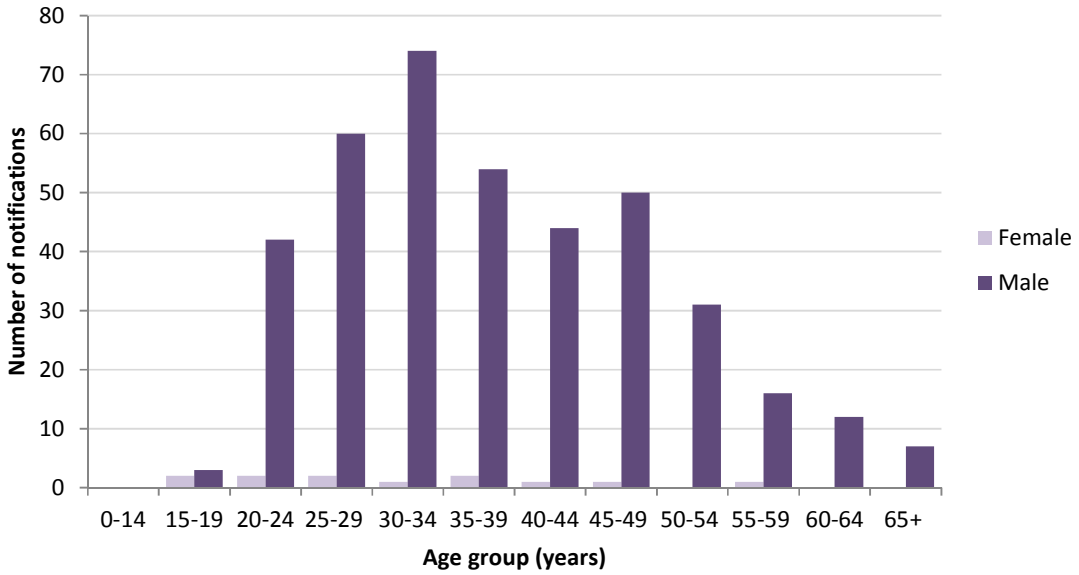
Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 24 Nov 2016.

** The rate is based on 6 months of data between Jan-June 2016 adjusted to an annual rate and is subject to change once data between July-Dec 2016 becomes available*

Comment

In January to June 2016, the annualised gender specific infectious syphilis notification rate was higher in males (20.6 notifications per 100,000 males) than females (0.6 notifications per 100,000 females). Rates of infectious syphilis have increased for both males and females in 2016 (Figure 13). The largest relative increase was observed in females. The annualised gender specific rate for females in 2016 was 0.62 per 100,000, which represents a 19% increase compared to 2015. The male infectious syphilis notification rate increased by 93% in the period 1 January 2011 to January to June 2016.

Figure 14: Infectious syphilis notifications by age and gender, NSW, 1 January to 30 June 2016

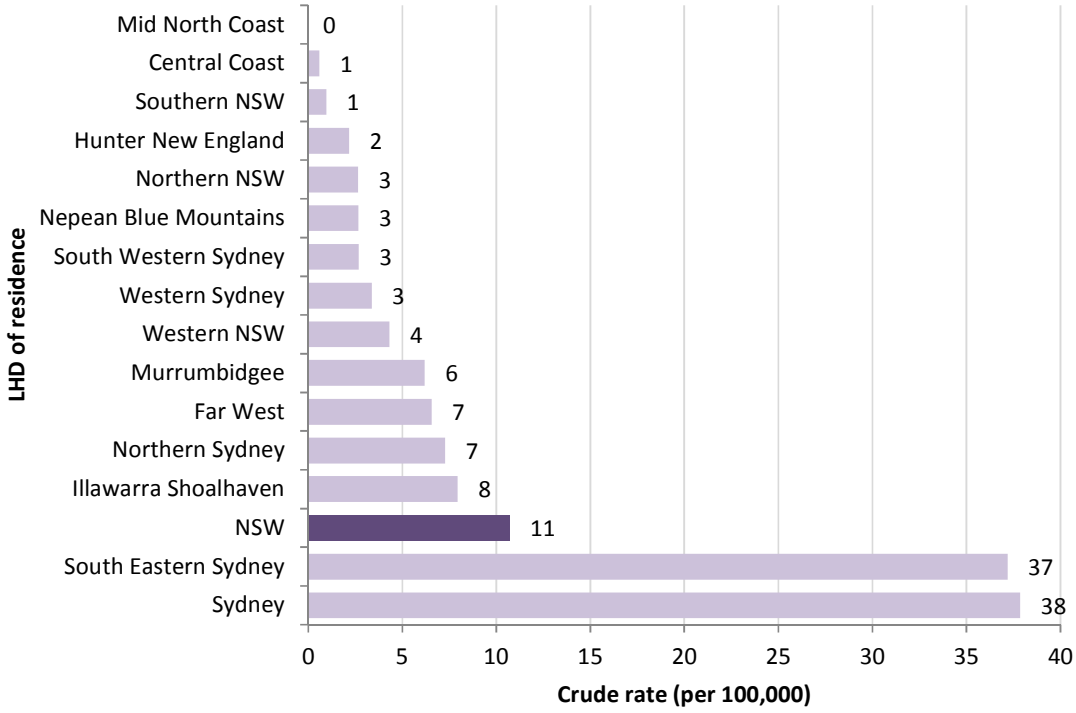


Data source: NCIMS and ABS (via SAPHaRI), NSW Health; data extracted 8 Nov 2016.
Notes: Excludes persons reported as transgender (due to small numbers), and persons who age or sex was not reported.

Comment

Between January and June 2016, 96.6% of infectious syphilis notifications were in males, 2.9% were in females and 0.4% were in transgender persons or persons whose sex was not reported. The most commonly notified age groups amongst males were 30-34 years, 25-29 years and 35-39 years (Figure 14).

Figure 15: Infectious syphilis notification crude rate by LHD, NSW, 1 January to 30 June 2016

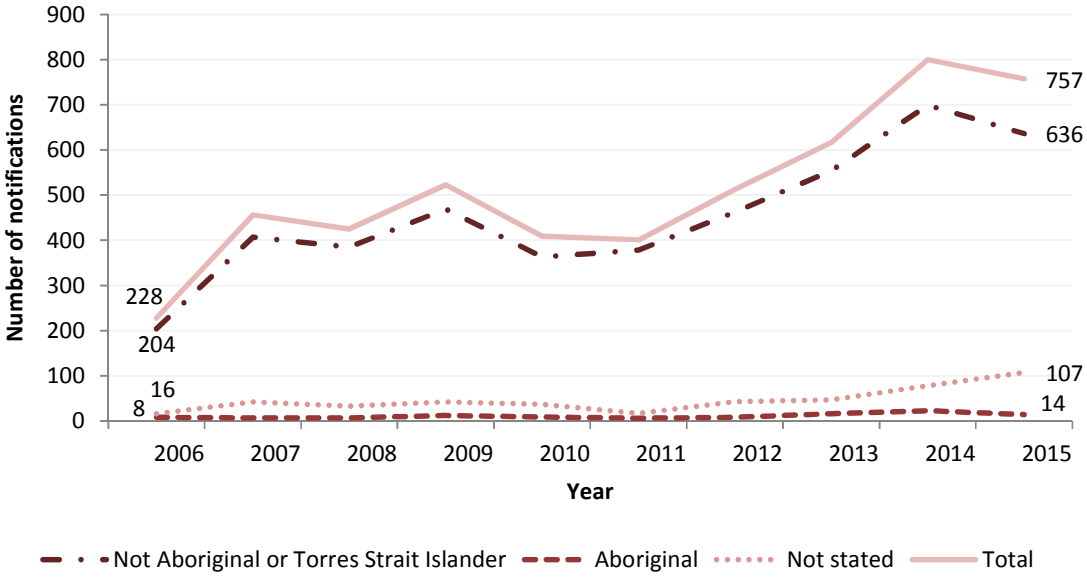


Data source: NCIMS and ABS population estimates (SAPHaRI), NSW Health; data extracted 8 Nov 2016.
Note: Excludes non-NSW residents, persons whose place of residence in NSW was not known and notifications from Justice Health.
** The rate is based on 6 months of data between Jan-June 2015 adjusted to an annual rate and is subject to change once data between July-Dec 2016 becomes available.*
For Justice Health notifications, see Table 12 in Appendix E: Notification data.

Comment

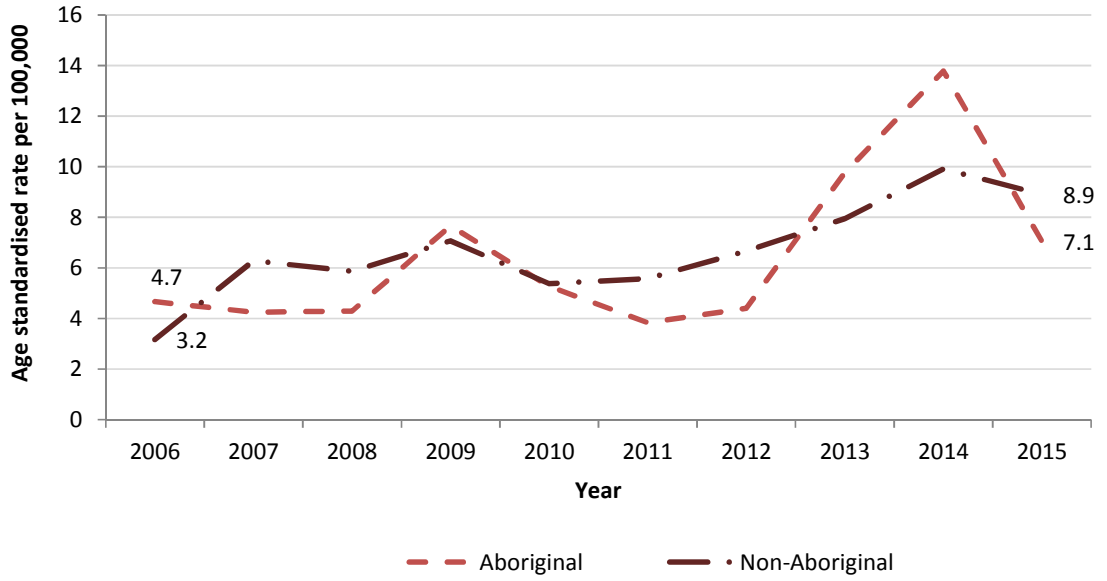
From January to June 2016, Sydney and South Eastern Sydney LHDs had the highest numbers of infectious syphilis notifications as well as the highest rates in NSW (see Table 12 in Appendix E: Notification data and Figure 15).

Figure 16: Infectious syphilis notifications by Aboriginality, NSW, 2006-2015



Data source: NCIMS, NSW Health; data extracted 8 Nov 2016.

Figure 17: Infectious syphilis notification rate by Aboriginality, NSW, 2006-2015

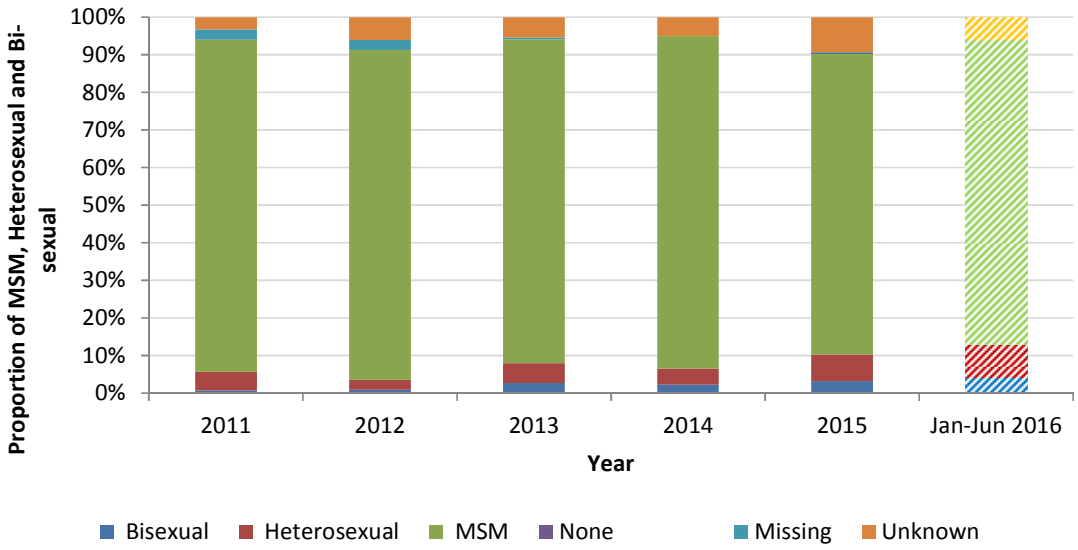


Data source: NCIMS and ABS (via SAPHaRI, NSW Health); data extracted 8 Nov 2016.
Notes: Excludes records where Aboriginal status was not stated; rates standardised to the Australian Standard Population 2001.

Comment

Of the 110 infectious syphilis notifications in Aboriginal people between 2006 and 2015, 27 (25%) were in females and 83 (75%) were in men. In 2015, there were 13 notifications in Aboriginal men and one in an Aboriginal woman.

Figure 18: Sexual exposure of men diagnosed with infectious syphilis, Sydney and South Eastern Sydney LHDs, 1 January 2011- 30 June 2016

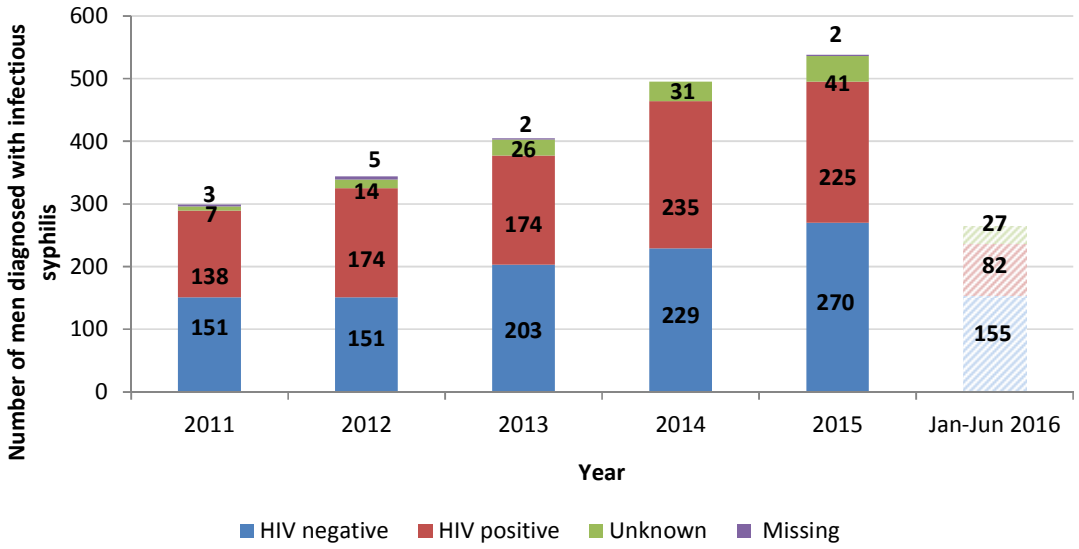


Data source: South Eastern Sydney and Sydney LHDs HREC enhanced surveillance research project for infectious syphilis.
Note: This data may not be representative of infectious syphilis cases across NSW.

Comment

The sexual exposure of men diagnosed with infectious syphilis is predominantly MSM and this trend has remained consistent over time (Figure 18). From January to June 2016, 81% of men who were diagnosed with infectious syphilis were reported to have had male-to-male sex exposure.

Figure 19: HIV status of men diagnosed with infectious syphilis, Sydney and South Eastern Sydney LHDs, 1 January 2011- 30 June 2016

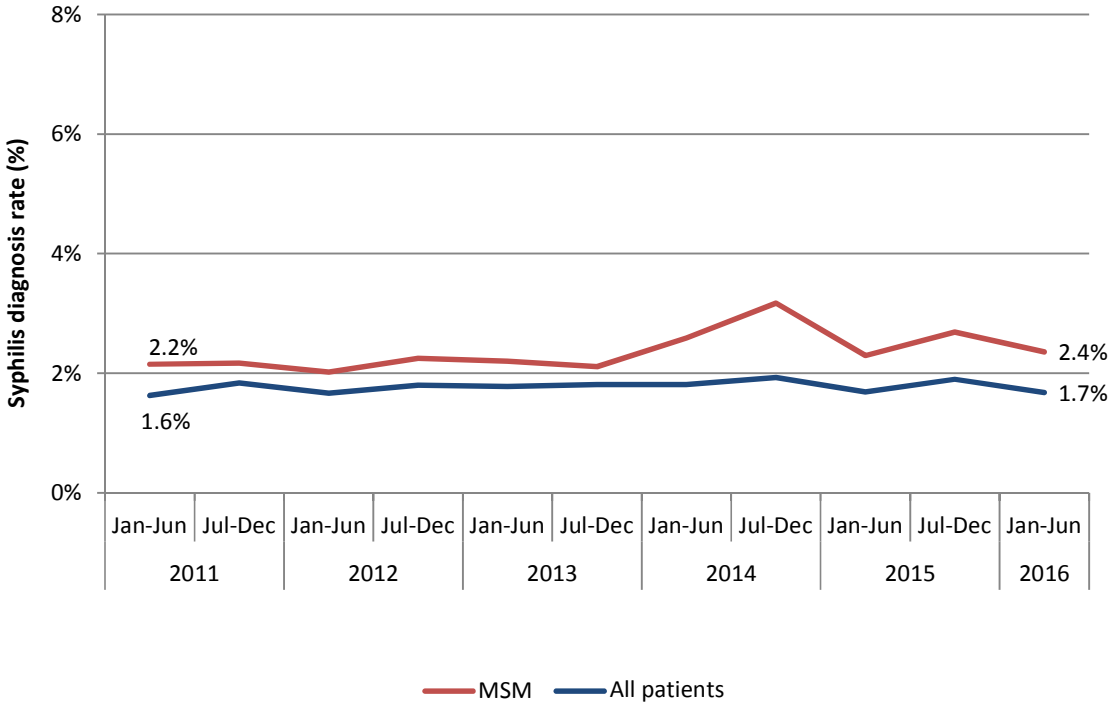


Data source: South Eastern Sydney and Sydney LHDs enhanced surveillance for infectious syphilis.

Comment

The proportion of men diagnosed with infectious syphilis in Sydney and South Eastern Sydney LHDs who were HIV negative was stable from 2011-2015, ranging from 44% to 50% (Figure 19). In the first half of 2016, the proportion of men diagnosed with infectious syphilis who were HIV negative increased by 8% to 59%, however there was also a small (3%) increase in the proportion of men diagnosed with syphilis where the HIV status was unknown. The HIV status of men notified with infectious syphilis in Sydney and South Eastern Sydney LHDs is obtained through a research project approved by a human research ethics committee.

Figure 20: Proportion of individual patients[8] attending PFSHSs and GP clinics[9] tested for syphilis with a diagnosis of infectious syphilis (*syphilis diagnosis rate*[10]) among men who have sex with men and all patients, 1 January 2011 to 30 June 2016[11]



Data source: ACCESS Database, The Kirby Institute and the Burnet Institute.
Note: MSM refers to men who have sex with men. The data for Aboriginal, female sex workers and young people are not displayed given the small numbers. See Table 5: Number of patients attending publicly funded sexual health services and GP clinics tested for syphilis with a diagnosis of infectious syphilis (syphilis diagnosis rate), by priority population, 1 January 2011 to 30 June 2016 for numerical data

Comment

The rate of infectious syphilis diagnoses was stable over time overall and among men who have sex with men.

2.2 Congenital syphilis notifications

There have been no congenital syphilis notifications in NSW since 2013.

[8] Patients only uniquely identified within a service.

[9] GP clinics included those serving at least 50 gay and bisexual male patients annually.

[10] Diagnosis rate in sexual health clinics calculated as the proportion of individuals tested in a retrospective year period (excluding repeat tests among individuals) with a recorded 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.

[11] See *Table 5: Number of patients attending publicly funded sexual health services and GP clinics tested for syphilis with a diagnosis of infectious syphilis (syphilis diagnosis rate), by priority population, 1 January 2011 to 30 June 2016* for numerical data.

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 guidelines over time.

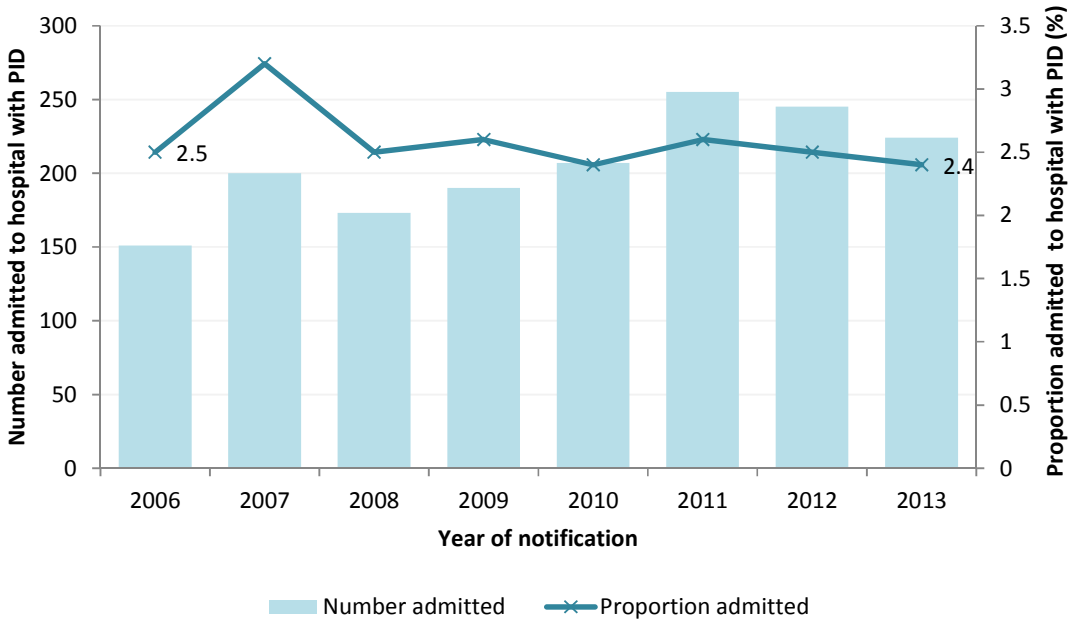
Prevention, testing and appropriate treatment and management are the cornerstones of chlamydia control and are embedded in the current STI strategy. Chlamydia notification data does not reflect the true incidence of chlamydia infection as it only represents a proportion of infections in the population, 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 (NAT) or antigen. Only confirmed cases of chlamydia are counted when reporting chlamydia notification data. Chlamydia infections are not routinely followed up by public health units so detailed information (e.g. sexual exposure) is difficult to ascertain.

It is important to note that there is some duplication of the number of tests undertaken where more than one method of testing is used or clinical specimens collected from more than one anatomical site. This may lead to an overestimation in the number of positive notifications or infections for *Chlamydia trachomatis*.

3.1 Chlamydia-associated hospitalisations for pelvic inflammatory disease

Figure 21: Number and proportion of women notified with chlamydia who are admitted with PID within 12 months



Data source: Communicable Diseases Register, NSW Health.
Note: Excludes re-notifications within 12 months.

Comment

The number of women notified with chlamydia who were admitted to hospital with PID within 12 months increased from 151 in 2006 to a peak of 255 in 2011, then declined to 224 in 2013.

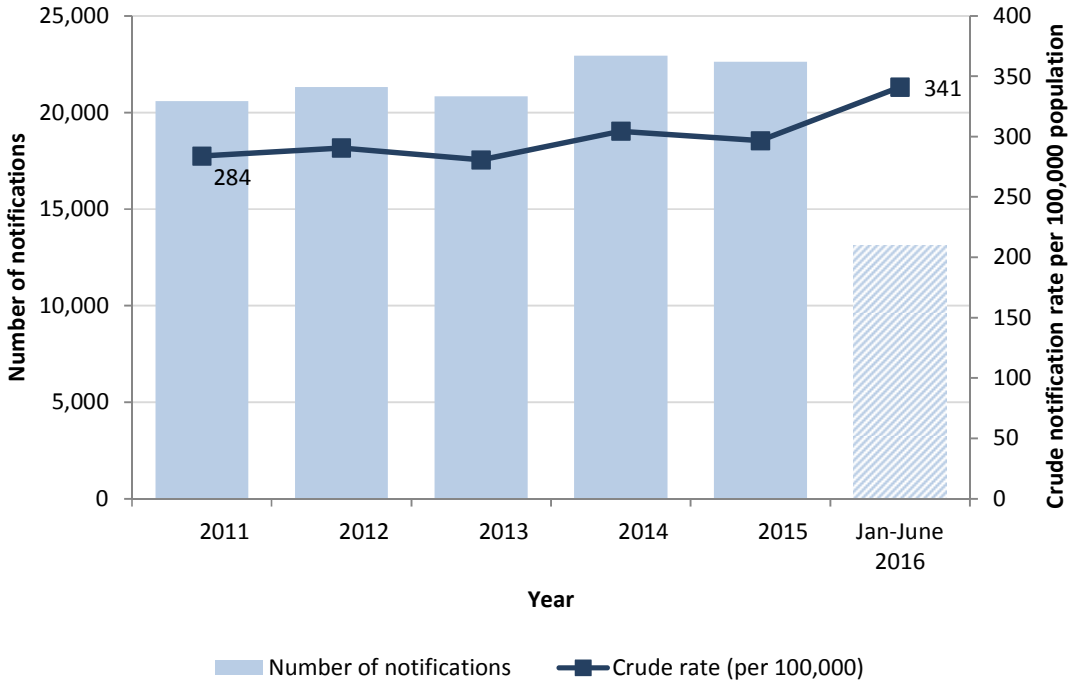
However, despite the changes in the number of women admitted, the proportion of all women notified with chlamydia who were admitted to hospital has remained fairly steady between 2008 and 2013 at around 2.5%.

The Communicable Diseases Register (CDR) has been established under the Public Health and Disease Registers provisions of the NSW *Public Health Act 2010*. It contains de-identified records from the NSW Notifiable Conditions Information Management System (NCIMS), linked to emergency department, hospitalisation and deaths data. Data are currently available to the end of 2013[12]. More details on the data sources contained within this report can be found in Table 3 in the Appendix.

[12] Work is currently underway to update the data contained in the Communicable Disease Register and this will be published in future reports.

3.2 Chlamydia notifications

Figure 22: Chlamydia notifications, NSW, January 2011 to June 2016

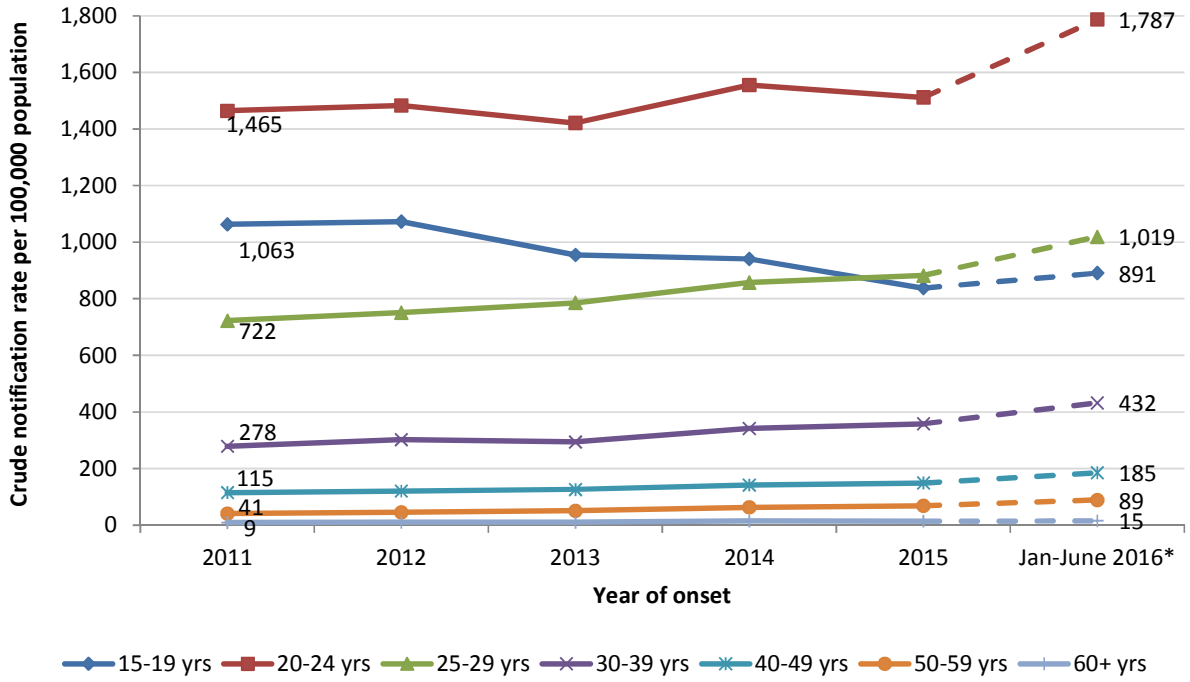


Data source: NCIMS and ABS (via SAPHaRI), NSW Health; data extracted 3 Nov 2016.
Notes: The 2016 rate is based on 6 months of data (from Jan-June 2016) adjusted to an annual rate and is subject to change once data between July-Dec 2016 becomes available.

Comment

From January to June 2016, there were 13,128 chlamydia notifications. During this period, the annualised chlamydia notification rate was 341 per 100,000, 15% higher than 2015 (297 per 100,000).

Figure 23: Age specific chlamydia notification rates, NSW, 1 January 2011- 30 June 2016

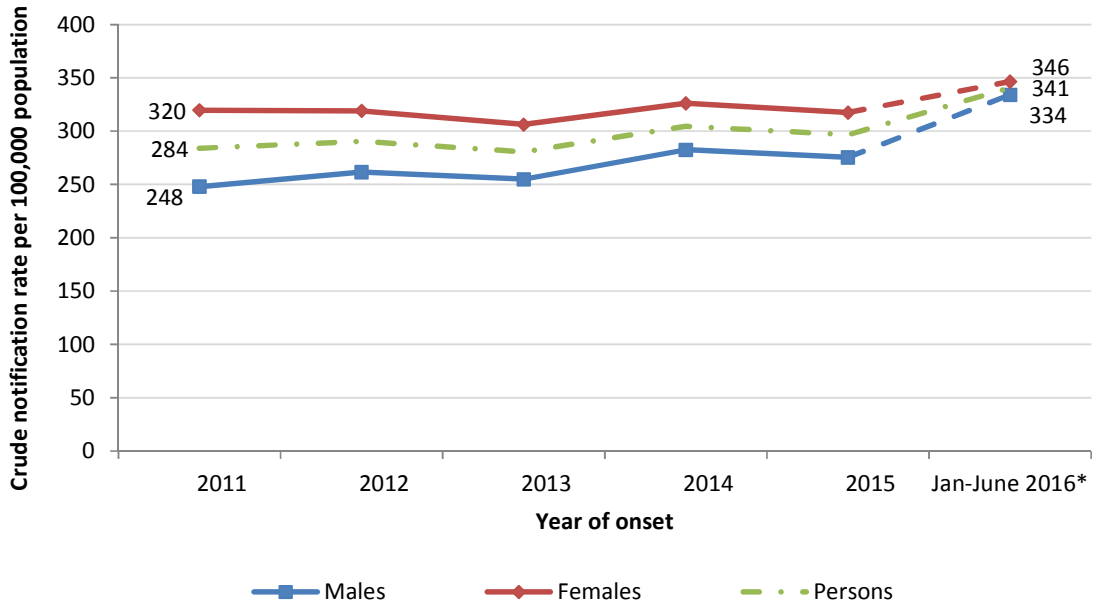


Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 24 Nov 2016.
Note: The rate is based on 6 months of data between Jan-June 2016 adjusted to an annual rate and is subject to change once data between July-Dec 2016 becomes available. Data are shown in age brackets that most clearly reflect the differences in epidemiological profiles between age groups.

Comment

The highest rates of chlamydia notifications continue to occur in the 20-24 years age group (Figure 23). The largest relative increase was observed in the 50-59 years age group. The annualised age-specific rate for the 50-59 years age group was 89 per 100,000 population, which represents a 32% increase compared to 2015. Chlamydia notification rates in the 15-19 years age group have declined since 2012, from 1,063 to 891 notifications per 100,000 population.

Figure 24: Gender specific chlamydia notification rate, NSW, 1 January 2011- 30 June 2016

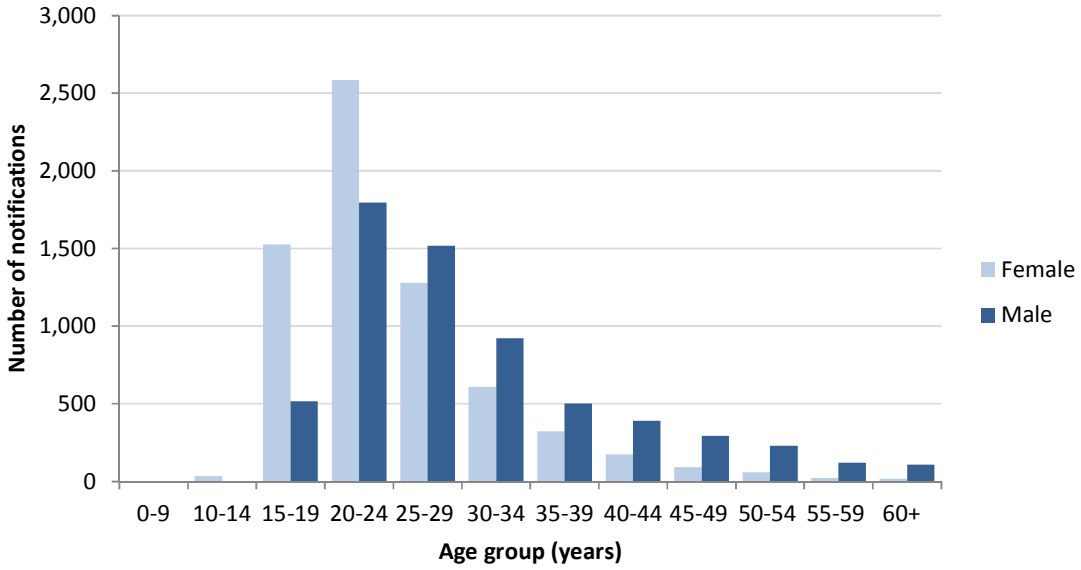


Data source: NCIMS (via SAPHaRI), NSW Health; data extracted 24 Nov 2016.
** The rate is based on 6 months of data between Jan-June 2016 adjusted to an annual rate and is subject to change once data between July-Dec 2016 becomes available*

Comment

From 2011 to January to June, 2016 there was an increase in the notification rate for chlamydia (from 284 to 341 per 100,000 population). A change in the chlamydia notification trend by gender was observed in 2016. In the first half of 2016, the annualised rates of chlamydia notification in both males and females were very similar (334 per 100,000 males and 346 per 100,000 females respectively; Figure 24) whereas in previous years the female chlamydia notification rate was consistently higher than males. This change in the chlamydia notification trend was due to a 21% increase in the rate in males in the first six months of 2016.

Figure 25: Chlamydia notifications by age and gender, NSW, 1 January to 30 June 2016

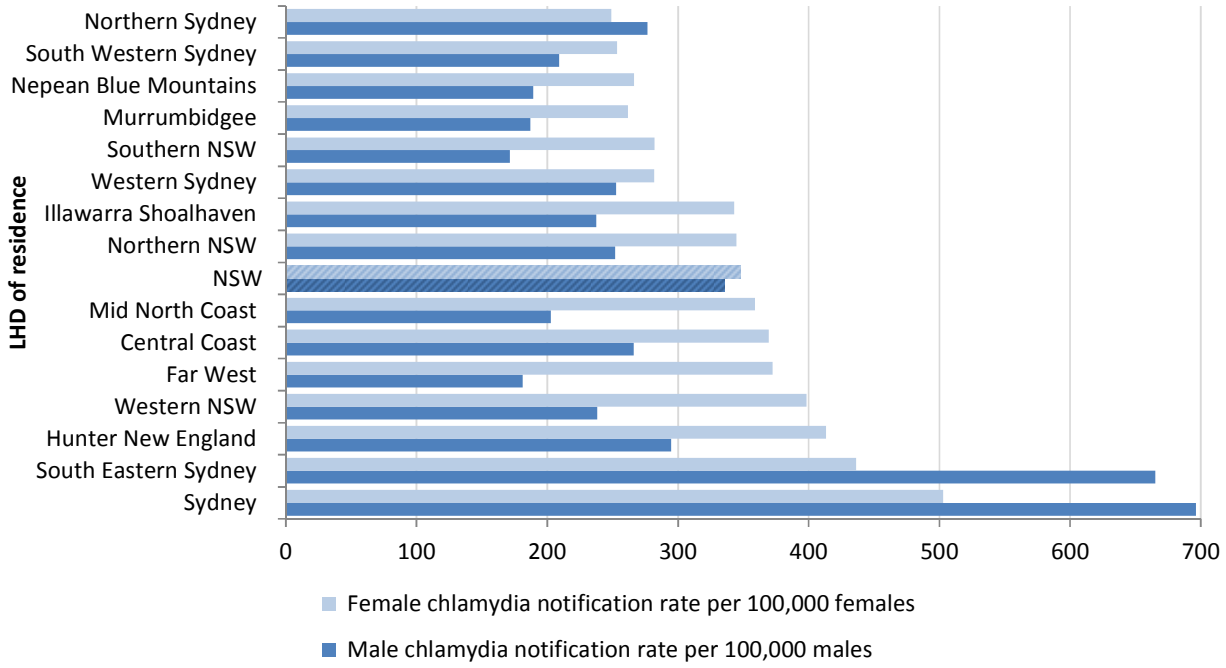


Data source: NCIMS, NSW Health; data extracted 3 Nov 2016.
Notes: Excludes persons reported as transgender (due to small numbers) and persons who age or sex was not reported.

Comment

Between January and June 2016, 51% of chlamydia notifications were in females and 49% were in males (Figure 25). The most commonly notified groups were females and males aged 20-24 years, females aged 15-19 years and males aged 25-29 years.

Figure 26: Chlamydia notification rate* by LHD and gender, NSW, 1 January to 30 June 2016



Data source: NCIMS and ABS population estimates (SAPHaRI), NSW Health; data extracted 6 Feb 2017
Note: Excludes non-NSW residents, persons whose place of residence in NSW was not known and notifications from Justice Health. For Justice Health notifications, see Table 12 in Appendix E: Notification data.
** The rate is based on 6 months of data between Jan-June 2016 adjusted to an annual rate and is subject to change once data between July-Dec 2016 becomes available*

Comment

In January to June 2016, the highest annualised chlamydia notification rates were in the Sydney, South Eastern Sydney and Hunter New England Local Health Districts for both males and females (Figure 26).

3.3 Chlamydia notifications among Aboriginal people

Figure 27: Chlamydia notifications by Aboriginality, NSW, 2006-2013

Data source: Communicable Diseases Register, NSW Health; data extracted 1 Nov 2016.

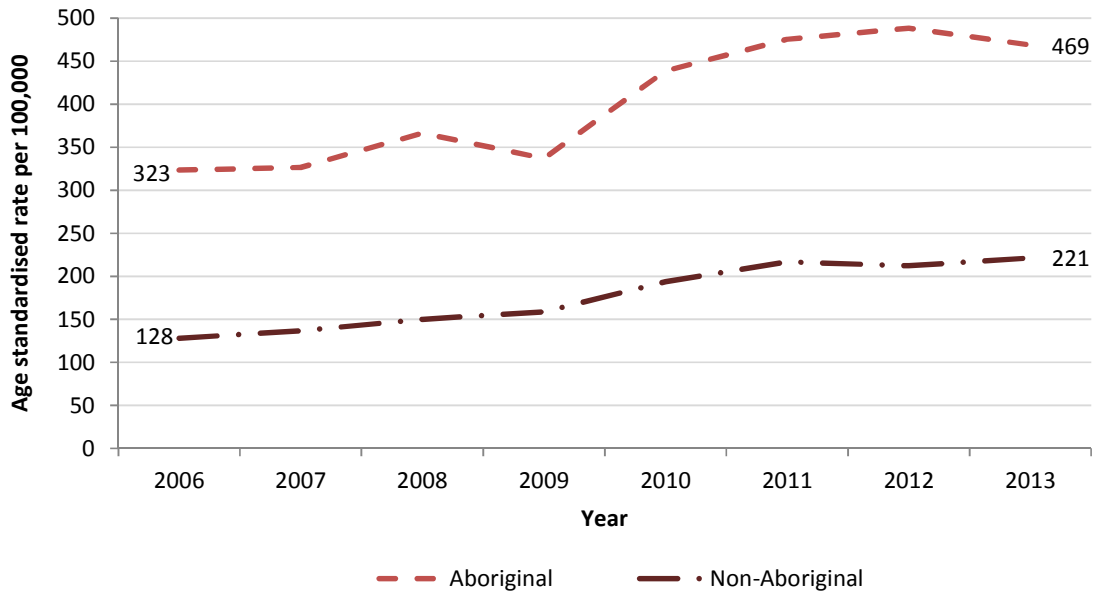
Comment

In 2013, 19,994 notifications for chlamydia were recorded in the Communicable Diseases Register (CDR). Of these, 1,341 (7%) were in Aboriginal people, 15,018 (75%) were in non-Aboriginal people and for 3,635 (18%) people, Aboriginality status was not stated.

The Communicable Diseases Register (CDR) has been established under the Public Health and Disease Registers provisions of the NSW *Public Health Act 2010*. It contains de-identified records from the NSW Notifiable Conditions Information Management System (NCIMS), linked to emergency department, hospitalisation and deaths data. Data are currently available to the end of 2013[13]. After data linkage, Aboriginality remained unknown for 20% of chlamydia records between 2006 and 2013. More details on the data sources contained within this report can be found in Table 3 in the Appendix.

[13] Work is currently underway to update the data contained in the Communicable Disease Register and this will be published in future reports.

Figure 28: Chlamydia notification rate by Aboriginality, NSW, 2006-2013



Data source: Communicable Diseases Register and ABS (via SAPHaRI, NSW Health); data extracted 1 Nov 2016.
Notes: Excludes records where Aboriginal status was not stated; rates standardised to the Australian Standard Population 2001.

Comment

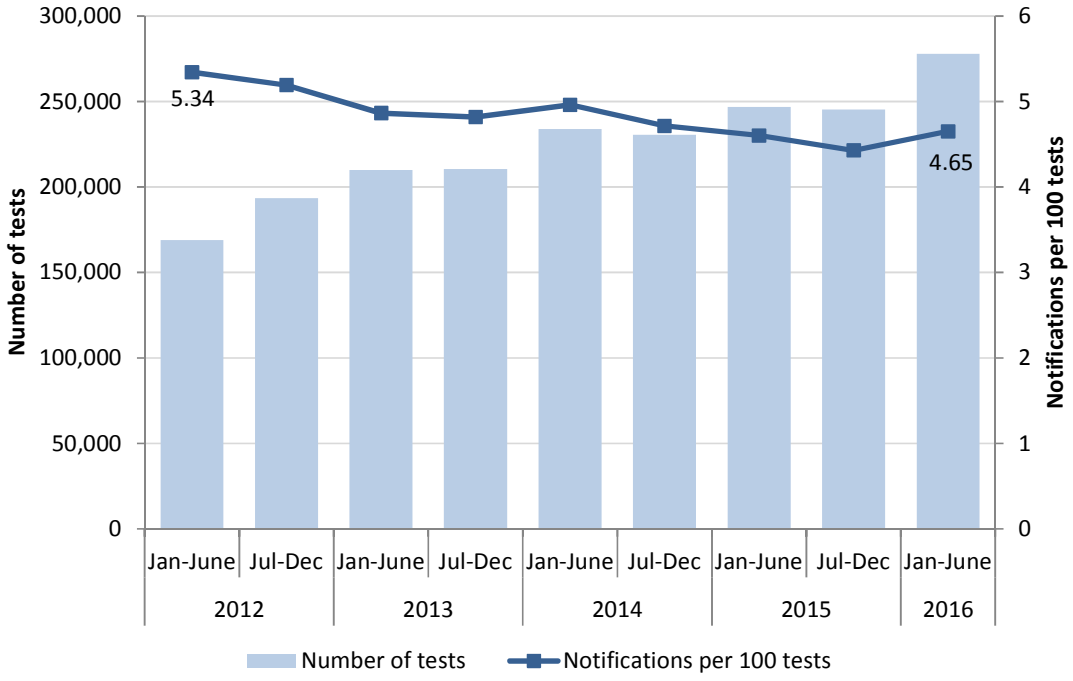
Notification rates of chlamydia between 2006 and 2013 have increased overall among both Aboriginal and non-Aboriginal populations.

In 2013, the chlamydia notification rate among Aboriginal people was 469 per 100,000, which is 2.1 times higher than the rate among non-Aboriginal people (221 per 100,000).

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 29: Number of chlamydia tests and notification to test ratio[14], NSW, January 2012 to June 2016



Data source: NCIMS and NSW Denominator Data Project, NSW Health.
Note: Testing multiple sites results in multiple tests being counted per person.

Comment

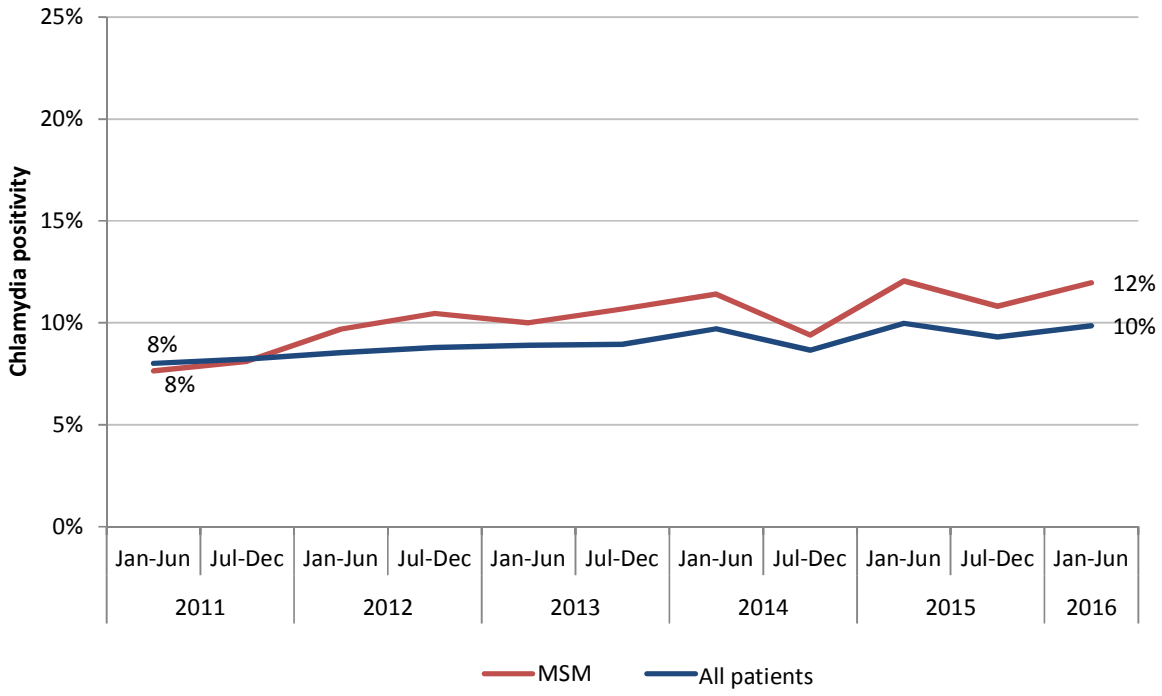
The number of chlamydia tests (NAT) performed in NSW is continuing to increase. Between January and June 2016, 277,747 tests for chlamydia were performed in 15 laboratories in NSW, an average of 46,291 tests per month. The monthly average number of tests for January to June 2016 is higher than the monthly average for full years of 2015 (41,001), 2014 (38,674), 2013 (35,032) and 2012 (30,189).

There were 4.65 chlamydia notifications per 100 chlamydia tests during the first half of 2016. This is a small increase compared to the notification to test ratio for the full year of 2015 (4.51).

[14] 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 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 percentage of people tested who were positive in NSW for the condition.

3.5 Chlamydia testing among men who have sex with men

Figure 30: Proportion of individual patients[15] attending PFSHSs and GP clinics[16] tested for chlamydia with a positive result (*chlamydia positivity*[17]) among men who have sex with men and all patients, 1 January 2011 to 30 June 2016[18]



Data source: ACCESS Database, The Kirby Institute and the Burnet Institute.
Note: MSM refers to men who have sex with men. The data for Aboriginal, female sex workers and young people are not displayed given the small numbers. See Table 6: Number of individual patients attending publicly funded sexual health services and GP clinics tested for chlamydia with a positive result (*chlamydia positivity)*, by priority population, 1 January 2011 to 30 June 2016 in the Appendix for numerical data.

Comment

Overall, chlamydia positivity increased 2% from early 2011 to early 2016, which included a 4% increase among men who have sex with men.

[15] Patients only uniquely identified within a service.

[16] Medium to high caseload GP clinics included those serving at least 50 men who have sex with men annually.

[17] Chlamydia positivity calculated as the proportion of individuals tested in a retrospective year period (discounting repeat tests among individuals) with positive pathology or recorded diagnosis at any anatomical site.

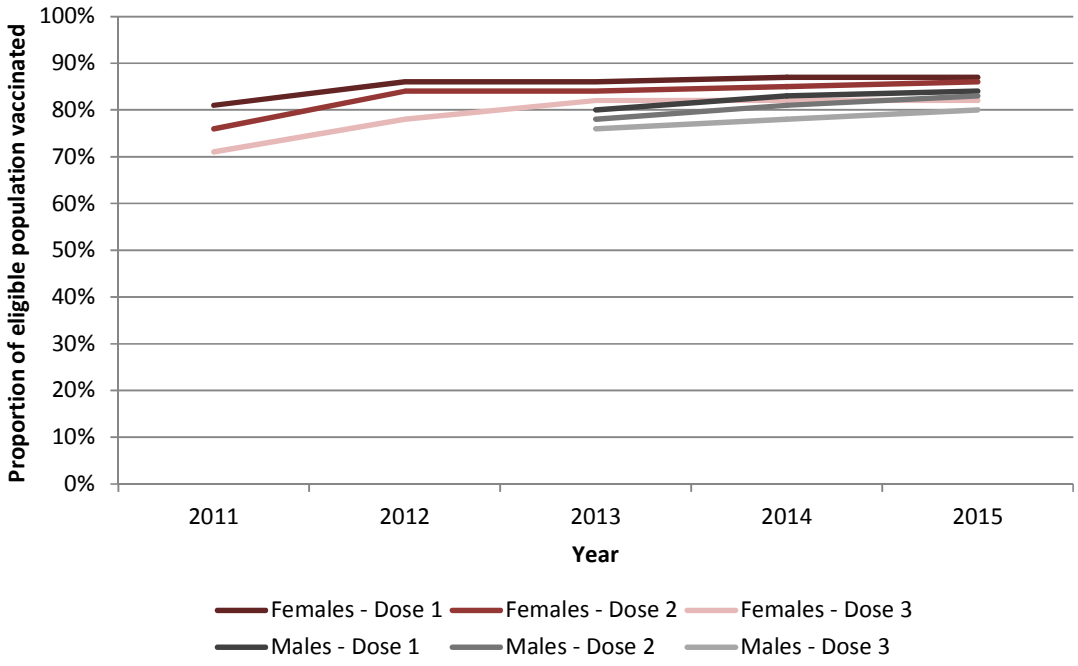
[18] See Table 6: Number of individual patients attending publicly funded sexual health services and GP clinics tested for chlamydia with a positive result (chlamydia positivity), by priority population, 1 January 2011 to 30 June 2016 in the Appendix for numerical data.

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

Infection with human papilloma virus (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.

The HPV vaccine is given as three injections over a period of six months by qualified immunisation providers. Since 2011, the HPV vaccine protects against four HPV types.

Figure 31: Year 7 HPV vaccination by dose and gender, 2011 to 2015[19]



Data source: NSW high schools, Local Health Districts and Health Protection NSW. Centre for Epidemiology and Evidence, NSW Ministry of Health.

[19] 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 and Local Health Districts 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 in 2012, 2013, 2014 and 2015 includes catch-up vaccination for dose 2 and 3 in Year 8 in 2013 (to the end of term 2), 2014 and 2015 (to the end of term 4), and 2016 (to the end of term 3) respectively.

2013 data for HPV vaccination for South Eastern Sydney LHD are approximate only.

Full data of the HPV vaccination rate by gender and LHD are available in *Appendix F: Data table for the HPV vaccination rate by LHD*.

Comment

In 2015 the vaccination rate for the full three-dose course of the drug was 82% for female and 80% for male Year 7 students.

For all three doses the proportion of the eligible population receiving the vaccination is higher for females than for males.

Across all LHDs in NSW, the same trend towards increasing vaccination coverage was observed (complete data is available in Table 13 in Appendix E: Notification data).

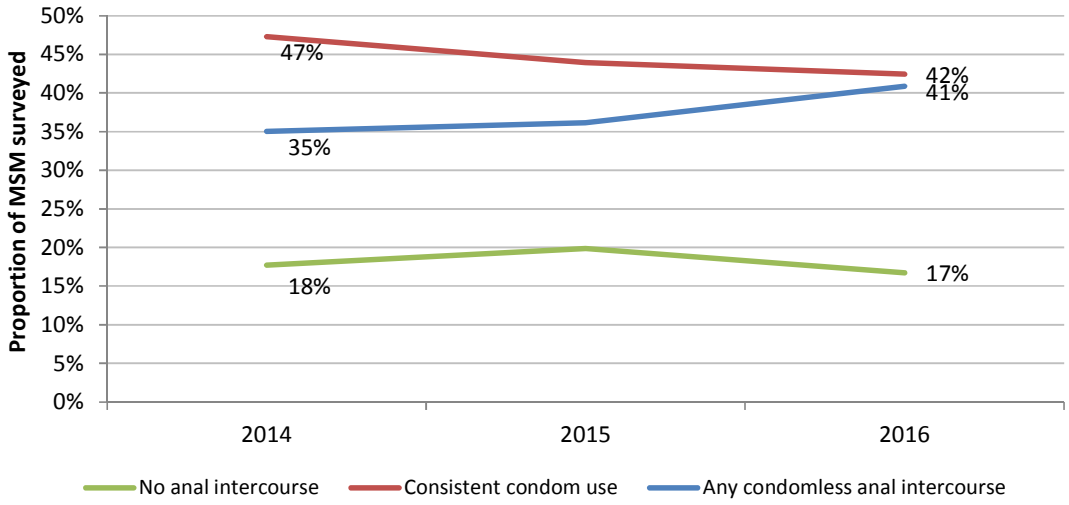
5 Maintain levels of condom use for preventing the transmission of STIs

5.1 Condom use among men who have sex with men

Condom use and other HIV/STI risk reduction strategies used by men who have sex with men are measured through the annual Sydney Gay Community Periodic Survey, conducted each year during February. More details on the data sources contained within this report can be found in Table 3 in the Appendix.

Of the men surveyed, a subpopulation of those who had casual partners was selected. Condom use among this group of men is presented below in Figure 32.

Figure 32: Proportion of MSM with casual partners reporting consistent condom use and any condomless anal intercourse in the previous six months



Data source: Sydney Gay Periodic Survey 2014-2016, Centre for Social Research in Health.

Comment

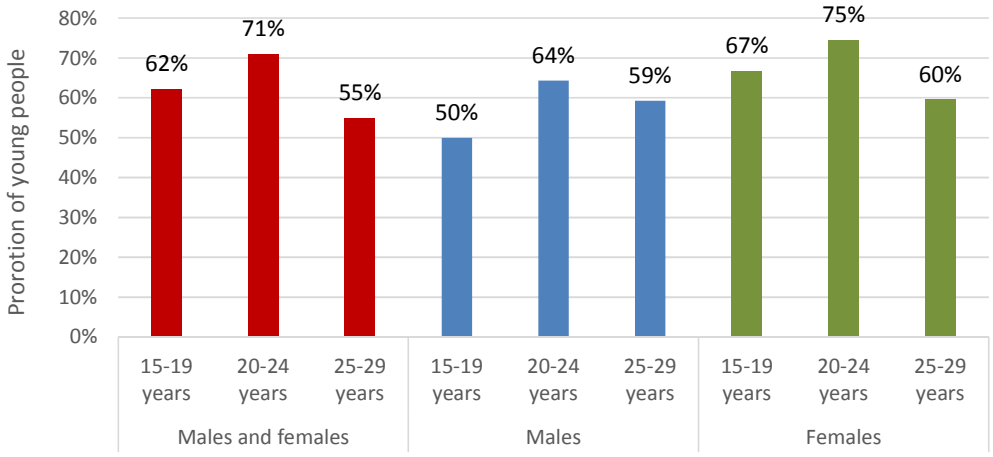
The proportion of MSM with casual partners reporting consistent condom use has been progressively declining from 47% in 2014 to 42% in 2016. Across the same period the proportion reporting any condomless anal intercourse has increased from 35% in 2014 to 41% in 2016.

5.2 Condom use among young people

In 2015, the Centre for Social Research in Health initiated an online periodic survey on sexual health among young people living in NSW. The survey was entitled 'It's Your Love Life'[20] and the first round of data collection was conducted between December 2015 and March 2016. Overall, 2,120 heterosexually-identified participants aged 15-29 years and living in NSW were recruited.

Two third of participants (66%) were sexually active in the past 12 months. Of these sexually active participants, 94% had regular partners and 26.3% had casual partners in the past 12 months. Three quarters (75%) of the participants who had regular partners in the past 12 months had vaginal or anal intercourse without condoms with these partners in that period. Of the participants who had casual partners in the past 12 months, 63% had vaginal or anal intercourse without condoms with these partners in that period. Age- and gender-related differences in the proportion of young people who engaged in sexual intercourse without condoms with their casual partners are presented in Figure 33.

Figure 33: Proportion of sexually active heterosexual young people who had vaginal or anal intercourse without condoms with their casual partners in the past 12 months, among participants with casual partners in the past 12 months



Data source: It's Your Love Life: A new periodic survey on sexual health among young people in NSW., Centre for Social Research in Health.

[20] Adam, P., Schippers, M., Schmidt, H., Modderman, K., Welsby, D., Slattery, C., Murray, C., Estoesta, J., Hearnshaw, G., Murphy, D., Britton, M., Jenkins, L., Dixon, K., Becket, N. & de Wit, J. (2016). It's Your Love Life: A new periodic survey on sexual health among young people in NSW. Sydney: Centre for Social Research in Health, UNSW Australia.

Comment

Of the participants who reported having one or more casual partners in the past 12 months, 63% had some vaginal or anal intercourse without condoms with their casual partners (43% used condoms sometimes and 20% never used condoms). 34.5% always used condoms during vaginal or anal intercourse.

Sexual intercourse without condoms is higher among heterosexual females compared to heterosexual males. The highest rate of condomless sex is found among young people aged 20-24 in both genders.

None of the age- and gender- related differences in reported vaginal or anal intercourse without condoms with casual partners presented in Figure 33 were statistically significant[21].

[21] This may reflect low numbers of young people who reported (unprotected) sexual intercourse with casual partners, or be due to low numbers of participants in these analyses.

6 Increase comprehensive STI testing in priority populations in accordance with risk

6.1 Comprehensive STI testing in priority populations

Integrating comprehensive STI screening[22] into routine care within general practice and primary care is a key activity within the Strategy. It ensures timely diagnoses and treatment of STIs among priority populations.

Figure 34: Proportion of individual patients[23] attending medium to high caseload GP (MHCL GP) clinics[24] tested for chlamydia, gonorrhoea[25] and syphilis, by priority population[26], 1 January 2011 to 30 June 2016[27]

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

Note: MSM refers to men who have sex with men; PFSHS refers to publicly funded sexual health services; GP refers to general practice. See Table 7: Number of individual patients attending publicly funded sexual health services and GP clinics tested for chlamydia, gonorrhoea and syphilis, by priority population, 1 January 2011 to 30 June 2016 in the Appendix for numerical data.

[22] Comprehensive ST testing is defined in this context as testing for chlamydia trachomatis, Neisseria gonorrhoea and syphilis (see Appendix C: Case definitions for gonorrhoea, infectious syphilis – less than two years duration, syphilis – more than 2 years or unknown duration and chlamydia for full details) at any anatomical site.

[23] Patients only uniquely identified within a service.

[24] Medium to high caseload GP clinics included those serving at least 50 gay and bisexual male patients annually.

[25] Testing for chlamydia and gonorrhoea included testing at any anatomical site.

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

[27] See *Table 7: Number of individual patients attending publicly funded sexual health services and GP clinics tested for chlamydia, gonorrhoea and syphilis, by priority population, 1 January 2011* to 30 June 2016 in the Appendix for numerical data.

Comment

The proportion of patients who received a full screen for bacterial STIs was high overall and stable among MSM and female sex workers attending sexual health clinics. Among young heterosexual people attending sexual health clinics testing uptake increased over time, which was also the case for men who have sex with men attending general practice clinics. While STI testing uptake was lower in general practice than in sexual health clinics this difference likely reflects the diverse reasons that people visit their GP.

6.2 Comprehensive STI testing among young people

Of the 2,120 heterosexual young people aged 15-29 years and living in NSW who responded to the 2016 'It's Your Love Life' periodic survey[28;29] most (71%) reported to have had oral, vaginal or anal sex. Of these participants, 43% had tested for STIs and/or HIV; a quarter (24%) had tested in the past 12 months. Age- and gender-related differences in the percentage of these young people who ever tested for STIs and/or HIV and who tested in the past 12 months are presented in Figure 35. [30]

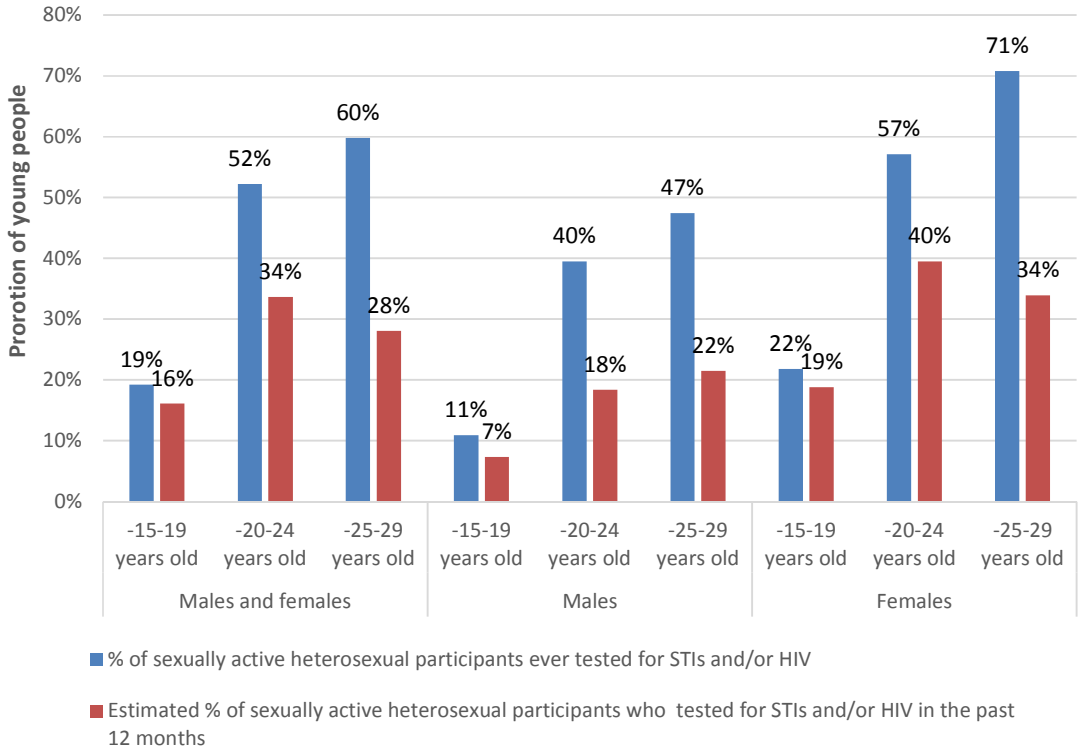
Regarding the comprehensiveness of testing, over half (59%) of participants who reported ever having had a sexual health check-up were last tested for both STIs and HIV, 26% were tested for STIs only, 2% were tested for HIV only, and 13% were unsure or did not know.

[28] See 5.2 for more details on the methodology of this survey.

[29] Adam, P., Schippers, M., Schmidt, H., Modderman, K., Welsby, D., Slattery, C., Murray, C., Estoesta, J., Hearnshaw, G., Murphy, D., Britton, M., Jenkins, L., Dixon, K., Becket, N. & de Wit, J. (2016). It's Your Love Life: a new periodic survey on sexual health among young people in NSW. Sydney: Centre for Social Research in Health, UNSW Australia.

[30] More details on the data sources contained within this report can be found in Table 3 in the Appendix.

Figure 35: The proportion of sexually active heterosexual people aged 15-29 who ever tested for STIs and/or HIV, and who tested in the past 12 months.



Data source: It's Your Love Life 2016 periodic survey on sexual health among young people aged 15-29 years in New South Wales, Centre for Social Research in Health.

Comment

Testing for STIs and/or HIV was found to be lower in people aged 15 to 19 years of age, especially among young males. Rates of testing increased across age groups and were higher among the 25-29 years old group. Across age groups, and in each specific age group, rates of testing for STIs and/or HIV were higher among young females than young males.

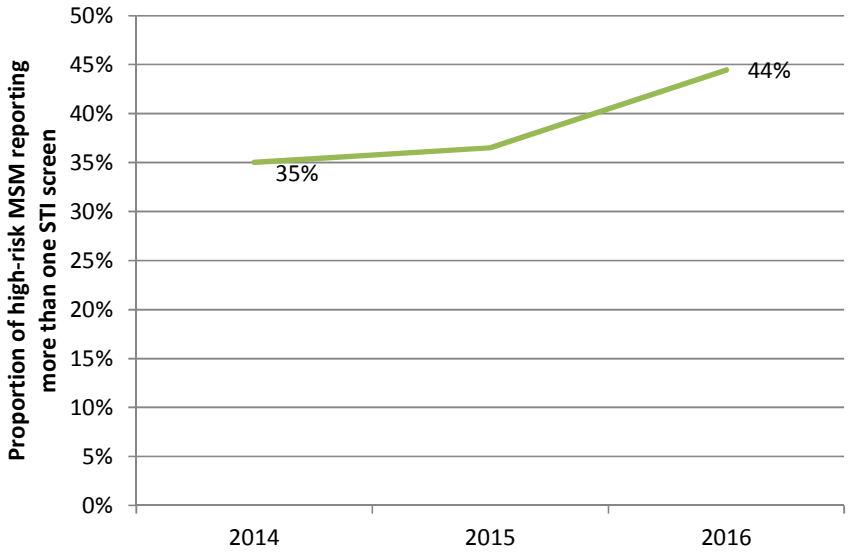
6.3 Comprehensive STI testing among high risk MSM

According to the *Australian STI Management Guidelines for Primary Care*[31], high-risk men who have sex with men should be screened for STIs four times a year. The Sydney Gay Periodic Survey examines the frequency of STI testing among MSM, including high risk MSM. High-risk MSM are defined as those who:

- have any unprotected anal sex;
- have more than 10 sexual partners in six months;
- participate in group sex;
- use recreational drugs during sex.

The proportion of high risk MSM reporting comprehensive STI testing more than once in the previous 12 months is presented below in Figure 36.

Figure 36: Proportion of high risk MSM reporting comprehensive STI testing more than once in the previous 12 months



Data source: Sydney Gay Periodic Survey 2014-2016, Centre for Social Research in Health.

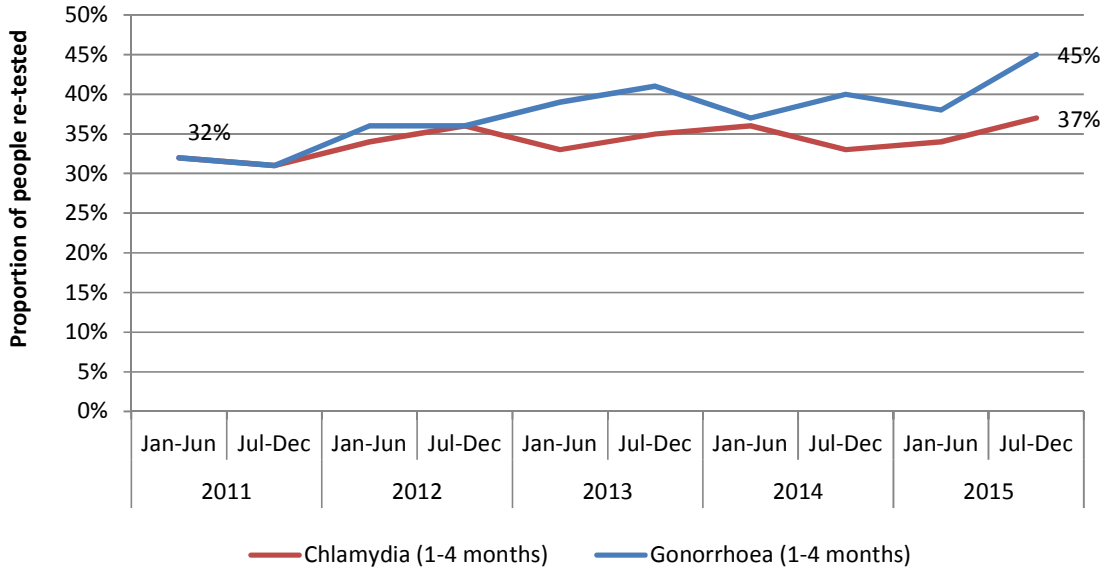
[31] http://stipu.nsw.gov.au/wp-content/uploads/STIGMA_Testing_Guidelines_Final_v5.pdf

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

7.1 Re-testing for chlamydia and gonorrhoea

Re-testing for repeat chlamydial and gonorrhoea infections is recommended to detect reinfection of chlamydia and gonorrhoea[32].

Figure 37: Proportion of patients attending publicly funded sexual health services and GP clinics[33] diagnosed with a STI and re-tested within the recommended timeframe, by infection, 1 January 2011 to 31 December 2015[34;35]



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

See Table 8: Number of patients attending publicly funded sexual health services and GP clinics diagnosed with a STI and re-tested within the recommended timeframe, by infection, 1 January 2011 to 31 December 2015 in the Appendix for numerical data.

Comment

Between 2011 and 2015 the rates of re-testing following a chlamydia or gonorrhoea diagnosis increased, and was higher for gonorrhoea than chlamydia. Despite this increase, the rate of testing for both infections remained below 50%. It is important to note that these data will only identify an individual as having re-tested when they re-present at the same clinic, and therefore the numbers shown here may underrepresent actual re-testing rates.

[32] http://stipu.nsw.gov.au/wp-content/uploads/STIGMA_Testing_Guidelines_Final_v5.pdf

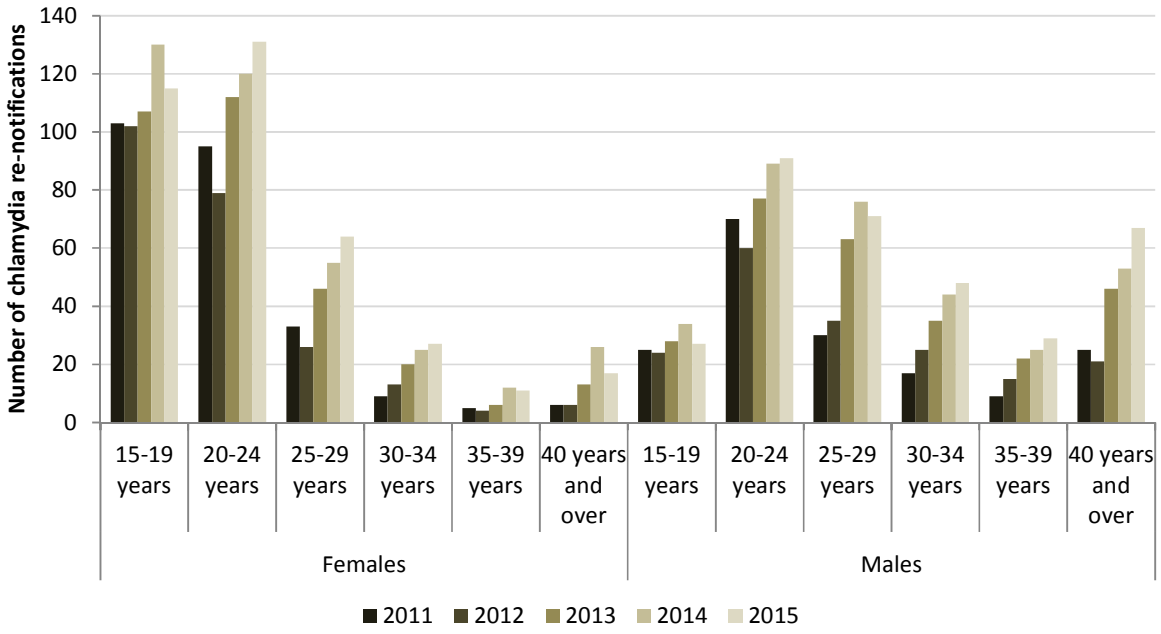
[33] Medium to high caseload GP clinics included those serving at least 50 gay and bisexual male patients annually.

[34] Because of the re-testing timeframe, data from the first half of 2016 have been excluded.

[35] See *Table 8: Number of patients attending publicly funded sexual health services and GP clinics diagnosed with a STI and re-tested within the recommended timeframe, by infection, 1 January 2011* to 31 December 2015 in in the Appendix for numerical data.

7.2 Re-notifications of chlamydia

Figure 38: Number of chlamydia re-notifications at 1 to 4 months after initial notification, persons aged 15 years and over, by gender and year of first notification, NSW, 2011-2015.



Data source: NCIMS, NSW Health; data extracted 27 October 2016.

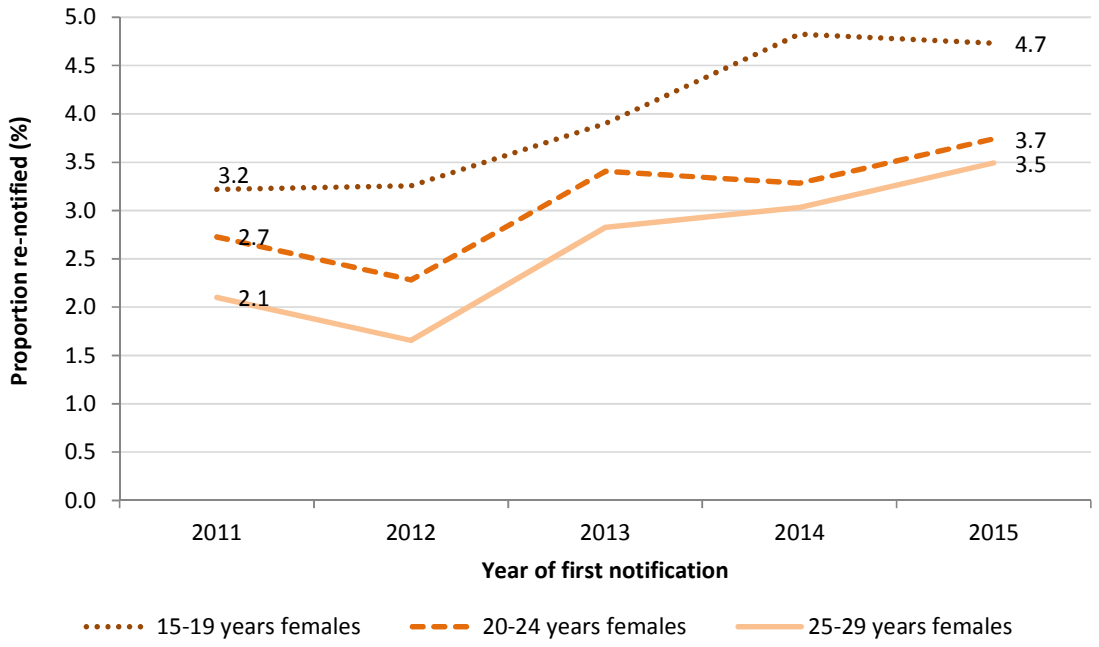
Comment

Increasing numbers of people who are initially diagnosed (and notified) with chlamydia are being re-notified between one and four months after their first diagnosis.

In 2015, 698 people (365 women and 333 men) aged 15 years and over were re-notified, 63% higher than the number re-notified in 2011 (427; 251 women and 176 men).

Re-notification is influenced by initial screening practices, clinical treatment and management (such as partner notification), and re-testing.

Figure 39: Proportion of initial chlamydia notifications in females that are re-notified within 1 to 4 months of the initial notification, selected age groups, by year of first notification, NSW, 2011-2015

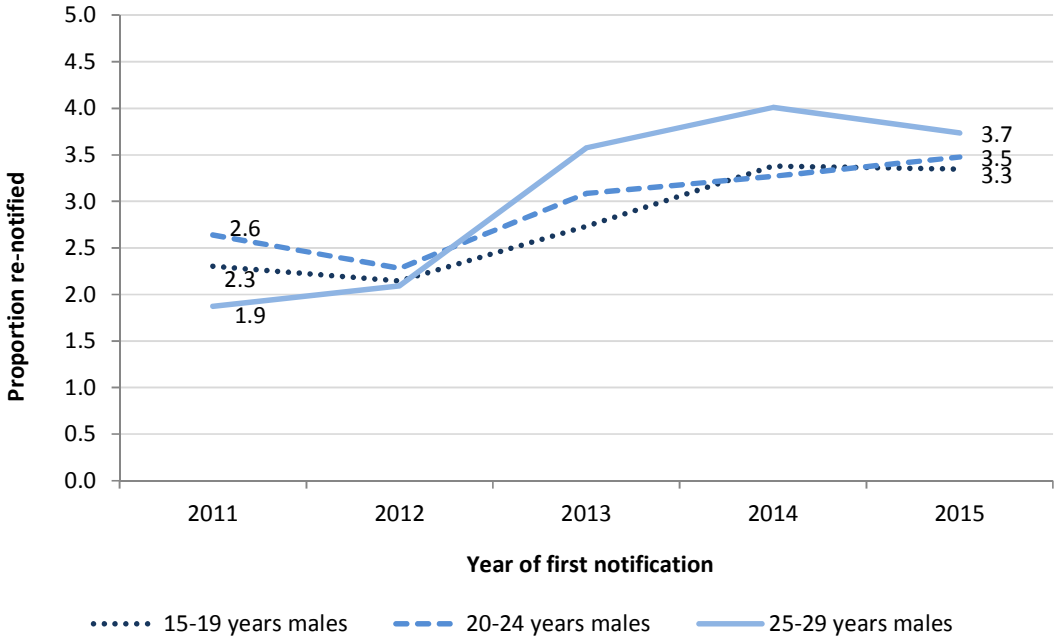


Data source: NCIMS, NSW Health; data extracted 27 October 2016.

Comment

Among females aged 15-19 years who were first notified with chlamydia in 2015, 4.7% were re-notified after one to four months, a higher proportion than among 20-24 year old females (3.7%) and 25-29 year old females (3.5%).

Figure 40: Proportion of chlamydia notifications in males that are re-notified within 1 to 4 months of the initial notification, selected age groups, by year of first notification, NSW, 2011-2015



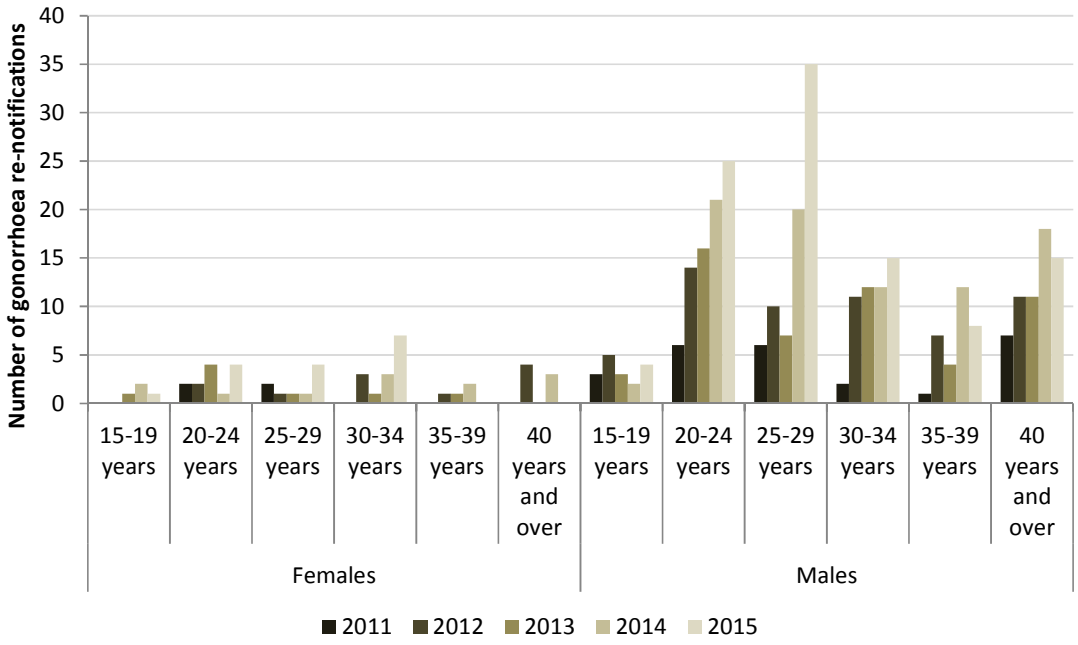
Data source: NCIMS, NSW Health; data extracted 27 October 2016.

Comment

Among males aged 25-29 years who were first notified with chlamydia in 2015, 3.7% were re-notified after one to four months, a higher proportion than among 20-24 year old males (3.5%) and 15-19 year old males (3.3%).

7.3 Re-notifications of gonorrhoea

Figure 41: Number of gonorrhoea re-notifications at 1 to 4 months after initial notification, persons aged 15 years and over, by gender and year of first notification, NSW, 2011-2015



Data source: NCIMS, NSW Health; data extracted 15 December 2016.

Comment

Increasing numbers of people who are initially diagnosed (and notified) with gonorrhoea are being re-notified between one and four months after their first diagnosis.

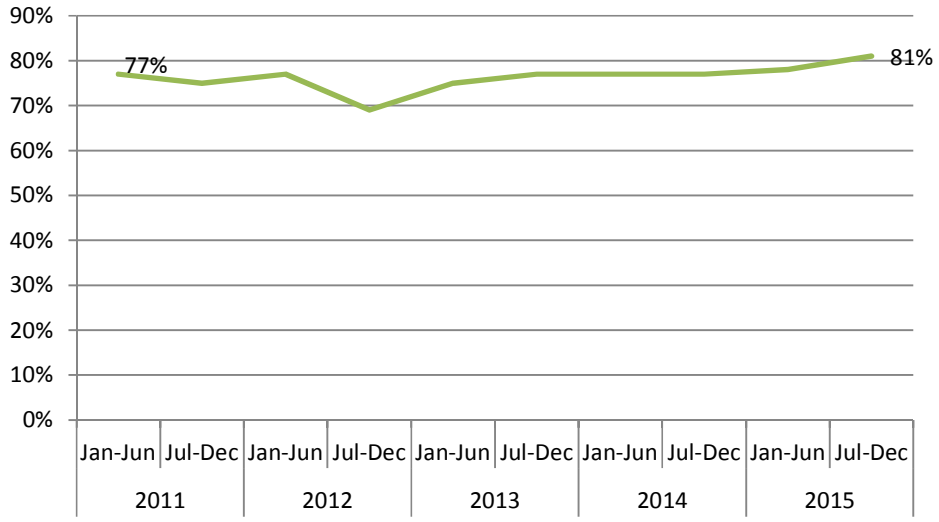
In 2015, 118 people (16 women and 102 men) aged 15 years and over were re-notified, 307% higher than the number re-notified in 2011 (29; 4 women and 25 men). Males were more likely to be re-notified than females (102 males vs 16 females), a reflection of gender differences in initial notifications.

Re-notification is influenced by initial screening practices, clinical treatment and management (such as partner notification), and re-testing.

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

8.1 Re-testing for infectious syphilis

Figure 42: Proportion of people diagnosed with infectious syphilis who are re-tested within 6 month of diagnosis



Comment

The rate of testing for infectious syphilis has increased from 77% in early 2011 to 81% in July to December, 2015.

8.2 Re-notifications for infectious syphilis

In 2015, three men aged between 15 and 49 years were re-notified with syphilis within three and seven months after initial notification.

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

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

Data for this indicator will be included in later reports.

Appendix A: Indicators for monitoring and reporting

Table 2. 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 3: Details on data sources included in this report

Name	Custodian	Description
NSW Health denominator data project	Health Protection NSW, NSW Health	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.
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.
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.
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. Data are currently available to the end of 2013[36].
NSW Notifiable Conditions Information Management System (NCIMS)	Health Protection NSW, NSW Health	The NSW Notifiable Conditions Information Management System (NCIMS) contains records of all people notified to NSW Health with a notifiable condition under the NSW *Public Health Act*. 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

[36] Work is currently underway to update the data contained in the Communicable Disease Register and this will be published in future reports.

Name	Custodian	Description
		trends over time. 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: Chlamydia - 29 days Gonorrhoea- 29 days Infectious syphilis- 89 days Multiple sites: A person who is notified with more than one site of infection simultaneously is counted as one notification.

Appendix C: Case definitions for gonorrhoea, infectious syphilis – less than two years duration, syphilis – more than 2 years or unknown duration and chlamydia

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: Data tables for data obtained from the ACCESS database

Table 4: Number of individual patients[37] attending publicly funded sexual health services and GP clinics[38] tested for gonorrhoea with a positive result by priority population[39], 1 January 2011 to 30 June 2016

Individuals diagnosed	2011		2012		2013		2014		2015		2016
	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun
Overall	***400***	***464***	***621***	***714***	***774***	***865***	***1,030***	***1,016***	***1,181***	***1,248***	***1,316***
MSM	237	256	389	475	526	595	725	732	890	982	961
Young people (non-Aboriginal)	89	101	100	121	135	141	157	142	143	127	163
Young people (Aboriginal)	<5	<5	<5	6	<5	7	6	10	19	<5	<5
Aboriginal people (30 years and older)	--	<5	<5	--	<5	<5	5	5	6	<5	5
Female sex workers	25	34	40	40	49	62	57	63	56	45	69

Table 5: Number of patients[40] attending publicly funded sexual health services and GP clinics[41] tested for syphilis with a diagnosis of infectious syphilis (*syphilis diagnosis rate*[42]), by priority population[43], 1 January 2011 to 30 June 2016

Individuals diagnosed	2011		2012		2013		2014		2015		2016
	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun
Overall	***160***	***177***	***171***	***190***	***217***	***231***	***261***	***275***	***256***	***279***	***267***
MSM	92	92	96	117	137	139	189	231	178	202	193
Young people (non-Aboriginal)	18	22	21	13	16	15	15	9	14	15	20
Young people (Aboriginal)	<5	<5	<5	<5	8	12	5	<5	6	<5	<5
Aboriginal people (30 years and older)	--	--	--	<5	--	--	--	--	--	--	--
Female sex workers	5	7	5	6	<5	6	<5	5	<5	<5	<5

Note: The Aboriginal and young people's disaggregations only include a small number of individuals, and therefore trends should be interpreted with caution.

[37] Patients only uniquely identified within a service.

[38] Medium and high caseload GP clinics included those serving at least 50 gay and bisexual male patients annually.

[39] While priority populations are not mutually exclusive those other than MSM exclude gay or bisexual-identified patients.

[40] Patients only uniquely identified within a service.

[41] Medium to high caseload GP clinics included those serving at least 50 gay and bisexual male patients annually.

[42] Diagnosis rate in sexual health clinics calculated as the proportion of individuals tested in a retrospective year period (excluding repeat tests among individuals) with a recorded 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.

[43] While priority populations are not mutually exclusive those other than MSM exclude gay or bisexual-identified patients.

Table 6: Number of individual patients[44] attending publicly funded sexual health services and GP clinics[45] tested for chlamydia with a positive result (*chlamydia positivity*[46][47]), by priority population[48], 1 January 2011 to 30 June 2016

Individuals diagnosed	2011		2012		2013		2014		2015		2016
	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun
Overall	***610***	***603***	***681***	***660***	***751***	***822***	***930***	***806***	***953***	***896***	***1,049***
MSM	147	160	216	247	305	361	406	343	436	421	496
Young people (non-Aboriginal)	329	304	307	274	281	286	341	292	330	302	323
Female sex workers	38	27	36	22	26	35	32	50	48	41	54
Young people (Aboriginal)	14	26	25	24	34	30	24	23	31	14	10
Aboriginal people (30 yrs and older)	7	6	5	5	8	8	6	7	8	<5	<5

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

Note: The Aboriginal, female sex worker's and young people's disaggregations only include a small number of individuals, and therefore trends should be interpreted with caution.

Table 7: Number of individual patients[49] attending publicly funded sexual health services and GP clinics tested for chlamydia, gonorrhoea[50] and syphilis, by priority population[51], 1 January 2011 to 30 June 2016

Individuals tested	2011		2012		2013		2014		2015		2016
	Jan-Jun	Jul - Dec	Jan-Jun	Jul - Dec	Jan-Jun	Jul - Dec	Jan-Jun	Jul - Dec	Jan-Jun	Jul - Dec	Jan-Jun
MSM (PFSHS)	2,775	2,835	3,221	3,414	3,898	4,057	4,578	4,672	5,009	4,801	5,111
MSM (GP)	1,254	1,232	1,332	1,917	2,302	2,590	2,753	2,843	2,921	2,956	3,291
Young people, non-Aboriginal (PFSHS)	2,761	2,720	2,684	2,552	2,802	2,786	3,298	3,233	3,421	3,306	3,423
Young people, non-Aboriginal (GP)	213	245	285	344	396	470	457	536	554	609	594
Female sex workers	1,177	1,097	1,106	1,051	1,067	1,129	1,149	1,265	1,264	1,361	1,301

[44] Patients only uniquely identified within a service.

[45] Medium to high caseload GP clinics included those serving at least 50 gay and bisexual male patients annually.

[46] Chlamydia positivity calculated as the proportion of individuals tested in a retrospective year period (discounting repeat tests among individuals) with positive pathology or recorded diagnosis at any anatomical site.

[47] Positivity rate is the number of individuals with a positive test result divided by the number of individuals tested. The positivity rate removes duplicate testing among the same individual, which might occur in the context of confirmatory testing and can over-represent the number of individuals tested.

[48] While priority populations are not mutually exclusive those other than gay and bisexual men exclude gay or bisexual-identified patients.

[49] Patients only uniquely identified within a service.

[50] Testing for chlamydia and gonorrhoea included testing at any anatomical site.

[51] While priority populations are not mutually exclusive those other than gay and bisexual men exclude gay or bisexual-identified patients.

Table 8: Number of patients attending publicly funded sexual health services and GP clinics[52] diagnosed with a STI and re-tested within the recommended timeframe[53], by infection, 1 January 2011 to 31 December 2015[54]

Individuals re-tested	2011		2012		2013		2014		2015		2016
	Jan Jun	Jul Dec	Jan Jun	Jul Dec	Jan Jun	Jul Dec	Jan Jun	Jul Dec	Jan Jun	Jul Dec	Jan Jun
Chlamydia (1-4 mo)											
Diagnosed	1,311	1,308	1,502	1,592	1,802	1,885	2,330	2,065	2,452	2,253	1,311
Re-tested	276	292	381	401	458	511	608	530	635	602	276
Gonorrhoea (1-4 mo)											
Diagnosed	557	680	914	1,051	1,153	1,325	1,534	1,488	1,725	1,860	557
Re-tested	79	111	150	186	213	283	286	314	359	396	79

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

Table 9: Proportion of people diagnosed with syphilis who get re-tested within 6 months of diagnosis

Individuals re-tested	2011		2012		2013		2014		2015		2016
	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun
Syphilis (1-6 mo)											
Diagnoses	248	327	279	303	315	368	352	439	363	459	248
Re-tested	60	119	91	116	88	126	116	181	139	182	60

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

Table 10: Number of Aboriginal and Torres Strait Islander patients attending publicly funded sexual health services and GP clinics[55] who received tests for syphilis and HIV[56] within one month of a chlamydia or gonorrhoea diagnosis[57], by age, 1 January 2011 to 30 June 2016

Individuals tested	2011		2012		2013		2014		2015		2016
	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun
Aboriginal (16-29 yr)											
Diagnosed	9	22	20	27	29	28	21	25	30	17	12
HIV/syphilis test	<5	6	6	12	7	17	7	11	17	10	6
Aboriginal (30 years and older)											
Diagnosed	<5	9	<5	<5	10	7	11	8	7	<5	7
HIV/syphilis test	<5	<5	<5	<5	<5	5	<5	<5	5	<5	<5

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

Note: The Aboriginal data only include a small number of individuals, and therefore trends should be interpreted with caution.

[52] Medium to high caseload GP clinics included those serving at least 50 gay and bisexual male patients annually.

[53] Only includes tests at the same health service as the initial diagnosis.

[54] Because of the re-testing timeframe, data from the first half of 2016 have been excluded.

[55] Medium to high caseload GP clinics included those serving at least 50 gay and bisexual male patients annually; data from Aboriginal Medical Services are not included.

[56] For HIV positive patients only testing for syphilis was assessed.

[57] Only includes tests at the same health service as the STI diagnosis.

Appendix E: Notification data tables

Table 11: Number of gonorrhoea infections by site, NSW, 1 January-30 June 2015 and 1 January-30 June 2016

Site of infection	Jan-Jun 2015	Jan-Jun 2016	Change (%)	Total
Genitourinary tract	1,517	1,998	32%	**3,515**
Rectum	663	756	14%	**1,419**
Throat	762	908	19%	**1,670**
Other, including joints/ synovial fluid/conjunctiva	5	5	0%	**10**

Data source: NCIMS, NSW Health; data extracted 10 Nov 2016.

Note: Totals may exceed number of notifications due to infection at multiple sites.

Table 12: Number of infectious syphilis, gonorrhoea and chlamydia notifications by gender, age group and local health district, NSW, 1 January 2011-30 June 2016

	Infectious syphilis						Gonorrhoea						Chlamydia					
	2011	2012	2013	2014	2015	Jan-Jun 2016	2011	2012	2013	2014	2015	Jan-Jun 2016	2011	2012	2013	2014	2015	Jan-Jun 2016
TOTAL	401	513	617	800	757	413	2882	4128	4237	4863	5458	3474	20582	21317	20836	22932	22629	13169
Gender																		
Female	18	24	29	28	20	12	565	779	759	809	868	657	11630	11762	11433	12361	12185	6741
Male	383	489	588	771	734	399	2312	3347	3468	4047	4577	2810	8911	9525	9385	10556	10438	6419
Transgender*	0	0	0	1	3	1	2	1	4	7	10	5	3	2	1	0	1	3
Unknown	0	0	0	0	0	1	2	1	6	0	3	2	29	28	17	15	5	6
Age group (yrs)																		
00-04	0	0	0	0	0	0	1	1	3	3	2	0	0	0	2	2	0	1
05-09	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	1	0	0
10-14	0	0	0	0	1	0	3	11	4	16	7	0	136	123	109	101	70	36
15-19	5	8	11	11	8	5	230	299	301	322	304	170	4898	4966	4439	4396	3888	2062
20-24	20	40	47	76	86	46	587	799	853	974	1061	616	7315	7433	7190	7984	7640	4383
25-29	51	66	83	112	114	64	551	811	947	1009	1259	765	3775	3960	4177	4628	4818	2,805
30-34	57	69	106	126	124	75	406	669	696	815	918	616	1773	1932	1946	2330	2506	1,540
35-39	70	61	88	97	97	60	332	451	454	500	605	423	1030	1121	1059	1223	1303	829
40-44	67	72	90	115	86	45	260	445	372	439	465	312	694	715	747	861	882	566
45-49	67	77	82	103	100	51	226	300	276	353	359	237	449	490	523	569	632	385
50-54	31	49	42	77	78	31	137	167	156	228	243	175	228	289	297	392	430	289
55-59	16	36	29	51	27	17	70	89	89	102	144	79	149	136	186	215	231	146
60-64	13	16	19	18	29	12	52	49	45	59	58	42	76	80	83	128	130	65
65-69	2	11	15	8	5	4	18	19	26	32	20	25	30	48	56	65	65	42
70-74	1	6	4	4	2	2	7	8	8	8	9	6	18	15	8	20	22	11
75-79	1	2	1	1	0	1	1	6	4	1	0	2	5	3	4	5	6	1
80-84	0	0	0	0	0	0	0	2	0	0	3	2	0	0	1	6	3	2
85 and over	0	0	0	1	0	0	0	1	1	0	1	1	3	3	2	3	0	3

	Infectious syphilis						Gonorrhoea						Chlamydia					
	2011	2012	2013	2014	2015	Jan-Jun 2016	2011	2012	2013	2014	2015	Jan-Jun 2016	2011	2012	2013	2014	2015	Jan-Jun 2016
Local Health Districts																		
Central Coast	4	13	2	5	12	1	47	62	96	76	101	59	944	1040	857	1038	914	539
Far West	0	2	0	1	0	1	2	33	6	7	2	0	88	90	109	138	109	42
Hunter New England	16	17	28	19	20	10	212	259	206	267	259	211	2852	3065	3008	2857	2884	1,624
Illawarra Shoalhaven	17	15	12	24	25	16	75	100	109	73	116	60	1108	1101	1124	1189	1204	585
Justice Health	0	0	0	1	1	0	11	17	15	23	24	12	196	181	137	179	164	77
Mid North Coast	4	3	14	7	2	0	22	23	27	37	36	15	581	520	426	630	583	307
Murrumbidgee	0	5	8	5	7	9	23	39	34	34	29	21	778	737	781	854	886	434
Nepean Blue Mountains	13	11	16	23	7	5	91	123	106	135	146	101	851	890	838	830	791	426
Northern NSW	4	9	15	9	12	4	59	72	100	72	86	75	943	935	817	808	872	448
Northern Sydney	13	34	37	33	46	34	211	295	311	417	418	317	1576	1735	1824	2005	1999	1,191
Other NSW	4	5	8	3	5	4	40	15	21	24	23	29	202	54	145	114	70	54
Overseas	1	2	1	5	3	0	13	30	14	12	13	5	40	52	16	19	27	8
South Eastern Sydney	172	215	196	274	294	168	891	1312	1302	1451	1754	1,011	3522	3606	3190	3722	3622	2,487
South Western Sydney	19	22	37	38	14	14	249	373	391	469	446	301	1793	1985	2011	2208	2236	1,118
Southern NSW	11	1	2	4	5	1	20	20	24	19	34	30	439	391	404	409	423	236
Sydney	104	122	218	307	263	119	599	898	1011	1068	1357	809	2035	2167	2261	2708	2787	1,883
Western NSW	5	8	3	5	7	6	39	45	66	95	84	30	921	823	935	979	913	441
Western Sydney	14	29	20	37	34	16	277	412	397	584	529	391	1711	1938	1948	2239	2142	1,267
Unknown	0	0	0	0	0	1	1	0	1	0	1	6	2	7	5	6	3	1

Data source: NCIMS, NSW Health; data extracted 24 Nov 2016.

Note: 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.*

Appendix F: Data table for the HPV vaccination rate by LHD

Table 13: Year 7 HPV vaccination rate by Local Health District and gender, 2011 to 2015[58]

Local Health District	Gender	Year				
		2011	2012	2013	2014	2015
Sydney	Females	77%	80%	86%	87%	89%
	Males			80%	82%	83%
South Western Sydney	Females	78%	79%	85%	83%	83%
	Males			78%	78%	81%
South Eastern Sydney	Females	70%	84%	84%	86%	87%
	Males			79%	82%	84%
Illawarra Shoalhaven	Females	63%	70%	87%	80%	82%
	Males			77%	75%	79%
Western Sydney	Females	71%	76%	82%	84%	84%
	Males			78%	80%	86%
Nepean Blue Mountains	Females	68%	73%	75%	79%	80%
	Males			69%	75%	78%
Northern Sydney	Females	75%	79%	80%	85%	84%
	Males			73%	81%	85%
Central Coast	Females	77%	84%	87%	83%	83%
	Males			85%	83%	83%
Hunter New England	Females	68%	77%	82%	82%	80%
	Males			75%	78%	79%
Northern NSW	Females	59%	71%	75%	70%	74%
	Males			65%	73%	70%
Mid North Coast	Females	65%	75%	77%	76%	77%
	Males			73%	72%	71%
Southern NSW	Females	68%	68%	72%	73%	73%
	Males			67%	70%	72%
Murrumbidgee	Females	75%	78%	79%	80%	83%
	Males			75%	76%	80%
Western NSW	Females	73%	78%	83%	79%	79%
	Males			77%	73%	61%
Far West	Females	77%	74%	79%	78%	64%
	Males			56%	70%	51%

Data source: NSW high schools, Local Health Districts and Health Protection NSW. Centre for Epidemiology and Evidence, NSW Ministry of Health.

[58] The coverage rates for NSW and Local Health Districts 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 in 2012, 2013, 2014 and 2015 includes catch-up vaccination for dose 2 and 3 in Year 8 in 2013 (to the end of term 2), 2014 and 2015 (to the end of term 4), and 2016 (to the end of term 3) respectively.

2013 data for HPV vaccination for South Eastern Sydney LHD are approximate only.