

Epidemiological report 29 ISSN 2201-1994

Surveillance of sexually transmitted infections and blood-borne viruses in South Australia, 2015

Communicable Disease Control Branch
SA Health



Government
of South Australia

SA Health

Acknowledgement

The authors would like to acknowledge the following individuals and organisations for their contributions to this report - Clinic 275 Adelaide, public and private laboratories, and healthcare professionals working in metropolitan, rural and remote healthcare facilities.

Contributors/editors

I Tribe, A Weaver, K Hobbs, A Solly and R Waddell

Communicable Disease Control Branch (CDCB)

SA Health

PO Box 6

Rundle Mall

South Australia 5000

Telephone: 1300 232 272

Web: www.sahealth.sa.gov.au/SurveillanceNotifiableConditions

Disclaimer

The information presented in this report is based on laboratory and medical notifications received and investigated since 2006. As the completeness of datasets may be influenced by several factors including the timeliness of laboratory and medical reporting, changes in surveillance methodology or diagnostic testing and the health seeking behaviour of individuals, these data are provisional and subject to revision.

Contents

List of Tables 4

List of Figures 6

Introduction 7

Main findings 8

Chlamydia trachomatis 10

Donovanosis 17

Gonorrhoea 17

Infectious syphilis 24

Syphilis (unspecified)..... 27

Human immunodeficiency virus 28

Hepatitis B 34

Hepatitis B (unspecified)..... 37

Hepatitis C 40

Hepatitis C (unspecified) 43

Hepatitis D 46

List of Tables

Table 1	Notifications of STIs & BBVs in South Australia, 2011 to 2015.	7
Table 2	Number of diagnoses of chlamydia in South Australia by epidemiological characteristics, 2011 to 2015.	11
Table 3	Number of diagnoses of chlamydia in South Australia by major geographical regions, 2014 to 2015.	13
Table 4	Characteristics of people diagnosed with chlamydia, 2015.	13
Table 5	Number of notifications of chlamydia by specimen collection site in South Australia, 2015.	14
Table 6	Number of diagnoses of gonorrhoea in South Australia by epidemiological characteristics, 2011 to 2015.	18
Table 7	Number of diagnoses of gonorrhoea in South Australia by major geographical regions, 2014 to 2015.	20
Table 8	Characteristics of people diagnosed with gonorrhoea, 2015.	20
Table 9	Number of notifications of gonorrhoea by specimen collection site in South Australia, 2015.	21
Table 10	Antimicrobial susceptibility patterns of <i>Neisseria gonorrhoeae</i> isolates by SA Pathology, South Australia, 2015.	22
Table 11	Number of diagnoses of infectious syphilis in South Australia by epidemiological characteristics, 2011 to 2015.	25
Table 12	Number of diagnoses of infectious syphilis in South Australia by major geographical regions, 2011 to 2015.	25
Table 13	Characteristics of people diagnosed with infectious syphilis, 2015.	26
Table 14	Number of diagnoses of non-infectious syphilis in South Australia by major geographical regions, 2015.	27
Table 15	Number of diagnoses of HIV in South Australia by epidemiological characteristics, 2011 to 2015.	29
Table 16	Number of diagnoses of HIV in South Australia by major geographical regions, 2011 to 2015.	29
Table 17	Characteristics of people diagnosed with HIV, 2015.	30
Table 18	CD4 lymphocyte counts at diagnosis for newly notified HIV infection by sex in South Australia, 2015.	31
Table 19	HIV-1 Genes sequenced for subtypes by location of infection, 2015.	32
Table 20	HIV-1 Genes sequenced for subtypes by sexual identity, 2015.	32
Table 21	HIV-1 Drug resistant mutations at time of diagnosis, 2015.	33
Table 22	Number of diagnoses of newly acquired hepatitis B in South Australia by epidemiological characteristics, 2011 to 2015.	34

Table 23 Number of diagnoses of newly acquired hepatitis B in South Australia by major geographical regions, 2011 to 2015.	35
Table 24 Characteristics of people diagnosed with newly acquired hepatitis B infection, 2015.....	36
Table 25 Number of diagnoses of unspecified hepatitis B infection by epidemiological characteristics, 2011 to 2015.	37
Table 26 Number of notifications of unspecified hepatitis B infection by major geographical regions, 2011 to 2015.	38
Table 27 Characteristics of people diagnosed with unspecified hepatitis B infection, 2015.....	39
Table 28 Number of diagnoses of newly acquired hepatitis C infection in South Australia by epidemiological characteristics, 2011 to 2015.....	40
Table 29 Number of diagnoses of newly acquired hepatitis C in South Australia by major geographical regions, 2011 to 2015.	41
Table 30 Characteristics of people diagnosed with newly acquired hepatitis C infection, 2015.....	42
Table 31 Number of diagnoses of unspecified hepatitis C infection by epidemiological characteristics, 2011 to 2015.	43
Table 32 Number of diagnoses of unspecified hepatitis C infection by major geographical regions, 2011 to 2015.	44
Table 33 Characteristics of people diagnosed with unspecified hepatitis C infection, 2015.....	45
Table 34 Number of new diagnoses of hepatitis D by epidemiological characteristics, 2011 to 2015.....	46
Table 35 Number of new diagnoses of hepatitis D by major geographical regions, 2011 to 2015.....	47

List of Figures

Figure 1 Number of new diagnoses of chlamydia in South Australia by sex, 2006 to 2015. 10

Figure 2 Males: age-specific notification rate per 100,000 population in South Australia, 2011 to 2015..... 12

Figure 3 Females: age-specific notification rate per 100,000 population in South Australia, 2011 to 2015..... 12

Figure 4 Sentinel laboratories, test positivity rate per 10,000 tests in South Australia, 2006 to 2015, with a five year moving average..... 15

Figure 5 Chlamydia notification rates per 100,000 population in SA by SA3[#], 2015. 16

Figure 6 Number of new diagnoses of gonorrhoea in South Australia by sex, 2006 to 2015..... 17

Figure 7 Males: age-specific notification rate per 100,000 population in South Australia, 2011 to 2015..... 19

Figure 8 Females: age-specific notification rate per 100,000 population in South Australia, 2011 to 2015..... 19

Figure 9 Gonorrhoea notification rates per 100,000 population in SA by SA3[#], 2015 23

Figure 10 Number of diagnoses of infectious syphilis in South Australia by sex, 2006 to 2015..... 24

Figure 11 Number of new diagnoses of HIV in South Australia by sex, 2006 to 2015. 28

Figure 12 Number of diagnoses of newly acquired hepatitis B infection in South Australia by sex, 2006 to 2015. 34

Figure 13 Number of diagnoses of unspecified hepatitis B infection in South Australia by sex, 2006 to 2015. 37

Figure 14 Number of diagnoses of newly acquired hepatitis C infection in South Australia by sex, 2006 to 2015. 40

Figure 15 Number of diagnoses of unspecified hepatitis C infection in South Australia by sex, 2006 to 2015. 43

Figure 16 Number of new diagnoses of hepatitis D in South Australia by sex, 2006 to 2015..... 46

Introduction

The main findings in this epidemiological report are presented as text, tables and figures. All data contained in this report are to the end of 2015, as reported at 30 June 2016. These data are considered provisional and subject to revision as additional information becomes available.

The Communicable Disease Control Branch (CDCB) conducts surveillance for sexually transmitted infections (STIs) and blood borne viruses (BBVs) in South Australia under the legislative framework of the *South Australian Public Health Act, 2011*. The surveillance system in South Australia utilises a dual notification strategy where the laboratory and the diagnosing medical practitioner provide information on each episode of infection. A person could be notified more than once during the reporting period and with the same or more than one type of infection. Information collected as part of the notifiable diseases surveillance system is entered into a database at the time of notification and analysed. The case definitions used for classifying the STIs and BBVs in this report is consistent with criteria agreed upon nationally by the Communicable Diseases Network Australia (CDNA). These definitions are available online at <http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-casedefinitions.htm>.

On 1 January 2012 the notifiable diseases surveillance system adopted nationally agreed case definitions for newly acquired and unspecified hepatitis B (HBV) and hepatitis C (HCV). The time frame for a previous negative test was extended from 12 months to 24 months. The calculated notification rates presented in the sections on HBV and HCV should be interpreted with caution given the change in surveillance case definitions.

The 2011 South Australian Census population published by the Australian Bureau of Statistics (ABS) was used as the denominator for determining the rates of disease when comparing the population groups based on Aboriginal and Torres Strait Islander (ATSI) status. The yearly 2011 to 2015 estimated residential population (ERP) for South Australia as determined by the ABS was used as the standard population when comparing rates between age groups over time. The ABS Standard Australian Classification of Countries (2011, Version. 2.2) was used to categorise country and regions of birth. In 2015, information on Indigenous status did not differentiate between Aboriginal and Torres Strait Islanders. The terms 'Aboriginal' and 'ATSI' are used in this document respectfully as an all-encompassing term for the Aboriginal and Torres Strait Islander population.

Interstate residents diagnosed with STIs or BBVs in South Australia were excluded from the analysis as these cases would be reported in their home jurisdictions. Men who have sex with men (MSM) included both homosexual and bisexual men.

Table 1 Notifications of STIs & BBVs in South Australia, 2011 to 2015.

Disease	2011	2012	2013	2014	2015
Chlamydia	5265	5065	5530	5491	5384
Gonorrhoea	441	543	807	736	794
Donovanosis	0	0	0	0	1
Infectious syphilis	18	45	41	29	70
Non-infectious syphilis	#	#	113	120	124
Human immunodeficiency virus	68	43	69	54	58
Hepatitis B Newly acquired	9	17	8	7	7
Hepatitis B Unspecified	302	331	286	321	338
Hepatitis C Newly acquired	32	78	61	45	43
Hepatitis C Unspecified	483	434	464	447	459
Hepatitis D	8	11	12	9	9

Data unavailable as the information was not collected uniformly in these years

Main findings

In 2015, there were 7,259 new notifications of STIs and BBVs in South Australia (Table 1). This figure represents a 9.9% increase in the number of new notifications compared to notifications received in 2011.

In 2015, there were 5,384 notifications of genital chlamydia making this the most commonly notified sexually transmitted disease in South Australia (Table 1). The notification rate of chlamydia increased from 204 per 100,000 population in 2006 to 331 per 100,000 population in 2013, with notifications stabilising in 2014 (326) and 2015 (317). In 2015, members of the ASTI population were 3.3 times more likely to be diagnosed with chlamydia than those of the non-ASTI population. Eighty-seven per cent of notifications were for persons born in Australia.

The first notification of donovanosis occurred in South Australia in 2015.

The notification rate of gonorrhoea increased from 26.9 per 100,000 population in 2011 to 48.3 per 100,000 population in 2013, with notifications stabilising in 2014 (43.7) and 2015 (46.7). The increase in the number of notifications has occurred among heterosexual males and females since 2013 and MSM since 2014. In 2015, members of the ATSI population were 13.7 times more likely to be diagnosed with gonorrhoea than those of the non-ATSI population in South Australia. Eighty-four per cent of notifications were for persons born in Australia.

There were 70 notifications of infectious syphilis in 2015, the highest number of annual notifications since 2006. The notification rate of infectious syphilis increased from 1.1 per 100,000 population in 2011 to 4.1 per 100,000 population in 2015. The increase in syphilis notifications has occurred among MSM (76.8%) with infections most likely to have been acquired in South Australia (59.6%). In 2015, members of the ATSI population were 7.2 times more likely to be diagnosed with infectious syphilis than those of the non-ATSI population. Eighty-two per cent of notifications were for persons born in Australia.

There were 58 new diagnoses of HIV infection in 2015. The notification rate of newly diagnosed HIV infection has decreased from 4.1 per 100,000 population in 2011 to 3.4 per 100,000 population in 2015. Notifications for males exceeded females. Fifty-four per cent of males identified as MSM and 52% of these men reported acquiring their infection in South Australia. Five Australian females reported acquiring their infection in South Australia. In 2015, members of the ATSI population were 2.3 times more likely to be diagnosed with HIV infection than those of the non-ATSI population. Fifty-two per cent of notifications were for persons born in Australia. The proportion of new diagnoses among people identifying as African or Asian was similar to 2014. Fifteen notifications (26.3%) were for people previously diagnosed HIV positive overseas. In 2015, complete subtype data were available for 48 persons. Consistent with previous years, subtype B remains the predominant circulating strain in South Australia. In 2015, 757 persons received viral load monitoring in South Australia.

The notification rate of newly acquired hepatitis B infection has remained stable at 0.5 per 100,000 population in 2011 to 0.4 per 100,000 population in 2015. There was no clear epidemiological trend to explain possible sources for infection in 2015. Five notifications were for persons born in Australia; two notifications were for Indigenous Australians.

There were 338 notifications of unspecified hepatitis B virus infection where the date of acquisition could not be determined. The notification rate has remained stable at 18.4 notifications per 100,000 population in 2011 to 19.9 per 100,000 population in 2015. A decline in notifications in the 0-14 age group is evident in the dataset. In 2015, members of the ATSI population were 1.5 times more likely to be diagnosed with unspecified hepatitis B infection than those of the non-ATSI population. Sixty-nine per cent of notifications were for persons born in South-east, North-east, Southern and Central Asia where hepatitis B virus infection is considered endemic.

The notification rate of newly acquired hepatitis C has decreased from 4.7 per 100,000 population to 2.5 per 100,000 population in 2015. Newly acquired cases were more likely to be Australian born (92.8%) and report a primary risk factor of injecting drug use (79%).

The notification rate of unspecified hepatitis C infection where the date of acquisition could not be determined has decreased from 39.2 per 100,000 population in 2006 to 27 per 100,000 population in 2015. In 2015, 60% of notifications were for persons aged over 40 years and 81% of notifications documented a current or past history of injecting drug use. In 2015, members of the ATSI population were 4.5 times more likely to be diagnosed with unspecified hepatitis C infection than those of the non-ATSI population. Seventy-eight per cent of notifications were for persons born in Australia.

There were nine new diagnoses of hepatitis D infection, which is consistent with the number of notifications received in 2014.

Chlamydia trachomatis

In 2015, chlamydia was the most frequently reported sexually transmitted infection in South Australia (Table 1).

There were 5,384 notifications of chlamydia in South Australia in 2015 (Table 2). The corresponding notification rate was 317 per 100,000 population representing a 2.7% decrease in notifications compared to 2014. There were 368 notifications among the ATSI population and these were for residents of metropolitan, rural and remote regions of South Australia. In 2015, members of the ATSI population were 3.3 times more likely to be diagnosed with chlamydia than those of the non-ATSI population in South Australia (Table 2). In 2015, over half (57.8%; 3,114) the notifications were in females and over three-quarters (78.5%; 4,229) were among people aged 15 to 29 years (Table 2). Among males 1,678 (74.3%) were notified for the first time in 2015 and 583 (25.7%) had been previously infected with one or more genital chlamydia infections prior to 2015. There were 845 (27.1%) repeat infections in women and 2,269 (74.9%) first reported infections.

Figure 1 Number of new diagnoses of chlamydia in South Australia by sex, 2006 to 2015.

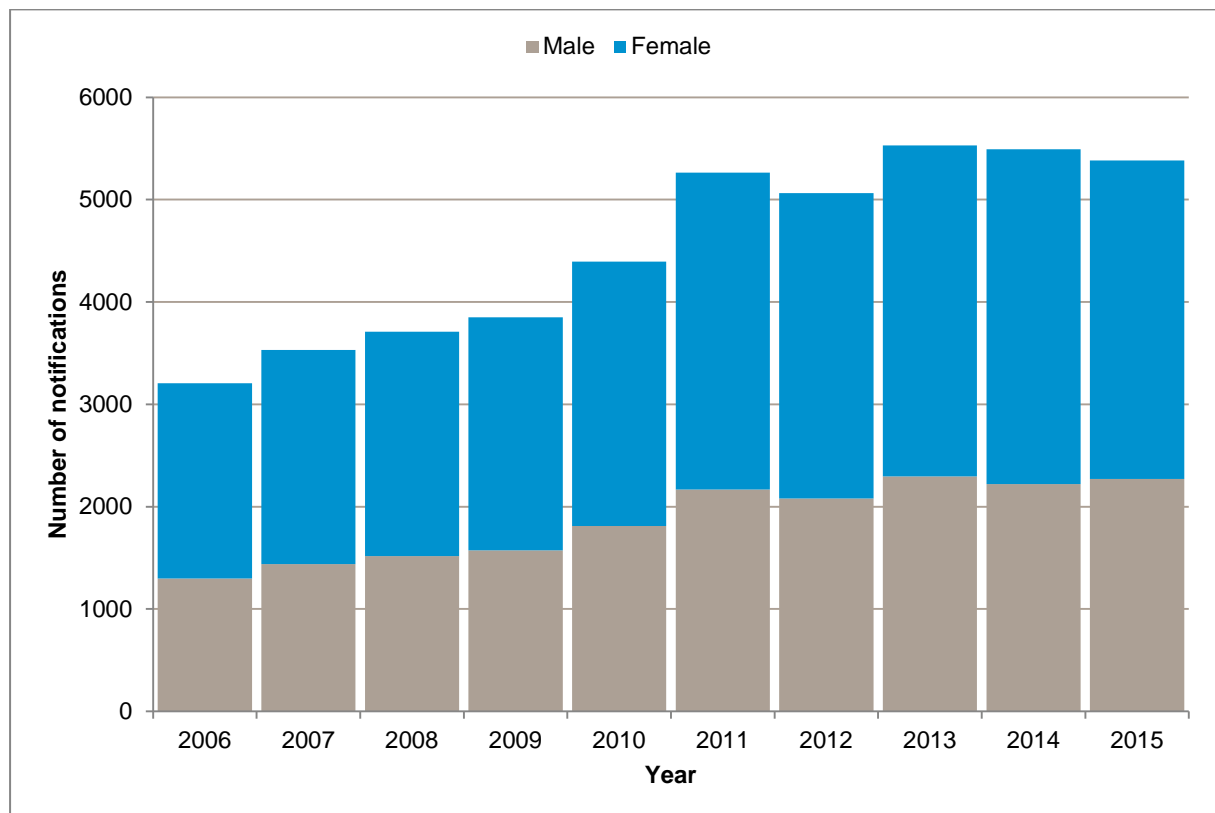


Table 2 Number of diagnoses of chlamydia in South Australia by epidemiological characteristics, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015
Characteristic					
Number of notifications	5265	5065	5530	5491	5384
Notification rate per 100,000 population *	321	306	331	326	317
Sex					
Female	3098	2985	3233	3269	3114
Male	2167	2080	2297	2222	2270
Age-group					
0-14	30	30	38	36	13
15-19	1492	1374	1422	1197	1114
20-24	2015	1900	2134	2189	2014
25 to 29	908	876	966	1050	1101
30-39	555	577	627	649	749
40-49	187	219	236	258	253
50-59	60	64	74	86	106
60+	18	25	33	26	34
Aboriginal and Torres Strait Islander status *					
ATSI	303	335	344	439	368
ATSI notification rate per 100,000 population	810	896	920	1174	984
Non-ATSI	4447	4343	4680	4842	4736
Non-ATSI notification rate per 100,000 population	278	271	292	302	296
Not reported	515	387	506	210	280

* Crude rate per 100,000 population. Population estimates from the 2011 Census of Population and Housing (Australian Bureau of Statistics).

Notification rates have declined among males in the 15 to 19 age-group from 724 per 100,000 population in 2011 to 515 per 100,000 population in 2015 (Figure 2). In contrast, there has been an increase in notification rates among males in the 25 to 29 age-group from 791 per 100,000 population in 2011 to 916 per 100,000 population in 2015, and 30 to 39 age-group from 273 per 100,000 population in 2011 to 370 per 100,000 population in 2015 (Figure 2).

Notification rates have declined among females in the 15 to 19 age-group from 2,132 per 100,000 population in 2011 to 1,644 per 100,000 population in 2015 (Figures 3). An increase in notification rates among females in the 25 to 29 age-group from 820 per 100,000 population in 2011 to 984 per 100,000 population in 2015 is evident in Figure 3.

Figure 2 Males: age-specific notification rate per 100,000 population in South Australia, 2011 to 2015.

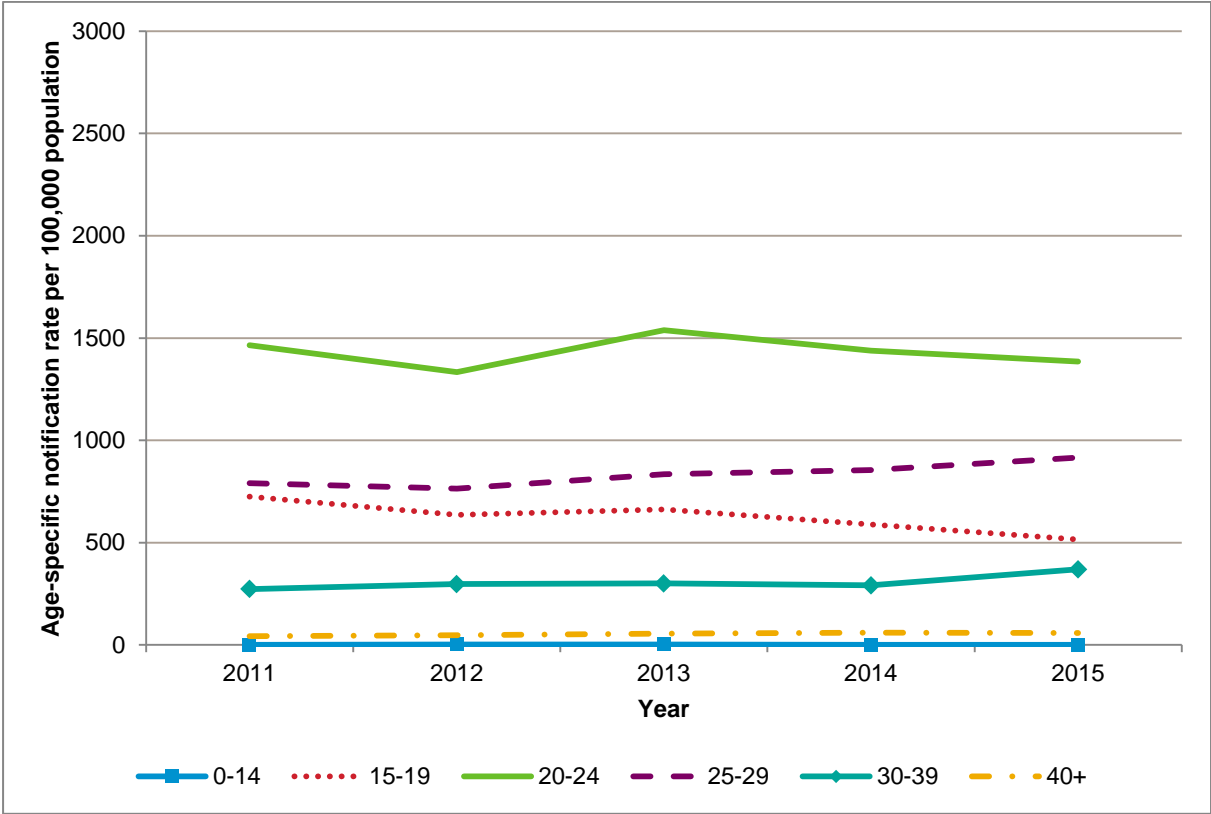
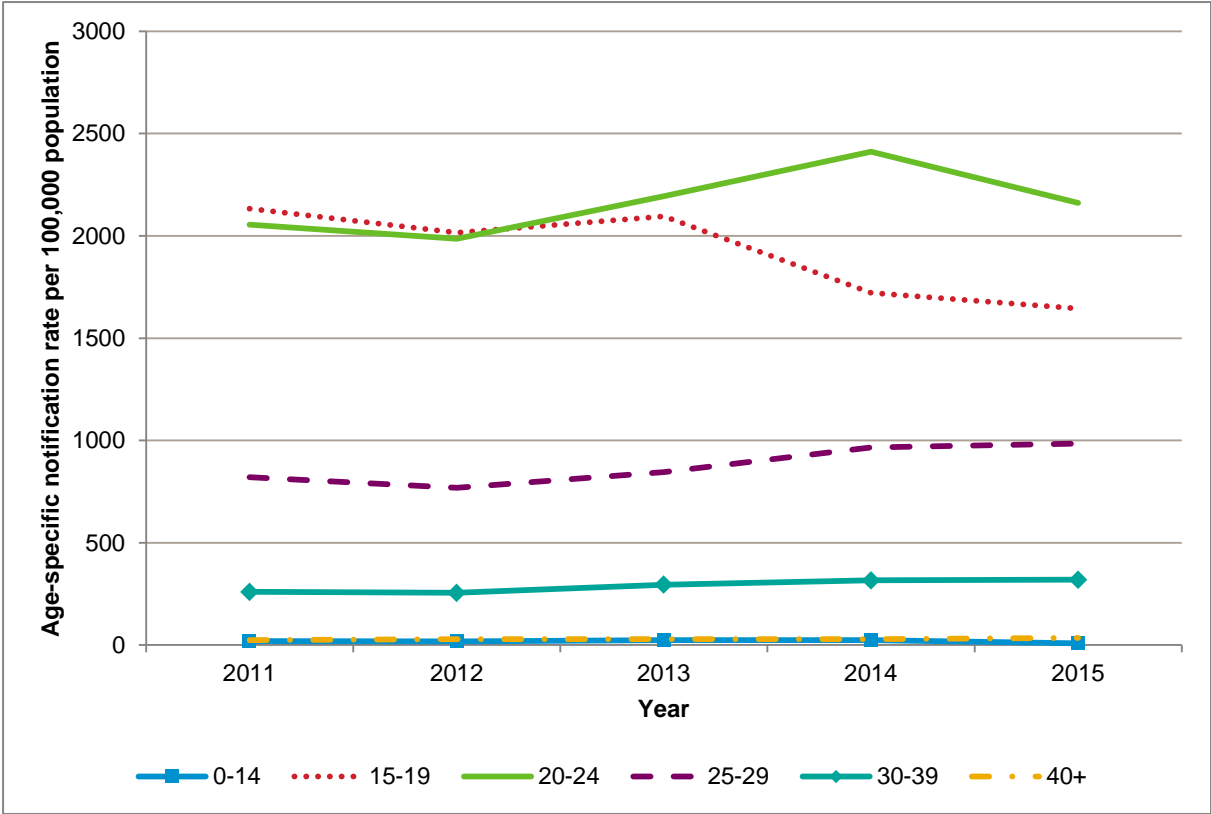


Figure 3 Females: age-specific notification rate per 100,000 population in South Australia, 2011 to 2015.



Where reported, 87 per cent of notifications were for persons born in Australia, this is consistent with information collected in 2014 (Table 3).

Table 3 Number of diagnoses of chlamydia in South Australia by major geographical regions, 2014 to 2015.

Year of diagnosis	2014	2015	Total
Country of birth by major regions #			
Oceania and Antarctica	4375	4224	8599
North-West Europe	127	118	245
Southern and Eastern Europe	30	28	58
North Africa and the Middle East	50	38	88
South-East Asia	101	130	231
North-East Asia	96	134	230
Southern and Central Asia	35	30	65
Americas	45	37	82
Sub-Saharan Africa	92	100	192
Not reported	372	288	660

Standard Australian Classification of Countries (SACC) Second edition

Persons infected with chlamydia were more likely to be heterosexual (91.3%; 4,613) and report acquiring their infection in South Australia (92.1%; 4,651) (Table 4). Sexual contact with sex workers was reported by 56 patients and 49 persons reported working as a sex worker (Table 4).

The most commonly cited reason for ordering a diagnostic test were screening (38.1%; 1,938), a clinical presentation with symptoms (36.2%; 1,844) and being a contact of a person infected with chlamydia (21.4%; 1,090). General practitioners located in metropolitan Adelaide and rural regions of South Australia were the main notifiers (65.3%; 3,378).

Table 4 Characteristics of people diagnosed with chlamydia, 2015.

Characteristics 2015	Males	Females	Total
Number of notifications	2270	3114	5384
Sexual identity			
Heterosexual	1818	2795	4613
Homosexual	265	94	359
Bisexual	38	41	79
Not reported	149	184	333
Occupation			
Employed as a sex worker	12	37	49
Likely location of infection			
South Australia	1890	2761	4651
Interstate	83	72	155
Overseas	158	82	240
Not reported	139	199	338
Visited a sex worker	53	3	56

Table 4 continued	Males	Females	Total
Reason for testing			
Presented with clinical symptoms	864	980	1844
A contact of a confirmed case	611	479	1090
Screening	605	1333	1938
Other	70	139	209
Not reported	120	183	303
Notification source			
Metropolitan general practitioner	1060	1640	2700
Country general practitioner	278	400	678
Clinic 275	566	298	864
SHine SA	108	258	366
Public hospitals	34	158	192
Private hospitals	1	4	5
Nganampa Health Council	35	64	99
Other Aboriginal Health Services	13	24	37
Prison Health	36	6	42
Pregnancy Advisory Centre	0	76	76
Metropolitan Youth Health	3	5	8
Defence forces	14	1	15
Cross border notifications	12	9	21
Other	21	46	67
Not reported	89	125	214

Table 5 outlines the principal sites for chlamydia positive clinical specimens. These data represent the site of the initial positive test result received by CDCB. Non-invasive testing through urine specimen collection is an acceptable sampling method and accounted for 90 per cent of diagnoses in males and 48 per cent in females.

Table 5 Number of notifications of chlamydia by specimen collection site in South Australia, 2015.

Specimen collection site	Males	Females	Total	%
Cervix		760	760	14.1%
Urethra	55	4	59	1.1%
Rectum	159	45	204	3.8%
Vagina		750	750	13.9%
Urine	2049	1495	3544	65.8%
Other	3	3	6	0.1%
Unknown	4	57	61	1.1%
Total	2270	3114	5384	

Three laboratories contributed data on the total number of chlamydia tests performed annually (Figure 4). A total of 90,758 tests were performed (30,488 male, 60,270 female) and 4,283 specimens were positive for *Chlamydia trachomatis* with a test positivity rate of 472 per 10,000 tests in 2015. The test positivity rate has declined among males from 796 per 10,000 tests in 2011 to 598 tests per 10,000 tests in 2015 and among females from 549 tests per 10,000 tests in 2011 to 408 tests in 2015. Despite an increase in testing in the last five years, the positivity rate has declined and the number of notifications per year has stabilised since 2013.

Figure 4 Sentinel laboratories, test positivity rate per 10,000 tests in South Australia, 2006 to 2015, with a five year moving average.

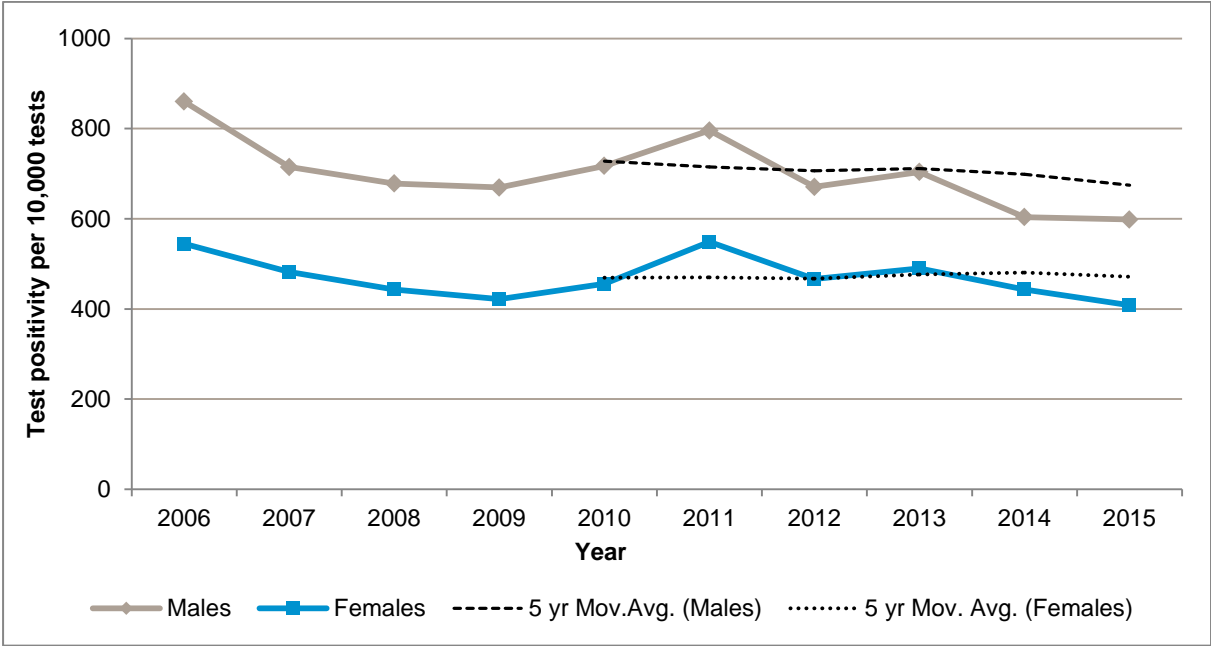
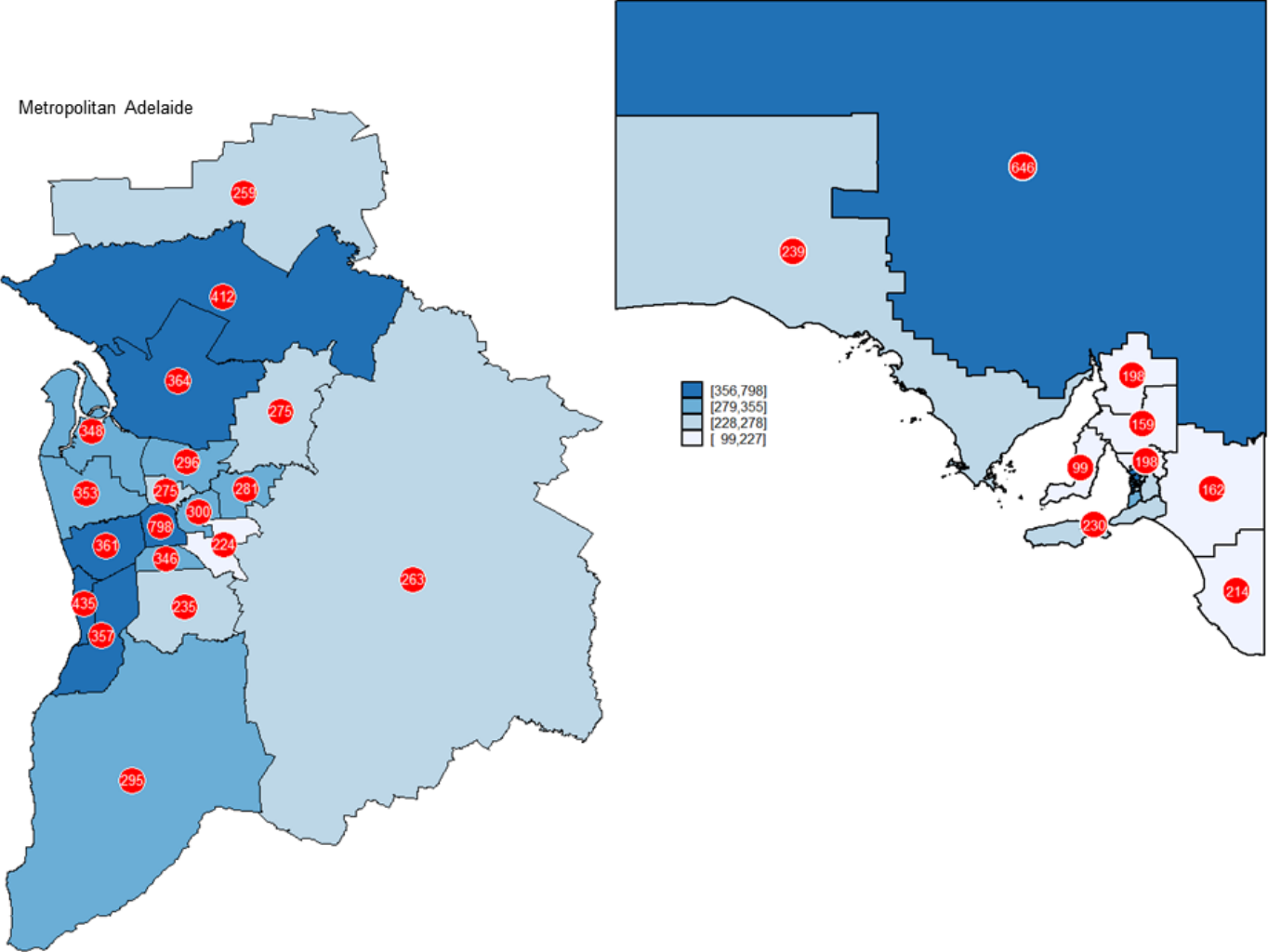


Figure 5 Chlamydia notification rates per 100,000 population in SA by SA3#, 2015.



#Statistical area level 3 – Australian Bureau of Statistics

Donovanosis

There was one notification of donovanosis in a person with a clinically compatible illness who reported sexual contact with a person living in an endemic area outside Australia. There was no laboratory confirmation of disease for this person.

Gonorrhoea

There were 794 notifications of gonorrhoea in South Australia in 2015 (Figure 6). The corresponding notification rate was 47 per 100,000 population representing a 6.8 per cent increase in notifications compared to 2014. The notification rate of gonorrhoea has increased in the past five years from 26.9 per 100,000 population in 2011 to 46.7 per 100,000 in 2015. There were 185 notifications among the ATSI population and these were for residents of metropolitan, rural and remote regions of South Australia. In 2015, members of the ATSI population were 13.7 times more likely to be diagnosed with gonorrhoea than those of the non-ATSI population in South Australia (Table 6). In 2015, over half (70%; 555) the notifications were in males and over half (70%; 555) were among people aged 20 to 39 years (Table 6).

Figure 6 Number of new diagnoses of gonorrhoea in South Australia by sex, 2006 to 2015.

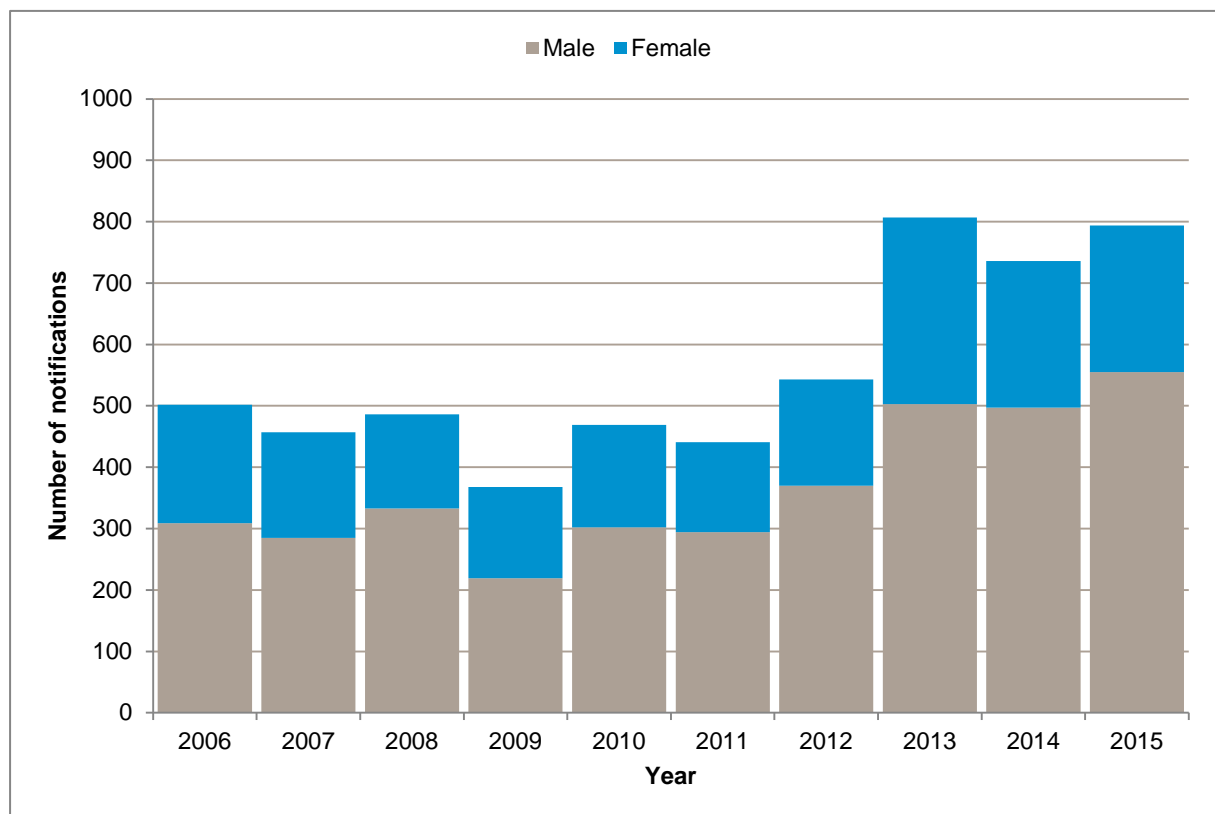


Table 6 Number of diagnoses of gonorrhoea in South Australia by epidemiological characteristics, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015
Characteristic					
Number of notifications	441	543	807	736	794
Notification rate per 100,000 population	26.9	32.8	48.3	43.7	46.7
Sex					
Female	147	173	304	239	239
Male	294	370	503	497	555
Age-group					
0-14	4	5	11	12	3
15-19	92	102	160	122	84
20-24	98	146	204	188	199
25-29	100	114	158	154	145
30-39	90	97	134	152	211
40-49	38	55	87	70	85
50- 59	12	17	38	32	51
60+	7	7	15	6	16
Aboriginal and Torres Strait Islander status					
ATSI	213	198	292	221	185
ATSI notification rate per 100,000 population	569	529	781	591	494
Non-ATSI	220	284	479	505	579
Non-ATSI notification rate per 100,000 population	14	18	30	31	36
Not reported	8	61	36	10	30

* Crude rate per 100,000 population. Population estimates from the 2011 Census of Population and Housing (Australian Bureau of Statistics).

Notification rates have declined among males in the 15 to 19 age-group from 153 per 100,000 population in 2013 to 81 per 100,000 population in 2015 (Figure 7). Increases in notification rates among males in the 20 to 24 age-group, 25 to 29 age-group, and 30 to 39 age-group are evident in Figure 7.

Notification rates have declined among females in the 15 to 19 age-group from 97 per 100,000 population in 2011 to 80 per 100,000 population in 2015 (Figure 8). An increase in notification rates among females in the 20 to 24 age-group, 25 to 29 age-group and in the 30 to 39 age-group are evident in Figure 8.

Figure 7 Males: age-specific notification rate per 100,000 population in South Australia, 2011 to 2015.

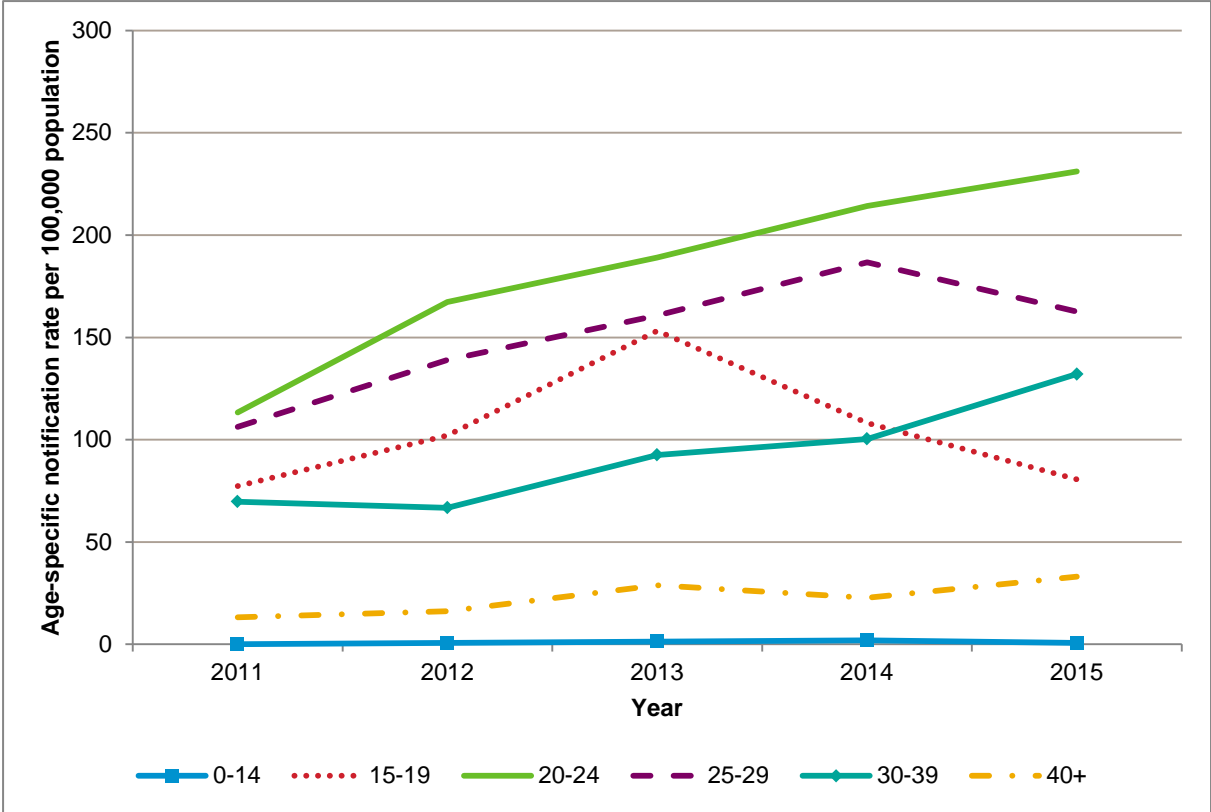
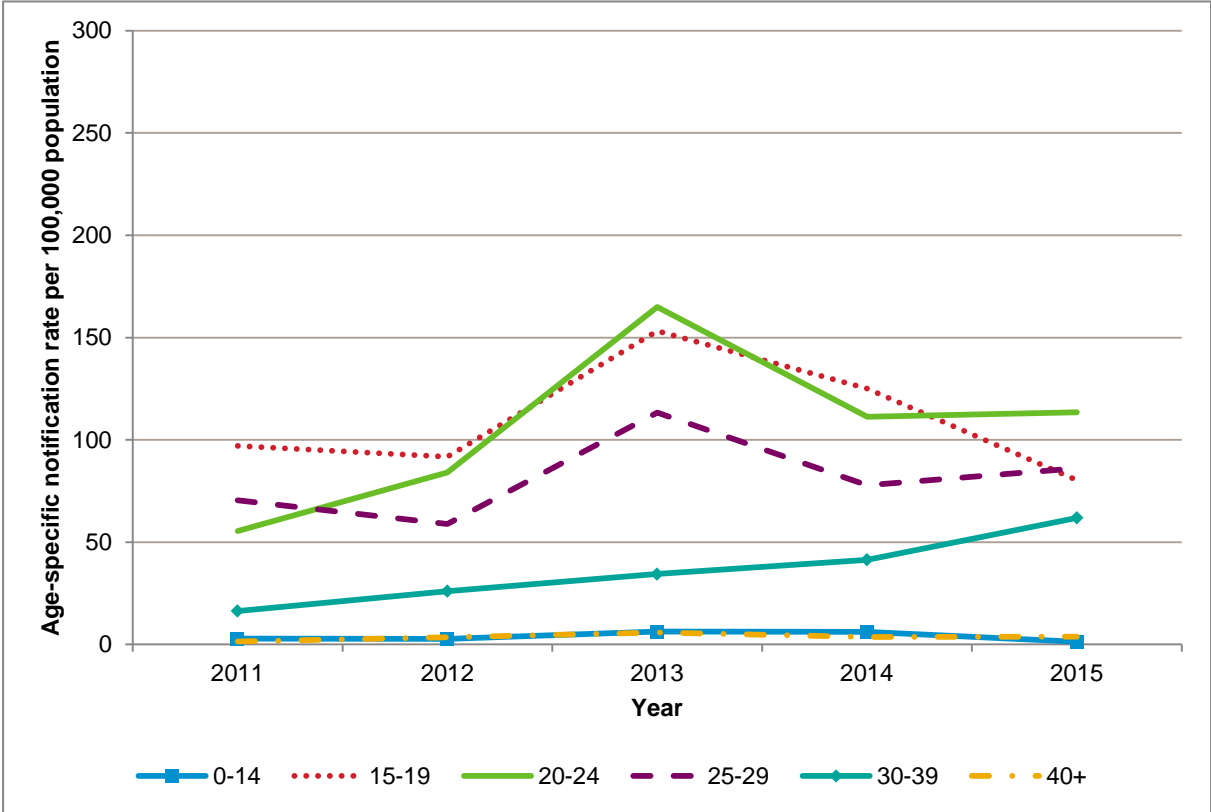


Figure 8 Females: age-specific notification rate per 100,000 population in South Australia, 2011 to 2015.



Where reported, 84 per cent of notifications were for persons born in Australia; this is consistent with information collected in 2014 (Table 7).

Table 7 Number of diagnoses of gonorrhoea in South Australia by major geographical regions, 2014 to 2015.

Year of diagnosis	2014	2015	Total
Country of birth by major regions[#]			
Oceania and Antarctica	616	631	1247
North-West Europe	23	26	49
Southern and Eastern Europe	1	5	6
North Africa and the Middle East	7	7	14
South-East Asia	16	29	45
North-East Asia	14	6	20
Southern and Central Asia	10	13	23
Americas	14	12	26
Sub-Saharan Africa		12	12
Not reported	31	27	58

[#] Standard Australian Classification of Countries (SACC) Second edition

Persons with gonorrhoea were more likely to be heterosexual (60%; 454) and report acquiring their infection in South Australia (87%; 658) (Table 8). Among males, over half (54%; 286) reported same-sex partners compared to 41 per cent (113) in 2011. The notification rate among MSM reached a peak at 315 in 2013 and then declined to 240 in 2015. Similarly, the notification rate among heterosexual females peaked at 271 in 2013 and declined to 214 in 2015. Sexual contact with sex workers was reported by 16 persons and three persons reported working as a sex worker (Table 8).

The most commonly cited reason for ordering a diagnostic test was a clinical presentation with symptoms (45.7%; 346) or screening (34.6%; 262). General practitioners located in metropolitan Adelaide (31.3%; 243), doctors at Clinic 275 (34.4%; 267), and Nganampa Health Council (15.9%; 124) were most likely to notify persons infected with gonorrhoea (Table 8).

Table 8 Characteristics of people diagnosed with gonorrhoea, 2015.

Characteristics 2015	Males	Females	Total
Number of notifications	555	239	794
Sexual identity			
Heterosexual	240	214	454
Homosexual	261	5	266
Bisexual	25	6	31
Not reported	29	14	43
Occupation			
Employed as a sex worker	3		3
Likely location of infection			
South Australia	446	212	658
Interstate	37	6	43
Overseas	47	8	55
Not reported	25	13	38
Visited a sex worker	14	2	16

Table 8 continued	Males	Females	Total
Reason for testing			
Presented with clinical symptoms	272	74	346
A contact of a confirmed case	86	48	134
Screening	163	99	262
Other	9	6	15
Not reported	25	12	37
Notification source			
Metropolitan general practitioner	168	75	243
Country general practitioner	24	13	37
Clinic 275	236	31	267
SHine SA	24	9	33
Public hospitals	12	14	26
Private hospitals	1		1
Nganampa Health Council	51	73	124
Other Aboriginal Health Services	9	10	19
Prison Health	10	2	12
Pregnancy Advisory Centre		1	1
Defence forces	2		2
Cross border notifications	2	1	3
Other	3	5	8
Not reported	13	5	18

Table 9 outlines the principal sites for gonorrhoea positive clinical specimens. These data represent the site of the initial positive test result received by the department. Non-invasive testing through urine specimen collection is an acceptable sampling method and accounted for 47.6 per cent of diagnoses in males and 49.1 per cent in females. A total of 366 cases, 276 males and 90 females, reported symptomatic gonorrhoea infection. Asymptomatic infection was reported in 344 cases, 219 males and 125 females, and information was unavailable 66 cases.

Table 9 Number of notifications of gonorrhoea by specimen collection site in South Australia, 2015.

Specimen collection site	Males	Females	Total	%
Cervix		42	42	5.3%
Urethra	70		70	8.8%
Rectum	102	12	114	14.3%
Vagina		60	60	7.5%
Urine	264	117	381	48.0%
Throat/Pharynx	116	5	121	15.2%
Other	2	2	4	0.5%
Unknown	1	1	2	0.2%
Total	555	239	794	

Antimicrobial resistance patterns are monitored by SA Pathology. In 2015, 205 isolates were available for testing. Forty-eight (23%) isolates tested for penicillin sensitivity were resistant compared to 17 per cent in 2011. Only three isolates were fully sensitive to penicillin. All isolates (8) originating from the ATSI population showed reduced sensitivity to penicillin.

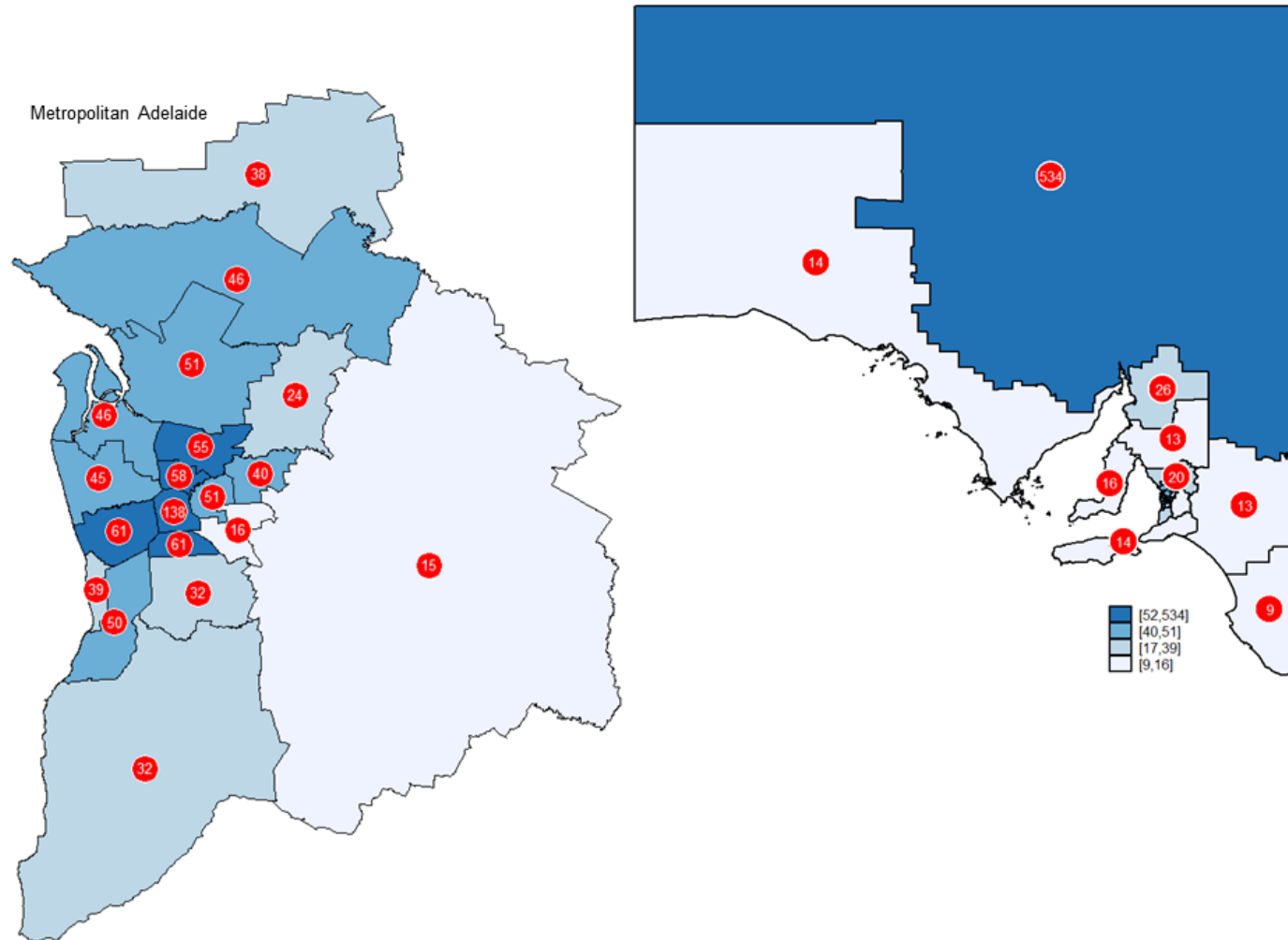
In 2015, 83 (40%) isolates were resistant to ciprofloxacin compared with 21 per cent in 2011 (Table 10). All isolates (8) originating from the ATSI population were fully sensitive to ciprofloxacin. In contrast, ciprofloxacin resistance among MSM was 47% (55) in 2015, which is similar to resistance patterns seen in previous years. Ciprofloxacin resistance among heterosexual males remains unchanged, 34 per cent (18) in 2015 compared to 32 per cent (18) in 2011.

In 2015, azithromycin resistance was reported for the first time (Table 10). Eight (4%) isolates tested for azithromycin sensitivity were resistant and isolates originating from the ATSI population were fully sensitive. Azithromycin resistance was evenly spread between heterosexual and homosexual males.

Table 10 Antimicrobial susceptibility patterns of *Neisseria gonorrhoeae* isolates by SA Pathology, South Australia, 2015.

	Penicillin	Ceftriaxone	Ciprofloxacin	Azithromycin
Fully sensitive	3	197	121	172
Less sensitive	154	8	1	na
Resistant	48	na	83	8
Total	205	205	205	180

Figure 9 Gonorrhoea notification rates per 100,000 population in SA by SA3#, 2015



#Statistical area level 3 – Australian Bureau of Statistics

Infectious syphilis

There were seventy notifications of infectious syphilis in South Australia in 2015 (Figure 10). The corresponding notification rate was 4.1 per 100,000 population representing a 141 per cent increase in notifications compared to 2014. The notification rate has increased over the past five years from 1.1 per 100,000 population to 4.1 per 100,000 population. There were ten notifications among members of the ATSI population and these were for residents of metropolitan Adelaide, rural and remote regions of South Australia. In 2015, the ATSI population was 7.2 times more likely to be diagnosed with infectious syphilis than the non-ATSI population in South Australia. In 2015, most (90%; 63) notifications were in males and over half (61%; 43) were among people aged 30 years and over (Table 11).

Figure 10 Number of diagnoses of infectious syphilis in South Australia by sex, 2006 to 2015.

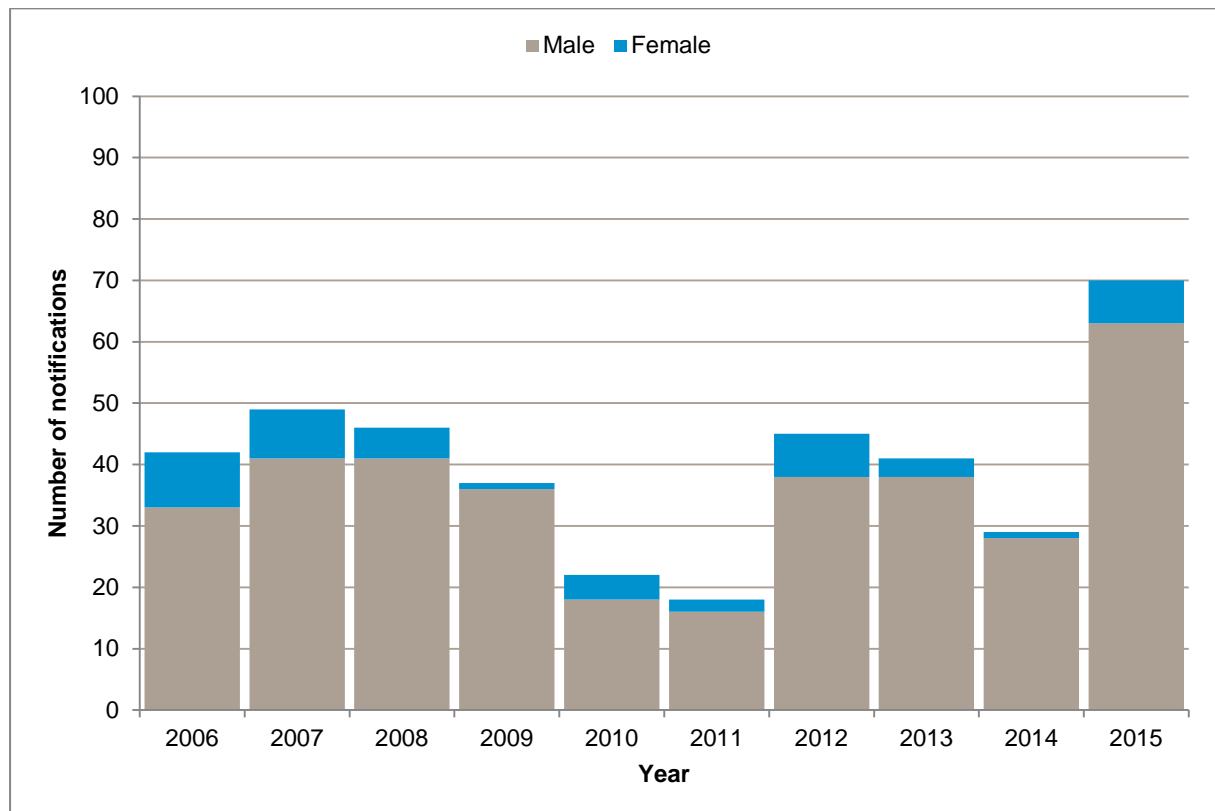


Table 11 Number of diagnoses of infectious syphilis in South Australia by epidemiological characteristics, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015
Characteristic					
Number of notifications	18	45	41	29	70
Notification rate per 100,000 population	1.1	2.7	2.5	1.7	4.1
Sex					
Female	2	7	3	1	7
Male	16	38	38	28	63
Age-group					
0-14					
15-19			2	2	1
20-24	1	5	6	1	17
25-29	5	2	4	3	9
30-39	3	20	10	12	19
40-49	4	10	10	3	12
50-59	4	6	7	7	7
60+	1	2	2	1	5
Aboriginal and Torres Strait Islander status					
ATSI	7	11	6	3	10
ATSI notification rate per 100,000 population	18.7	29.4	16	8	26.7
Non-ATSI	11	33	35	26	60
Non-ATSI notification rate per 100,000 population	0.7	2.1	2.2	1.6	3.7
Not reported		1			

* Crude rate per 100,000 population. Population estimates from the 2011 Census of Population and Housing (Australian Bureau of Statistics).

Where reported, 82 per cent of notifications were for persons born in Australia which is consistent with information collected in previous years (Table 12).

Table 12 Number of diagnoses of infectious syphilis in South Australia by major geographical regions, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015	Total
Country of birth by major regions[#]						
Oceania and Antarctica	13	33	25	21	55	147
North-West Europe	1	2	4	2	5	14
Southern and Eastern Europe	1	1	1			3
North Africa and the Middle East		2				2
South-East Asia	1		1	1	2	5
North-East Asia		2	3		2	7
Southern and Central Asia		3	1		2	6
Americas	1	1	3	3		8
Sub-Saharan Africa	1			1	1	3
Not reported		1	3	1	3	8

[#] Standard Australian Classification of Countries (SACC) Second edition

Persons diagnosed with infectious syphilis were more likely to be MSM (76.8%; 53). Among males, the proportion reporting same sex partners has increased from 53.3% in 2011 to 85.4% in 2015.

Where this information was recorded, MSM reported acquiring their infection in South Australia (59.6%; 31), interstate (21.1%; 11) and overseas (19%; 19.2).

The most commonly cited reason for ordering a test were screening (41%; 29), a clinical presentation with symptoms (36%; 25) and being a contact of a person infected with chlamydia (16%; 11). Clinic 275 and general practitioners located in metropolitan Adelaide were most likely to notify patients, 44.2 per cent and 25.7 per cent respectively.

Eighteen (26%) persons were diagnosed with primary syphilis, 9 (13%) secondary syphilis and 42 (60%) with early latent syphilis. One patient was diagnosed with acute neurosyphilis.

Table 13 Characteristics of people diagnosed with infectious syphilis, 2015.

Characteristics 2015	Males	Females	Total
Number of notifications	63	7	70
Sexual identity			
Heterosexual	9	7	16
Homosexual	44		44
Bisexual	9		9
Not reported	1		1
Likely location of infection			
South Australia	37	4	41
Interstate	12	3	15
Overseas	12		12
Not reported	2		2
Reason for testing			
Presented with clinical symptoms	25		25
A contact of a confirmed case	8	3	11
Screening	25	4	29
Other	5		5
Notification source			
Metropolitan general practitioner	17	1	18
Country practitioner	3		3
C275	30	1	31
SHine SA	2		2
Public hospitals	5		5
Private hospitals	1	1	2
Nganampa Health Council	2	3	5
Other Aboriginal Health Services	1	1	2
Prison Health	2		2

Syphilis (unspecified)

SA Health commenced collection of health information for persons diagnosed with non-infectious syphilis in 2009. Non-infectious syphilis refers to latent disease where the duration of disease cannot be accurately determined. There were 124 notifications of non-infectious syphilis in 2015. Eighty (64.5%) notifications were males and 44 (35.4%) females. The mean ages for males and females were 46.9 years (age range 20 to 93 years) and 48.9 years (age range 17 to 93 years) respectively. ATSI status was recorded for 121 of 124(97.6%) notifications which is an improvement on data collected in previous years. Thirty-five notifications were among the ATSI population and of these, over half (60%; 21) were among ATSI males. Where the country of birth information was provided, half (51%; 61) were for people born in Australia. Remaining notifications were received for persons born in various geographical regions outside Australia (Table 14).

Table 14 Number of diagnoses of non-infectious syphilis in South Australia by major geographical regions, 2015.

Year of diagnosis	2015
Country of birth by major regions[#]	
Oceania and Antarctica	65
North-West Europe	9
Southern and Eastern Europe	5
North Africa and the Middle East	5
South-East Asia	11
North-East Asia	6
Southern and Central Asia	4
Americas	1
Sub-Saharan Africa	13
Not reported	5

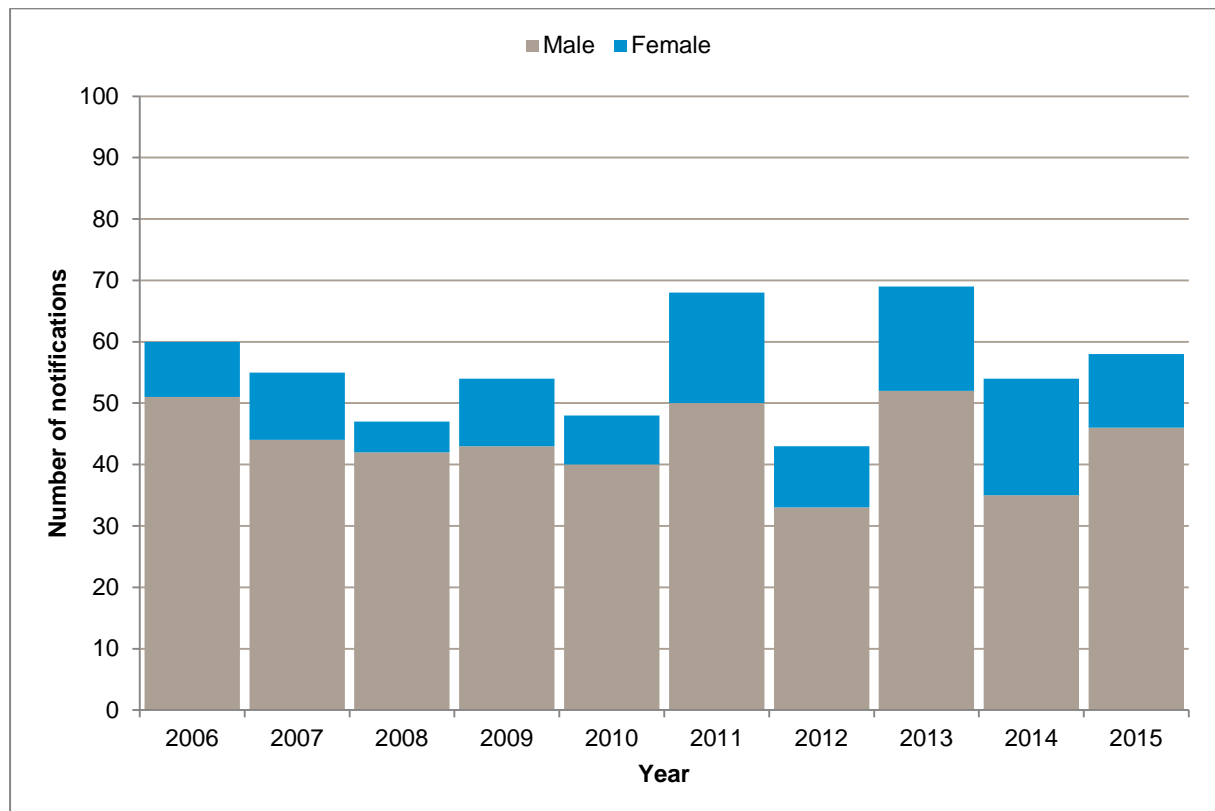
[#] Standard Australian Classification of Countries (SACC) Second edition

Human immunodeficiency virus

In 2015, there were 58 notifications of human immunodeficiency virus (HIV) in South Australia (Figure 11). The corresponding notification rate was 3.4 per 100,000 population representing a 6.2 per cent increase in notifications compared to 2014. In the past five years, the notification rate of HIV was at its highest in 2011 and 2013 (Figure 11). In 2015, there were three notifications among the ATSI population. In South Australia, members of the ATSI population were 2.3 times more likely to be diagnosed with HIV than those of the non-ATSI population in 2015 (Table 15). There were no congenital HIV infections reported in 2015.

Over half (79%; 46) the notifications were in males and over half (67%; 39) were among persons aged 30 years and over (Table 15) in 2015.

Figure 11 Number of new diagnoses of HIV in South Australia by sex, 2006 to 2015.



In 2015, the median age for males and females was 35 years (age range 19 to 70 years) and 33 years (age range 18 to 42 years) respectively. The median age for both sexes is consistent with information collected in the previous five years.

The age-specific notification rate was highest in the 20 to 24 and 30 to 39 year age-group with an age-specific notification rate of 7.8 and 7.9 notifications per 100,000 population respectively.

Table 15 Number of diagnoses of HIV in South Australia by epidemiological characteristics, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015
Characteristic					
Number of notifications	68	43	69	54	58
Notification rate per 100,000 population	4.1	2.6	4.1	3.2	3.4
Sex					
Female	18	10	17	19	12
Male	50	33	52	35	46
Age-group					
0-14	3	1	1		
15-19		2	1		4
20-24	5	5	3	5	9
25-29	13	11	11	13	6
30-39	26	11	19	17	17
40-49	13	7	14	8	14
50-59	6	5	13	6	4
60+	2	1	7	5	4
Aboriginal and Torres Strait Islander status					
ATSI		2	2		3
ATSI notification rate per 100,000 population		5.3	5.3		8
Non-ATSI	67	41	66	52	54
Non-ATSI notification rate per 100,000 population	4.2	2.6	4.1	3.2	3.4
Not reported	1		1	2	1

Where reported, 52 per cent of notifications were for persons born in Australia; this is consistent with information collected in 2014 (Table 16).

Table 16 Number of diagnoses of HIV in South Australia by major geographical regions, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015	Total
Country of birth by major regions[#]						
Oceania and Antarctica	33	21	40	27	30	151
North-West Europe	5	5	5	2	5	22
Southern and Eastern Europe		1	4	1		6
North Africa and the Middle East	6	9	4	8	9	36
South-East Asia	2	2	2		3	9
North-East Asia	3		2	2		7
Southern and Central Asia			1	1	1	3
Americas	1	1	2	2	1	7
Sub-Saharan Africa	18	4	8	10	8	48
Not reported			1	1	1	3

[#] Standard Australian Classification of Countries (SACC) Second edition

In 2015, there were 25 (54.3%) males that identified as MSM compared to 82 per cent (28) in 2014. Of these, one reported being bisexual and one reported injecting drug use. Thirteen (52%) persons identifying as MSM were Australian born; one person identified as ATSI. Where this information was available, 12 (52%) MSM reported acquiring their infection in South Australia, one (4.3%) interstate and 10 (43.4%) overseas. Information on previous HIV testing was available for all MSM notifications in 2015. Of these, 11 (44%) reported a previous negative HIV test more than 12 months ago, six (24%) had never been previously tested, four (16%) had tested negative in the previous 12 months, and four (16%) had tested positive overseas and this was their first positive HIV test result in Australia.

There were 20 males that identified as heterosexual in 2015. Of these, 12 (60%) were Australian born; one male identified as ATSI. The regions of birth for the remaining notifications were Africa (6), Asia (1) and Europe (1). Australian born heterosexual males were more likely than non-heterosexual males to have acquired their infection in South Australia (58.3%; 7), interstate (8.3%; 1) and overseas (33.3%; 4) and where this information was available heterosexual males were more likely than non-heterosexual males to report no previous HIV testing (54%; 6).

In 2015, there were 12 females that identified as heterosexual. Of these, one female reported injecting drug use. Five (45%) females were Australian born; one female identified as ATSI. All Australian born heterosexual females reported acquiring their infection in South Australia. Where this information was available, the region of birth for overseas born females was Africa (6). All overseas born females were likely to have acquired their infection overseas. Country of birth information was not available for one female.

Doctors at Clinic 275 (36%; 21), metropolitan hospitals (27.5%; 16), and general practitioners located in metropolitan Adelaide (25.9%; 15) were most likely to notify patients with HIV.

Table 17 Characteristics of people diagnosed with HIV, 2015.

Characteristics 2015	Males	Females	Total
Number of notifications	46	12	58
Sexual identity			
Heterosexual	20	12	32
Homosexual	24		24
Bisexual	1		1
Not reported	1		1
Likely location of infection			
South Australia	20	5	25
Interstate	2		2
Overseas	22	7	29
Not reported	2		2
HIV exposure category			
Sexual contact	41	11	52
Sexual & IDU	3	1	4
IDU	2		2
HIV testing history			
No prior test	16	4	20
< 12 months prior to diagnosis	6		6
> 12 months prior to diagnosis	13	3	16
Previously diagnosed HIV positive overseas	10	5	15
Not stated	1		1

Table 17 continued	Males	Females	Total
Notification source			
Metropolitan general practitioner	12	3	15
Country general practitioner	1		1
Clinic 275	16	5	21
Public hospitals	14	2	16
Aboriginal Health Services	1		1
Prison Health		1	1
Migrant Health Service	1	1	2
SHine SA	1		1

The CD4 lymphocyte count is a marker of disease progression and the CD4 lymphocyte count at diagnosis is considered a crude guide to the duration of infection. A CD4 lymphocyte count below 350 cells/mm³ is indicative of immune suppression. Where CD4 counts were available, 21 males and four females (46%; 25) had CD4 lymphocyte counts indicative of immune compromise at diagnosis (Table 18). This figure is similar to CD4 counts among newly diagnosed HIV infections in 2014.

Table 18 CD4 lymphocyte counts at diagnosis for newly notified HIV infection by sex in South Australia, 2015.

CD4 Lymphocyte count cells/mm³	Males	Females	Total
0 to 49	2		2
50 to 199	7		7
200 to 349	12	4	16
350 to 499	9	2	11
500+	13	5	18
Not performed	3	1	4
Total	46	12	58

In 2015, complete subtype data were available for 48 patients (Table 19). Subtype designation was determined from sequencing three genes (protease, reverse transcriptase and integrase). Consistent with trends from previous years subtype B was the main circulating strain in South Australia (Table 19). Subtype B is also the main circulating strain among men reporting same-sex partners (75%; 18) (Table 20). Patients with no subtype information acquired their infections overseas and were on HIV treatment at diagnosis in Australia.

Table 19 HIV-1 Genes sequenced for subtypes by location of infection, 2015.

Genes sequenced for clade			Location acquired				Total n=58
Protease	Reverse transcriptase	Integrase	South Australia	Interstate	Overseas	Unknown	
A	A	CRF01_AE	1	0	0	0	1
B	B	B	17	2	3	2	24
C	C	B	0	0	1	0	1
C	C	C	1	0	2	0	3
CRF01_AE	B	CRF01_AE	0	0	1	0	1
CRF01_AE	CRF01_AE	not sequenced	1	0	0	0	1
CRF01_AE	CRF01_AE	A	0	0	2	0	2
CRF01_AE	CRF01_AE	CRF01_AE	2	0	6	0	9
CRF02_AG	B	CRF02_AG	0	0	1	0	1
CRF02_AG	CRF02_AG	CRF02_AG	3	0	0	0	3
G	CRF01_AE	G	0	0	1	0	1
K	CRF01_AE	CRF01_AE	0	0	1	0	1
No data			0	0	10	0	10

Table 20 HIV-1 Genes sequenced for subtypes by sexual identity, 2015.

Protease	Reverse transcriptase	Integrase	Genes sequenced for clade			Total
			Heterosexual Male	MSM	Female	
A	A	CRF01_AE	0	0	1	1
B	B	B	5	18	1	24
C	C	B	1	0	0	1
C	C	C	2	0	1	3
CRF01_AE	B	CRF01_AE	0	1	0	1
CRF01_AE	CRF01_AE	not sequenced	0	0	1	1
CRF01_AE	CRF01_AE	A	1	0	1	2
CRF01_AE	CRF01_AE	CRF01_AE	5	3	1	9
CRF02_AG	B	CRF02_AG	0	1	0	1
CRF02_AG	CRF02_AG	CRF02_AG	1	0	2	3
G	CRF01_AE	G	0	0	1	1
K	CRF01_AE	CRF01_AE	0	1	0	1
No data			4	3	3	10
Total			19	27	12	58

Eight out of 48 sequenced genes expressed mutations associated with drug resistance (Table 21)

Table 21 HIV-1 Drug resistant mutations at time of diagnosis, 2015.

Resistance Mutation(s)*	Location infection acquired				Total
	South Australia	Interstate	Overseas	Unknown	
D67N K103S	0	0	0	1	1
K103N	3	0	0	0	3
M41L	1	0	0	0	1
T215E	0	0	1	0	1
T215S	0	0	1	0	1
V179D	1	0	0	0	1
Total	5	0	2	1	8

*D67N is associated with low-level resistance to zidovudine and stavudine.

M41L usually occurs with T215Y. Together, M41L and T215Y confer high-level resistance to zidovudine and stavudine and intermediate-level resistance to didanosine, abacavir and tenofovir.

K103N causes high-level resistance to nevirapine and efavirenz.

K103S causes intermediate/high-level resistance to nevirapine and low/intermediate-level resistance to efavirenz, patients with K103S may be more likely to harbor K103N.

T215E and T215S do not reduce NRTI susceptibility but arise from viruses that once contained T215Y or T215F.

V179D is an accessory mutation selected in patients receiving efavirenz it reduces susceptibility to nevirapine, efavirenz ,etravirine and rilpivarine.

Hepatitis B

There were seven notifications of newly acquired hepatitis B (HBV) infection in South Australia in 2015 (Figure 12). The corresponding notification rate was 0.4 per 100,000 population, which is consistent with notifications received in 2014. Two notifications were among members of the ATSI population and were residents of rural and remote regions of South Australia (Table 22). In 2015, over half (57%; 4) the notifications were in males and over half (57%; 4) were among people aged 30 years and over (Table 22).

Figure 12 Number of diagnoses of newly acquired hepatitis B infection in South Australia by sex, 2006 to 2015.

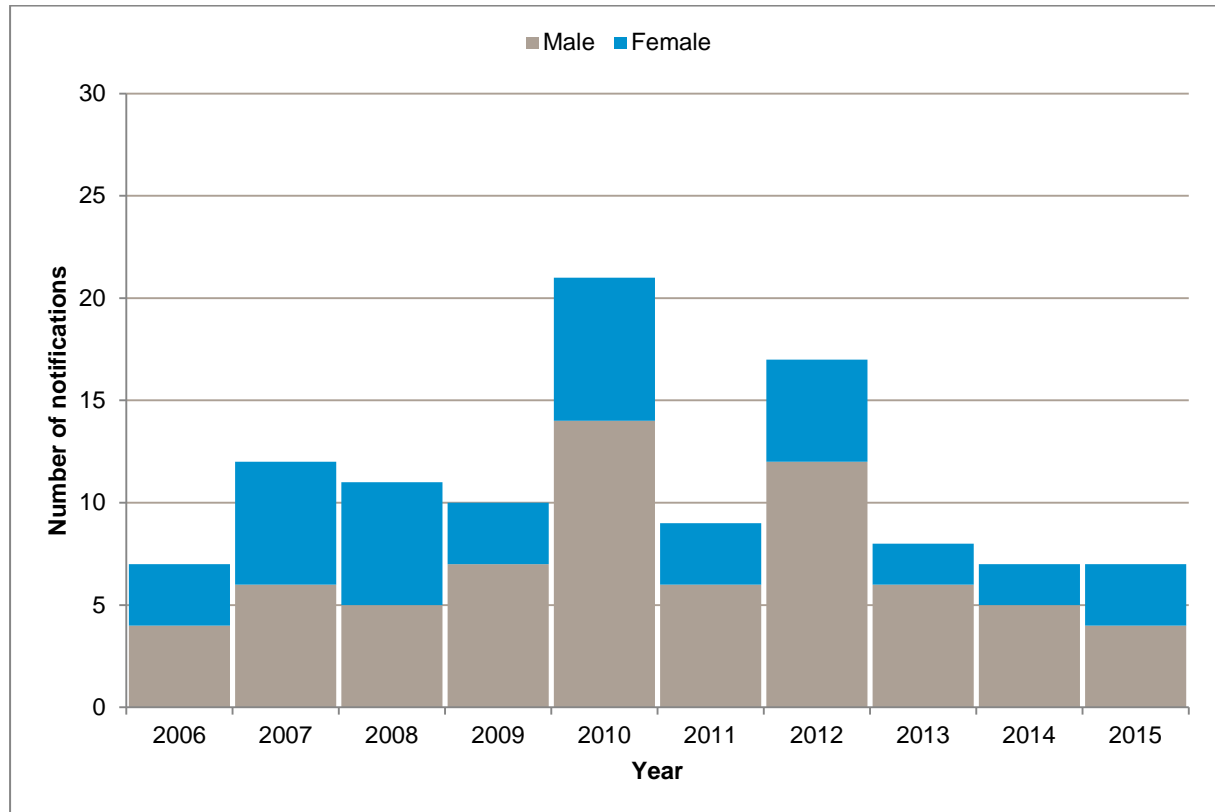


Table 22 Number of diagnoses of newly acquired hepatitis B in South Australia by epidemiological characteristics, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015
Characteristic					
Number of notifications	9	17	8	7	7
Notification rate per 100,000 population	0.5	1	0.5	0.4	0.4
Sex					
Female	3	5	2	2	3
Male	6	12	6	5	4

Table 22 continued	2011	2012	2013	2014	2015
Age-group					
0-14	1			1	
15-19		1	1	1	2
20-24			1		1
25-29	1	2			
30-39	6	6	2		2
40-49	1	4	2	3	2
50-59		2	1		
60+		2	1	2	
Aboriginal and Torres Strait Islander status *					
ATSI	0	2	0	1	2
ATSI notification rate per 100,000 population	0	5.3	0	2.7	5.3
Non-ATSI	9	15	8	6	5
Non-ATSI notification rate per 100,000 population	0.6	0.9	0.5	0.4	0.3

* Crude rate per 100,000 population. Population estimates from the 2011 Census of Population and Housing (Australian Bureau of Statistics).

Five notifications were for people born in Australia and this is reasonably consistent with information collected in previous years (Table 23).

Table 23 Number of diagnoses of newly acquired hepatitis B in South Australia by major geographical regions, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015	Total
Country of birth by major regions[#]						
Oceania and Antarctica	8	12	5	6	5	36
North-West Europe					1	1
Southern and Eastern Europe	1	2				3
North Africa and the Middle East		1	1			2
South-East Asia			1	1		2
North-East Asia		1				1
Southern and Central Asia					1	1
Americas		1	1			2
Sub-Saharan Africa						
Not reported						

[#] Standard Australian Classification of Countries (SACC) Second edition

In 2015, it became possible to collect and analyse an enhanced dataset for people with a newly diagnosed HBV infection. Patients typically presented to their doctor with clinical signs and symptoms of acute hepatitis prompting further investigation. There was no clear trend to explain possible sources for infection; individual cases may have reported more than one exposure category (Table 24).

Table 24 Characteristics of people diagnosed with newly acquired hepatitis B infection, 2015.

Characteristics	Males	Females	Total
Number of notifications	4	3	7
Sexual identity			
Heterosexual	2	3	5
Homosexual	1		1
Bisexual			
No sexual partners	1		1
Not reported			
Exposure category			
Injecting drug use	1		1
Sexual partner of the opposite sex with known HBV		1	1
Household contact with known HBV		1	1
Ear or body piercing		1	1
Other	1		1
No risk factors identified	2	0	2
Reason for testing			
Investigation of symptomatic hepatitis	3	3	6
Abnormal liver function tests	1		1
Notification source			
Metropolitan general practitioner	3		3
Public hospitals	1	1	2
Nganampa Health Council		1	1
Other		1	1

Hepatitis B (unspecified)

There were 338 notifications of HBV infections of unspecified duration in South Australia in 2015 (Figure 13). The corresponding notification rate was 19.9 per 100,000 population, which is consistent with notifications received since 2011. Twelve notifications were among members of the ATSI population and were residents of metropolitan, rural and remote regions of South Australia. In 2015, over half (52.9%; 179) of the notifications were in males and over half (71%; 240) were among people aged 30 years and over (Table 25). A decline in notifications among the 0-14 year age group is evident in the dataset and may reflect improved postnatal management and national HBV vaccination programmes.

Figure 13 Number of diagnoses of unspecified hepatitis B infection in South Australia by sex, 2006 to 2015.

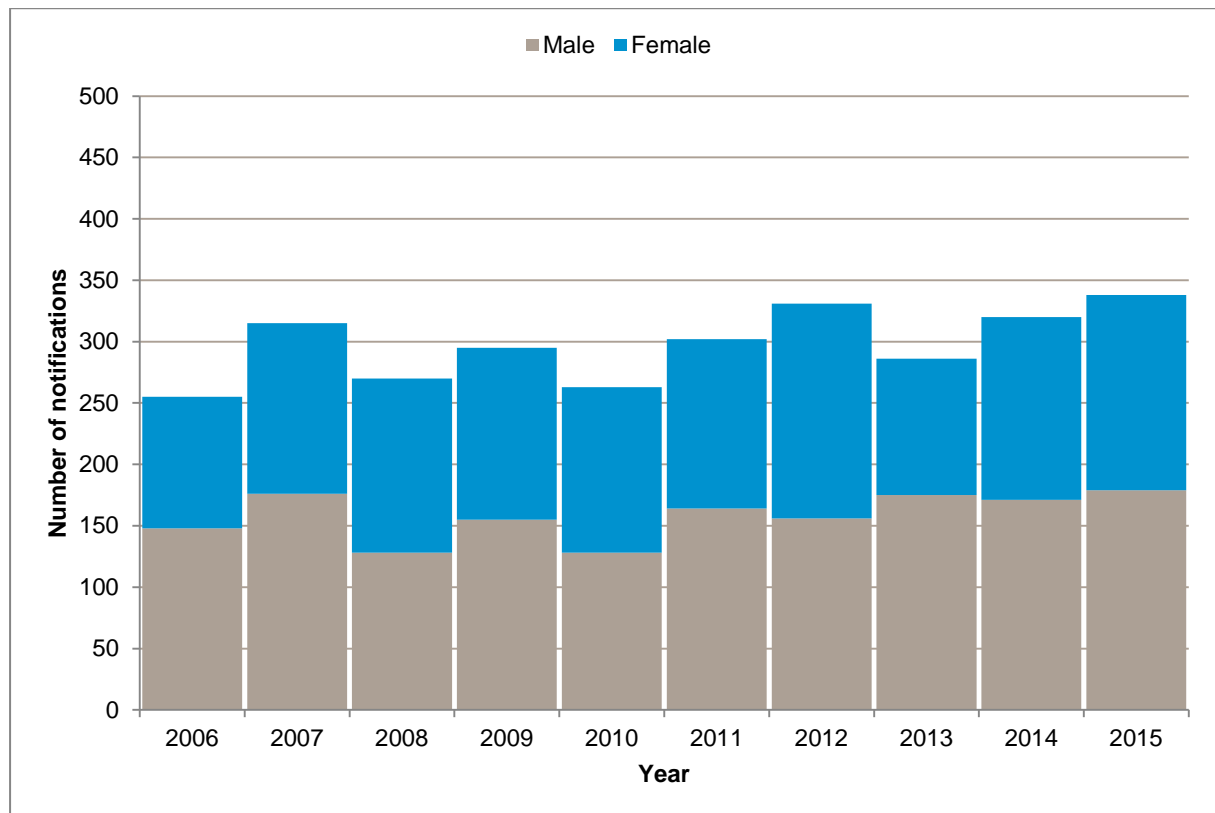


Table 25 Number of diagnoses of unspecified hepatitis B infection by epidemiological characteristics, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015
Characteristic					
Number of notifications	302	330	286	320	338
Notification rate per 100,000 population	18.4	19.9	17.1	19	19.9
Sex					
Female	138	174	111	149	159
Male	164	156	175	171	179

Table 25 continued	2011	2012	2013	2014	2015
Age-group					
0-14	20	11	9	5	1
15-19	22	11	12	17	12
20-24	28	38	24	39	27
25-29	43	55	37	47	58
30-39	81	103	98	104	101
40-49	50	59	50	47	60
50-59	36	27	20	33	42
60+	22	26	36	28	37
Aboriginal and Torres Strait Islander status *					
ATSI	21	14	13	16	12
ATSI notification rate per 100,000 population	56.1	37.4	34.8	42.8	32.1
Non-ATSI	281	316	273	304	326
Non-ATSI notification rate per 100,000 population	17.5	19.7	17	19	20.3

* Crude rate per 100,000 population. Population estimates from the 2011 Census of Population and Housing (Australian Bureau of Statistics).

People born in South-East, North-East, Southern and Central Asia accounted for the majority of notifications (69%; 234) and this is consistent with notifications received in the past five years (Table 26). Of the 28 persons born in Australia, 42.8 per cent (12) identified as ATSI.

Table 26 Number of notifications of unspecified hepatitis B infection by major geographical regions, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015	Total
Country of birth by major regions[#]						
Oceania and Antarctica	41	37	36	36	36	186
North-West Europe	0	2	4	3	4	13
Southern and Eastern Europe	9	11	12	16	19	67
North Africa and the Middle East	20	5	14	18	17	74
South-East Asia	77	109	81	98	106	471
North-East Asia	53	88	68	74	96	379
Southern and Central Asia	41	34	42	35	32	184
Americas	0	2	3	1	3	9
Sub-Saharan Africa	26	23	16	29	20	114
Not reported	35	19	10	11	5	80

[#] Standard Australian Classification of Countries (SACC) Second edition

In 2015, it became possible to collect and analyse an enhanced dataset for people with unspecified HBV infection. In contrast to persons with newly acquired HBV infection, patients with unspecified HBV were more likely to be detected through routine screening procedures such as antenatal, sexual health and pre-operative screening. Persons born in highly endemic countries were more likely to report perinatal infection (an infant born to an infected mother) or living with a HBV infected household member. Additionally, overseas born people with HBV infection were more likely to report a range of possible risk exposures such as surgical and dental procedures or blood transfusions prior to arriving in Australia. Infections acquired overseas could not be verified. Diagnosing doctors may have reported more than one exposure category for an individual patient. Possible risk exposures were not established in 44 per cent (151) of notifications.

Table 27 Characteristics of people diagnosed with unspecified hepatitis B infection, 2015.

Characteristics 2015	Males	Females	Total
Number of notifications	179	159	338
Sexual identity			
Heterosexual	116	117	233
Homosexual	3	1	4
Bisexual			
No sexual partners	38	21	59
Not reported	22	20	42
Exposure category			
Injecting drug use	12	3	15
Blood/blood products/tissues overseas	1	2	3
Surgical work overseas	3	1	4
Dental work overseas	8		8
Tattoos	15	3	18
Perinatal transmission overseas	12	9	21
Sexual partner of the opposite sex with known HBV	2	4	6
Sexual partner of the same sex with known HBV		1	1
Imprisonment	4		4
Household contact with known HBV	54	55	109
Healthcare worker with no documented exposure	1	1	2
Other	20	21	41
Not reported	89	77	166
Reason for testing			
Investigation of symptomatic hepatitis	1	1	2
Abnormal liver function tests	8		8
Blood or organ donor screening	2	2	4
Prison screening	5		5
Antenatal screening		31	31
Drug and alcohol screening	1		1
STI screening	7	4	11
Pre-operative screening	8	2	10
Patient request	2	2	4
Other	14	16	30
Not reported	131	101	232
Notification source			
Metropolitan general practitioner	100	88	188
Country general practitioner	9	7	16
Public hospitals	32	37	69
Private hospitals		1	1
Nganampa Health Council	1	2	3
Aboriginal Health Services	1	1	2
Clinic 275	6	2	8
Prison Health	4		4
SHine SA		1	1
Other	26	20	46

Hepatitis C

There were forty-three notifications of newly acquired hepatitis C (HCV) infections in South Australia in 2015 (Figure 14). The corresponding notification rate was 2.5 per 100,000 population, which is consistent with notifications received in 2014. Fourteen (32.5%) notifications were among members of the ATSI population and were residents of metropolitan and rural regions of South Australia. Since 2012, a downward trend in the notification rate among the ATSI population has been evident in the dataset. In 2015, over half (53.4%; 23) the notifications were among males and over half (60.4%; 26) for persons aged 30 years and over (Table 28).

Figure 14 Number of diagnoses of newly acquired hepatitis C infection in South Australia by sex, 2006 to 2015.

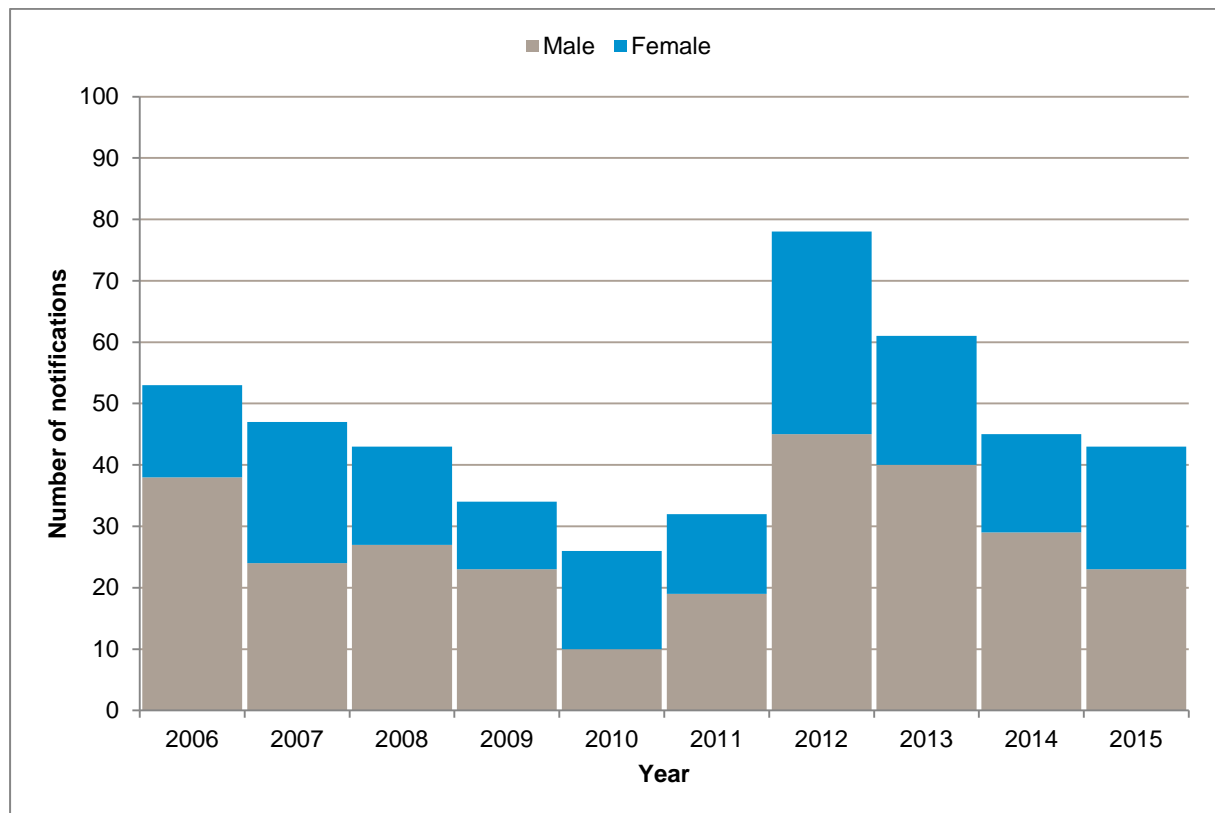


Table 28 Number of diagnoses of newly acquired hepatitis C infection in South Australia by epidemiological characteristics, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015
Characteristic					
Number of notifications	32	78	61	45	43
Notification rate per 100,000 population *	2.0	4.7	3.7	2.7	2.5
Sex					
Female	13	33	21	16	20
Male	19	45	40	29	23

Table 28 continued	2011	2012	2013	2014	2015
Age-group					
0-14			1		
15-19	3	3	1	3	1
20-24	3	8	5	5	9
25-29	6	21	13	9	7
30-39	16	21	21	14	16
40-49	4	16	16	10	7
50-59		8	2	3	3
60+		1	2	1	
Aboriginal and Torres Strait Islander status *					
ATSI	1	24	16	15	14
ATSI notification rate per 100,000 population	2.7	64.2	42.8	40.1	37.4
Non-ATSI	31	54	45	30	29
Non-ATSI notification rate per 100,000 population	1.9	3.4	2.8	1.9	1.8

* Crude rate per 100,000 population. Population estimates from the 2011 Census of Population and Housing (Australian Bureau of Statistics).

Thirty-nine notifications were for people born in Australia and this is consistent with information collected in previous years (Table 29).

Table 29 Number of diagnoses of newly acquired hepatitis C in South Australia by major geographical regions, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015	Total
Country of birth by major regions[#]						
Oceania and Antarctica	29	68	56	40	41	234
North-West Europe		4		2	1	7
Southern and Eastern Europe						
North Africa and the Middle East		1	2			3
South-East Asia		1	1			2
North-East Asia						
Southern and Central Asia						
Americas		1				1
Sub-Saharan Africa						
Not reported	3	3	2	3	1	12

[#] Standard Australian Classification of Countries (SACC) Second edition

In 2015, patients with newly acquired hepatitis C typically presented to their doctor with clinical signs and symptoms of acute hepatitis prompting further investigation. A history of injecting drug use was established for the majority of newly acquired HCV infected people (42 of 43 notifications); individual people may have reported more than one exposure category (Table 30). A complex picture of health and social co-morbidities accompanied many notifications to the Communicable Disease Control Branch. Consequently, many diagnosing doctors completed enhanced surveillance forms on behalf of the Communicable Disease Control Branch. Screening by Prison Health accounted for thirty per cent of the total number of newly acquired infections in 2015.

Table 30 Characteristics of people diagnosed with newly acquired hepatitis C infection, 2015.

Characteristics 2015	Males	Females	Total
Number of notifications	23	20	43
Exposure category			
Injecting drug use	22	20	42
Tattoos	7	3	10
Ear or body piercing		2	2
Sexual partner of the opposite sex with known HCV		8	8
Imprisonment	13	4	17
Household contact with known HCV	8	9	17
Other	3	1	4
No risk factors identified			
Reason for testing			
Investigation of symptomatic hepatitis	2	1	3
Abnormal liver function tests		6	6
Prison screening	11	1	12
Antenatal screening		1	1
Drug/Alcohol screening	3	3	6
STI screening		1	1
Perioperative screening		2	2
Patient request	2	1	3
Other	1		1
Not reported	4	4	8
Notification source			
Metropolitan general practitioner	1	8	9
Country general practitioner	2	2	4
Public hospitals	4	7	11
Aboriginal Health Services	1		1
Clinic 275	1		1
Prison Health	12	1	13
SHine SA		1	1
Mental Health Services	2		2
Drug and Alcohol Services		1	1

Hepatitis C (unspecified)

There were 459 notifications of HCV infections of unspecified duration in South Australia in 2015 (Figure 15). The corresponding notification rate was 27 per 100,000 population, which is consistent with notifications received since 2011. Forty-four notifications were among members of the ATSI population and were residents of metropolitan, rural and remote regions of South Australia. In 2015, over half (63.4%; 291) of the notifications were in males and over half (88%; 403) were for people aged 30 years and over (Table 31).

Figure 15 Number of diagnoses of unspecified hepatitis C infection in South Australia by sex, 2006 to 2015.

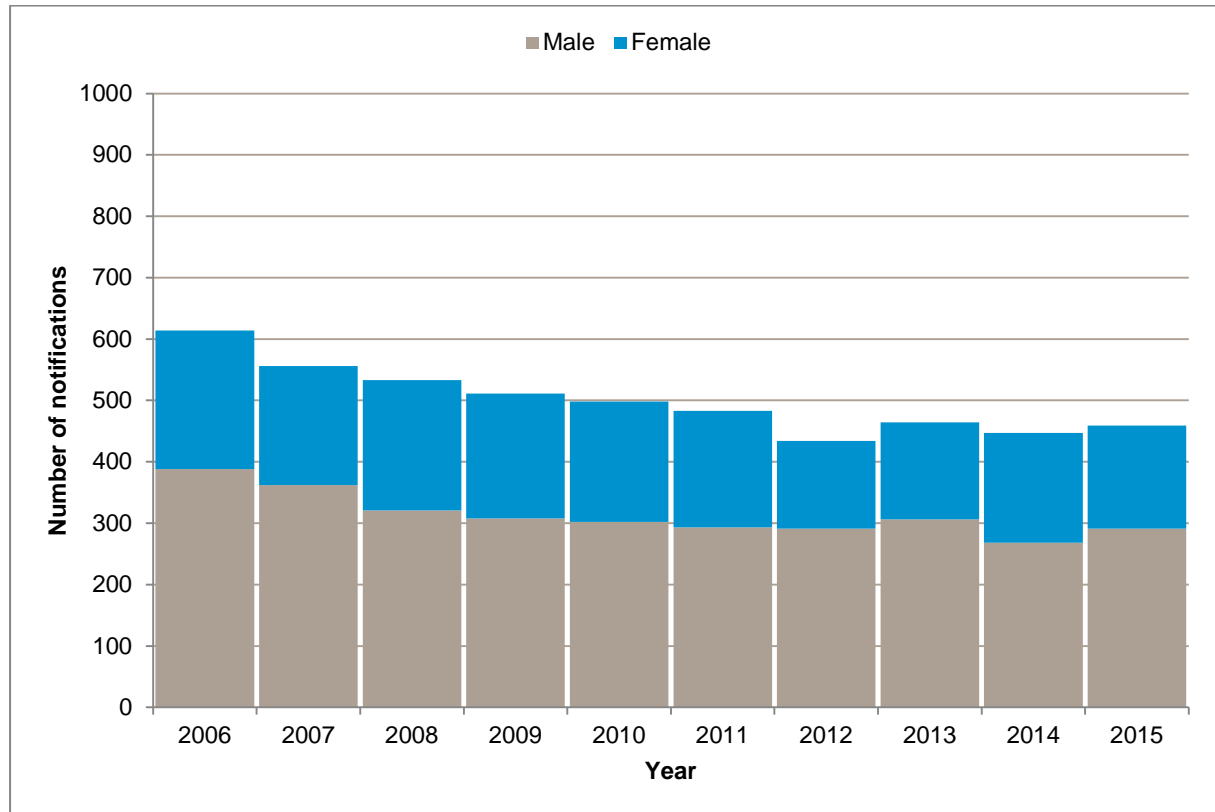


Table 31 Number of diagnoses of unspecified hepatitis C infection by epidemiological characteristics, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015
Characteristic					
Number of notifications	483	434	464	447	459
Notification rate per 100,000 population	29.5	26.2	27.8	26.5	27
Sex					
Female	190	143	158	179	168
Male	293	291	306	268	291

Table 31 continued	2011	2012	2013	2014	2015
Age-group					
0-14	2		1	3	
15-19	10	4	5	8	6
20-24	30	26	22	16	16
25-29	53	50	42	41	34
30-39	120	112	116	124	125
40-49	130	112	131	113	122
50-59	110	96	103	98	119
60+	28	34	44	43	37
Unknown				1	
Aboriginal and Torres Strait Islander status *					
ATSI	40	45	55	51	44
ATSI notification rate per 100,000 population	106.9	120.3	147.0	136.3	117.6
Non-ATSI	443	389	409	396	415
Non-ATSI notification rate per 100,000 population	27.6	24.3	25.5	24.7	25.9

* Crude rate per 100,000 population. Population estimates from the 2011 Census of Population and Housing (Australian Bureau of Statistics).

Three hundred and twenty-nine notifications were for people born in Australia and this is consistent with information collected in previous years (Table 32).

Table 32 Number of diagnoses of unspecified hepatitis C infection by major geographical regions, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015	Total
Country of birth by major regions[#]						
Oceania and Antarctica	296	280	307	302	339	1524
North-West Europe	18	18	13	15	13	77
Southern and Eastern Europe	8	21	10	18	8	65
North Africa and the Middle East	1	7	13	7	6	34
South-East Asia	37	22	29	20	20	128
North-East Asia	5	6	6	10	4	31
Southern and Central Asia	19	20	18	20	23	100
Americas	5	2	4	2	3	16
Sub-Saharan Africa	7	4	3	3	3	20
Not reported	87	54	61	50	40	292

[#] Standard Australian Classification of Countries (SACC) Second edition

Where this information was available, patients with unspecified HCV infection were more likely to be detected through routine screening procedures such as prison, drug and alcohol, pre-operative and antenatal screening programmes. As observed for newly acquired HCV infections, a picture of complex health and social co-morbidities accompanied many notifications to Communicable Disease Control Branch.

Diagnosing doctors may have reported more than one exposure category for an individual. Where this information was available, 75 per cent of people with unspecified HCV infection reported a history of injecting drug use. Commercial and/or home tattooing and/or a past history of incarceration were other frequently identified exposure categories. Infections acquired overseas could not be verified.

Table 33 Characteristics of people diagnosed with unspecified hepatitis C infection, 2015.

Characteristics 2015	Males	Females	Total
Number of notifications	291	168	459
Exposure category			
Injecting drug use	216	108	324
Blood/blood products/tissues overseas	5	5	10
Needlestick or biohazard injury		4	4
Surgical work overseas	1	3	4
Dental work overseas		3	3
Tattoos	67	16	83
Ear of body piercing	2	4	6
Sexual partner of the opposite sex with known HCV	4	11	15
Imprisonment	46	8	54
Household contact with known HCV	9	14	23
Other	6	4	10
Risk unable to be determined	31	28	59
Reason for testing			
Investigation of symptomatic hepatitis	1	2	3
Abnormal liver function tests	7	5	12
Blood or organ donor screening	2	1	3
Prison screening	33	9	42
Antenatal screening		16	16
Drug and alcohol screening	19	7	26
STI screening	5	2	7
Pre-operative screening	13	5	18
Patient request	4		4
Other	9	9	18
Not reported	198	112	310
Notification source			
Metropolitan general practitioner	93	70	163
Country general practitioner	58	26	84
Public hospitals	61	34	95
Private hospitals	3		3
Aboriginal Health Services	4	7	11
Clinic 275	2		2
Prison Health	33	9	42
SHine SA	3		3
Mental Health Services	6	4	10
Drug and Alcohol Services	14	6	20
Other	14	12	26

Hepatitis D

Hepatitis D (HDV) requires the assistance of HBV to replicate therefore the virus is only found in people infected with HBV. HDV can be acquired as either a co-infection with HBV or as a super-infection in persons with chronic HBV. In Australia, HDV occurs epidemically among populations at high-risk of HBV infection. In Australia, notifications of HDV infection remain low. In 2015, there were nine new diagnoses of HDV infection notified to the Communicable Disease Control Branch (Figure 16). Of these, none were among the Aboriginal and Torres Strait Islander population. Diagnoses occurred in primary (n=2), tertiary (n=3) and community (n=4) based healthcare settings.

Figure 16 Number of new diagnoses of hepatitis D in South Australia by sex, 2006 to 2015

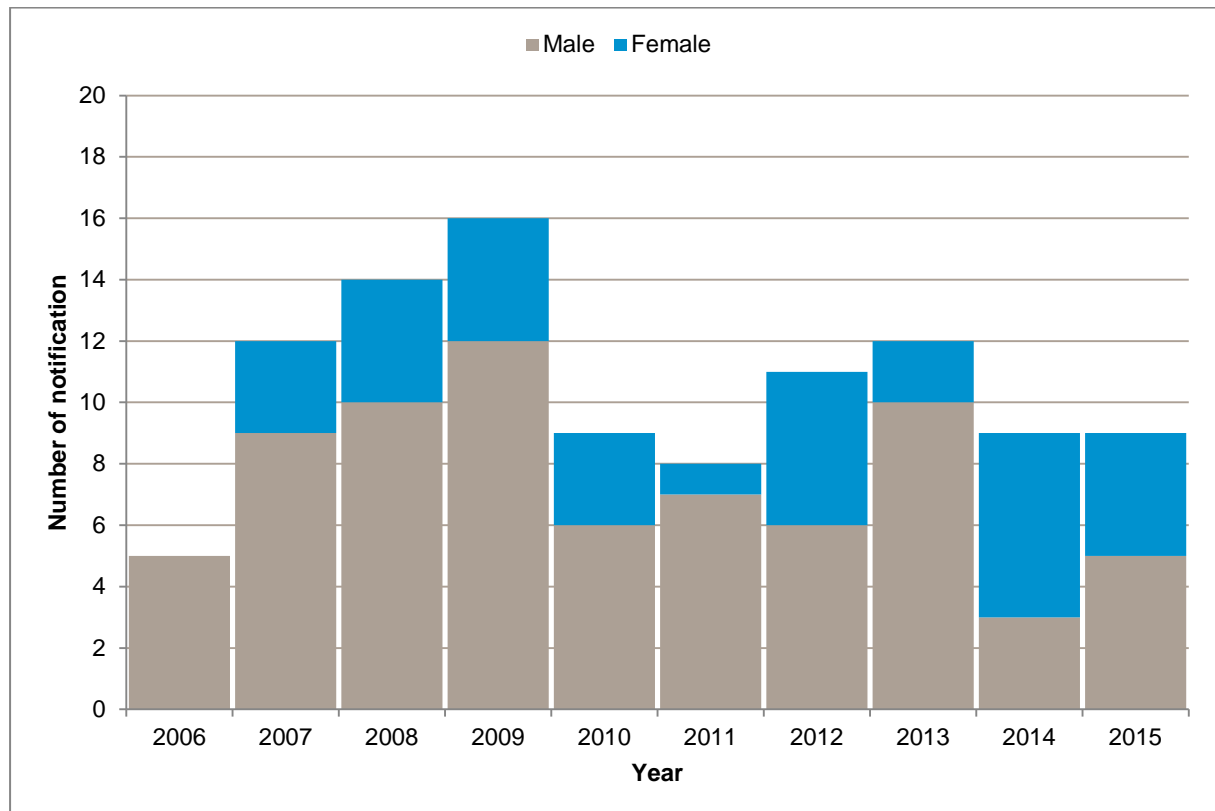


Table 34 Number of new diagnoses of hepatitis D by epidemiological characteristics, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015
Characteristic					
Number of notifications	8	11	12	9	9
Notification rate per 100,000 population	0.5	0.7	0.7	0.5	0.5
Sex					
Female	1	5	2	6	4
Male	7	6	10	3	5

Table 34 continued	2011	2012	2013	2014	2015
Age-group					
0-14		1	1		
15-19	1				1
20-24	1	1	1	1	
25-29	1		3	4	1
30-39	2	1	3	2	5
40-49	2	7	2		1
50-59	1	1	2	1	1
60+				1	
Aboriginal and Torres Strait Islander status *					
ATSI		1			
ATSI notification rate per 100,000 population		2.7			
Non-ATSI	8	10	12	9	9
Non-ATSI notification rate per 100,000 population	0.5	0.6	0.7	0.6	0.6
Not reported					

* Crude rate per 100,000 population. Population estimates from the 2011 Census of Population and Housing (Australian Bureau of Statistics).

Table 35 Number of new diagnoses of hepatitis D by major geographical regions, 2011 to 2015.

Year of diagnosis	2011	2012	2013	2014	2015	Total
Country of birth by major regions#						
Oceania and Antarctica		3	3		1	7
North-West Europe						
Southern and Eastern Europe			1	1		2
North Africa and the Middle East	4		2	2	1	9
South-East Asia		1	2	1	2	6
North-East Asia	1			1		2
Southern and Central Asia		4	3	1	2	10
Americas						0
Sub-Saharan Africa	2	3	1	3	1	10
Not reported	1				2	3

Standard Australian Classification of Countries (SACC) Second edition