

# **ENHANCED SURVEILLANCE OF INFECTIOUS SYPHILIS IN NEW ZEALAND SEXUAL HEALTH CLINICS - 2013**

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Institute of Environmental Science and Research Limited

September 2014

This report is available on the internet at [www.surv.esr.cri.nz](http://www.surv.esr.cri.nz)

Published: 18 September 2014

Suggested citation:

The Institute of Environmental Science and Research Ltd.

Enhanced surveillance of Infections Syphilis in New Zealand Sexual Health Clinics - 2013

Porirua, New Zealand

Client report: FW14049

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## Acknowledgements

This report has been prepared by the Health Intelligence Team at ESR. The production of this report was led by Alison Borman and Jill Sherwood. Particular acknowledgements go to:

- Liza Lopez for peer checking
- All Sexual Health Clinics for providing questionnaire data
- The Enhanced Syphilis Surveillance Steering group for their on-going support and review of the report
- The AIDS Epidemiology Group for providing previous years' data
- The Communicable Diseases Team at the Ministry of Health for review of the report

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## EXECUTIVE SUMMARY

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## EXECUTIVE SUMMARY

### Background

There was an increase in the number of infectious syphilis cases reported by Sexual Health Clinics (SHCs) from 2002–2009 as part of New Zealand Sexually Transmitted Infection (STI) surveillance. During this period several separate studies showed clusters of syphilis in different areas of the country amongst men who have sex with men (MSM). A pilot project for national enhanced syphilis surveillance was undertaken by the AIDS Epidemiology Group (AEG) in 2011.

ESR took over reporting enhanced syphilis surveillance in 2013. A steering group of representatives from the Sexual Health Society reviewed the questionnaire previously used by AEG. The questionnaire was updated to include additional questions and remove questions that were considered to be unnecessary.

### Methods

This report draws on data collected by AEG for 2011 and 2012 as well as 2013 data collected by ESR. Basic demographic information such as age or place of diagnosis is reported by sex. All other data presented in this report are categorised by sexual behaviour (MSM and heterosexual).

### Findings

Eighty-one cases of infectious syphilis were reported by SHCs in 2013, an increase from 2012. Seventy-three (90.1%) cases were male. The highest numbers of cases were reported in Auckland (41 cases) and Christchurch (18 cases). The 45–49 years age group had the highest number of cases (16) and all of these cases were male. Sixty-three (86.3%) male cases were reported as being MSM, including four cases who also had sex with females. The most commonly reported ethnic group in MSM cases was NZ European (62.9%). Most MSM and heterosexual cases were infected in New Zealand (81.0% and 80.0% respectively).

For MSM cases, the initial testing was most likely to have been in a SHC (46 cases). The most commonly reported primary reason for testing in MSM cases was clinical symptoms or suspicion. More MSM cases reported symptoms than heterosexual cases (65.1% and 27.8% respectively). More MSM cases also reported a concurrent STI diagnosis than heterosexual cases (27.0% and 11.1% respectively). Eighteen (29.0%) MSM cases were HIV seropositive. Forty MSM cases (65.6%) had two or more sexual partners in the previous three months. The most commonly reported context leading to infection for MSM cases was internet-dating and sex-on-site venues (10 cases each).

### Discussion

This report highlights the usefulness of enhanced surveillance to inform a response to recent increases in case numbers for infectious syphilis in New Zealand, but also notes the limitations of this surveillance. Full reporting by laboratories and follow-up by appropriately skilled sexual health or public health physicians to confirm the case status would give a more complete picture of the epidemiology of this serious disease in New Zealand.



## INTRODUCTION

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## INTRODUCTION

Syphilis is a serious infection caused by *Treponema pallidum* with both acute and chronic stages. Transmission most commonly occurs by sexual contact during the first year after infection, but may also occur trans-placentally for at least four years after infection. If left untreated syphilis may cause neurological, cardiovascular or skin and connective tissue disorders. Untreated infectious syphilis during pregnancy always results in foetal infection and about half of pregnancies will end in miscarriage or still-birth[1].

Historically surveillance of syphilis in New Zealand has been part of the Sexually Transmitted Infections (STI) sentinel system, using data provided on a voluntary basis by Sexual Health Clinics (SHCs), Family Planning Clinics (FPCs) and Student and Youth Health Clinics to ESR. In general, almost all cases each year are reported from SHCs [2]. This sentinel system does not collect information on sexual behaviour or other possible risk factors.

STI surveillance showed an increase in syphilis cases reported by SHCs from 2002 reaching a peak in 2009 (135 cases) with a decline from 2010 until 2012 [2, 3]. Between 2002 and 2006 several studies from different areas in New Zealand showed an increased risk of disease in men who have sex with men (MSM) and the New Zealand Sexual Health Society (NZSHS) decided a pilot project for national enhanced syphilis surveillance using data from SHCs was needed [3-6]. Subsequently the AIDS Epidemiology Group (AEG) in Dunedin offered to undertake this project and published a report in 2011 [3]. Data was also collected by AEG in 2012 but a full report was not published. However a cluster of syphilis cases among young MSM in Christchurch was recognised and reported [7].

In 2013 the Ministry of Health asked ESR to take over the reporting of enhanced syphilis surveillance and a steering group of NZSHS representatives met with ESR to review the questionnaire. This report draws on data collected by AEG for 2011 and 2012 as well as the 2013 data collected by ESR.





## **SURVEILLANCE METHODS**

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## SURVEILLANCE METHODS

### Interpreting the results

The AIDS Epidemiology Group (AEG) reported enhanced surveillance of infectious syphilis in New Zealand Sexual Health Clinics (SHCs) in 2011 and 2012. ESR started reporting this surveillance in 2013.

AEG compared numbers of cases notified to them via questionnaires against ESR quarterly reports that use data collected for the ESR STI sentinel surveillance. Since 2013 data reported from SHCs for the purpose of the quarterly reports has been matched with questionnaire data. It is recommended that the time trend sections of this report are treated with caution due to the difference in surveillance methods between 2013 and previous years.

Definitions of infectious syphilis are shown at the end of this section. As in previous years members of the steering group for enhanced syphilis surveillance (ESS) were asked to make a decision about cases where there was uncertainty as to whether or not they met the criteria for infectious syphilis.

### Data collection

The questionnaire was updated in 2013, after discussion with the steering group, to include additional questions and remove any questions that were considered to be unnecessary.

All SHCs were asked to provide the number of infectious syphilis cases diagnosed in the previous month and complete a questionnaire as necessary (see Appendix B for questionnaires for 2011 and 2013). To ensure that a case's identity was not revealed an AIDS code or clinic patient ID was used. The code or ID was necessary to ensure there was no duplication of data.

### Analysis methods

All results and analyses are based on data submitted prior to 1 August 2014. Any data submitted after this date will be reflected in subsequent annual reports. Data received via email, fax, or post from SHCs are entered via a secure, web-based application called REDCap [8] and are extracted and analysed using Excel. Cases that are diagnosed and followed up by other health care providers are not captured in this report. All SHCs participated in 2013.

Basic demographic information such as age or place of diagnosis is reported by sex. Other data presented in this report are categorised by sexual behaviour (MSM and heterosexual).

## CASE DEFINITIONS FOR INFECTIOUS SYPHILIS

### Primary and secondary syphilis

Case must have presented with compatible clinical symptoms and signs such as genital ulceration or rash confirmed on examination and/or mucocutaneous lesions containing *Treponema pallidum* confirmed by direct fluorescent antibodies (DFA) or polymerase chain reaction (PCR).

### Early latent syphilis

Case must have no clinical symptoms or signs of syphilis plus one of the following:

- a clear history of primary or secondary syphilis symptoms within the previous 2 years or
- sexual contact with a confirmed case of infectious syphilis within the previous 2 years or
- a documented four-fold or greater rise in RPR titre if history of previous treated syphilis or
- documented seroconversion to reactive treponemal serology as defined above within the previous 2 years.

### Syphilis of unknown duration

Case must have no clinical signs or symptoms of syphilis, no previously documented reactive treponemal serology and a rapid plasma reagin (RPR) titre greater than 1:16 [9].



## RESULTS

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## RESULTS

In 2013, all Sexual Health Clinics (SHCs) agreed to participate in the enhanced surveillance of infectious syphilis and 81 cases were reported.

### Place of diagnosis

#### 2013

In 2013, 73/81 (90.1%) cases were male and eight cases were female. The highest numbers of cases were seen in Auckland (41 cases) and Christchurch (18 cases). The number of infectious syphilis cases by place of diagnosis and sex are displayed in Table 1.

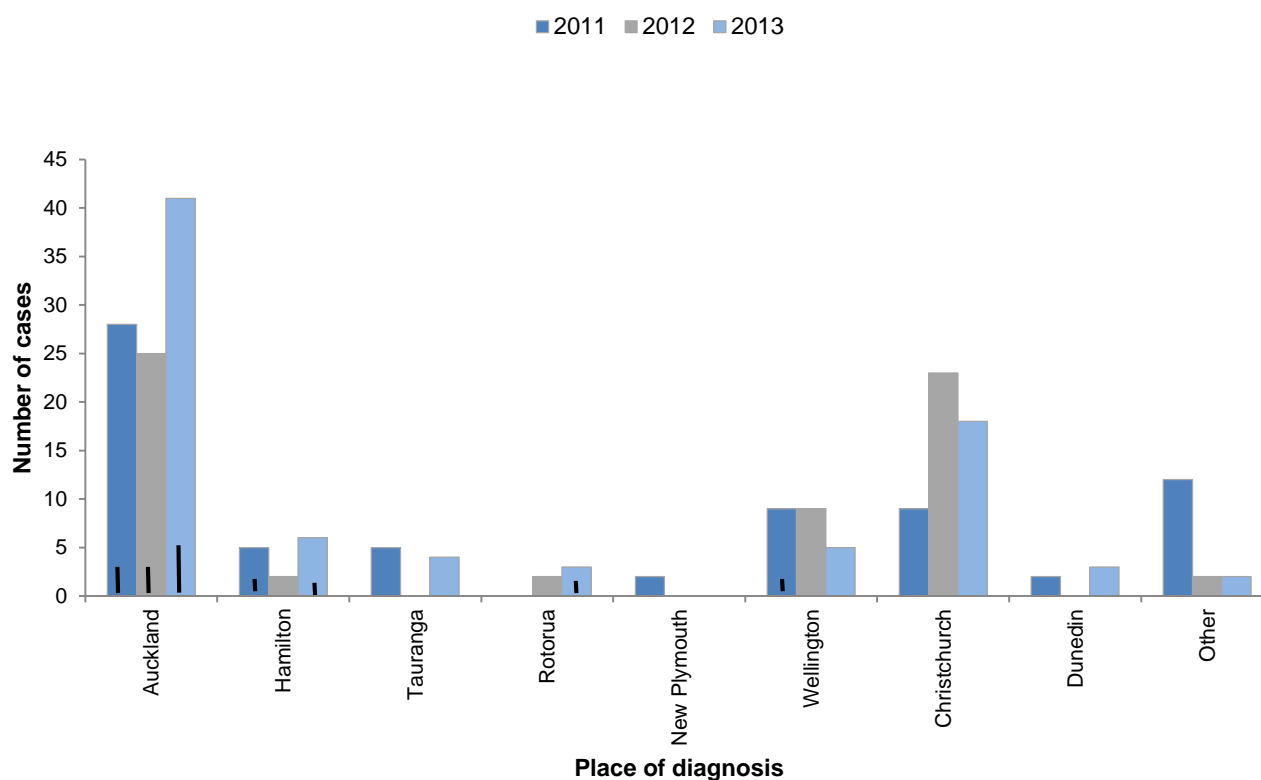
**Table 1. Number of infectious syphilis cases by place of diagnosis and sex, 2013**

Place of diagnosis	Male	Female	Total
Auckland	36	5	41
Hamilton	5	1	6
Tauranga	3	0	3
Rotorua	2	1	3
Palmerston North	1	1	2
Wellington	5	0	5
Christchurch	18	0	18
Dunedin	3	0	3
<b>Total</b>	<b>73</b>	<b>8</b>	<b>81</b>

#### Trends

Since 2011 the number of cases reported has increased (72 to 81 cases). The number of cases increased in both Auckland and Christchurch (28 to 41 cases and 9 to 18 cases respectively). A slight decrease occurred in Wellington (8 to 5 cases). Other places of diagnosis have more or less remained stable (Figure 1).

**Figure 1. Infectious syphilis case numbers by place of diagnosis, 2011–2013**



Note: The lines denote the number of female cases if any for each of the years.

## Age

### 2013

Age information was recorded for all cases. The highest numbers of cases were seen in the 45–49 years (16 cases), 25–29 years (14 cases), and 30–34 years (13 cases) age groups. All of the cases seen in the 45–49 years age group were male. The highest number of female cases was seen in the 25–29 years age group (3 cases). The age range for males was 18–69 with a median of 39 years, and for females 19–40 with a median of 25 years (Table 2).

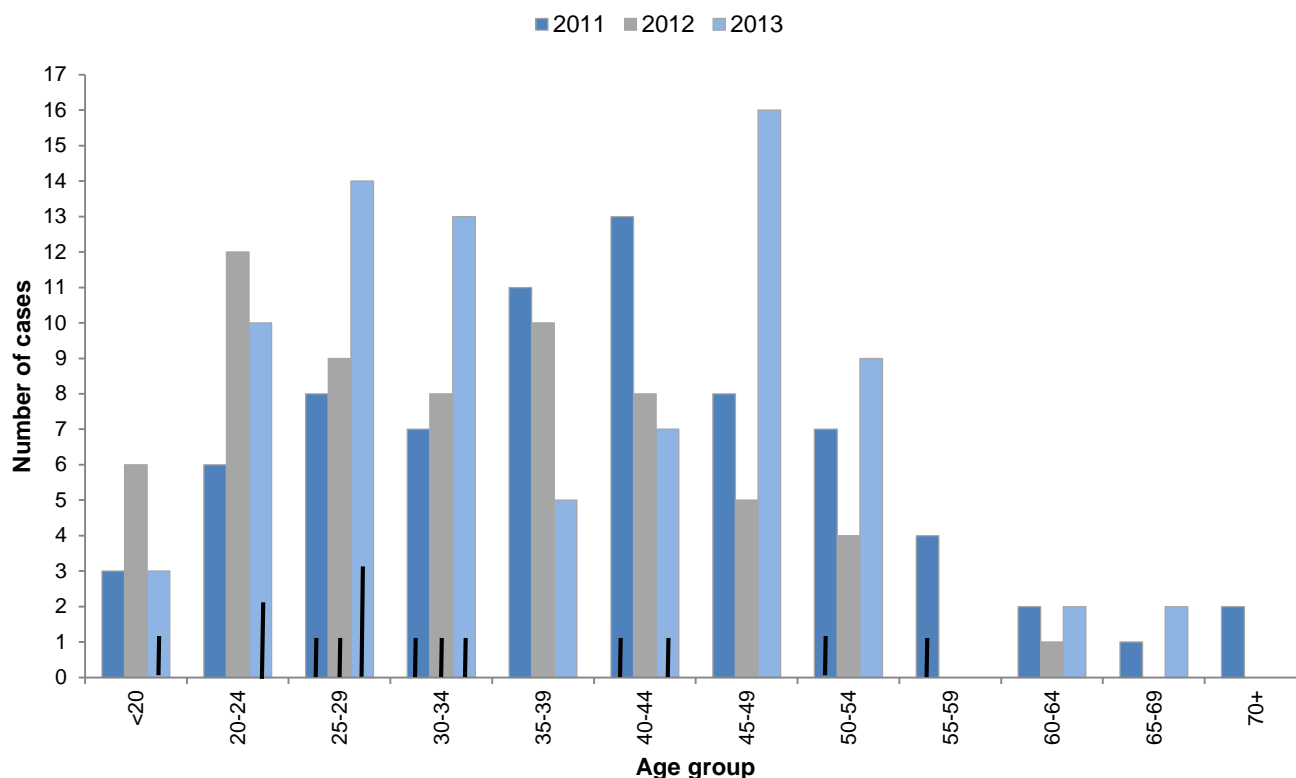
**Table 2. Number of infectious syphilis cases by age group and sex, 2013**

Age group	Male	Female	Total
<20	2	1	3
20–24	8	2	10
25–29	11	3	14
30–34	12	1	13
35–39	5	0	5
40–44	6	1	7
45–49	16	0	16
50–54	9	0	9
55–59	0	0	0
60–64	2	0	2
65–59	2	0	2
70+	0	0	0
<b>Total</b>	<b>73</b>	<b>8</b>	<b>81</b>

### Trends

The largest increase since 2011 occurred in the 45–49 years age group (8 to 16 cases). All cases in the 45–49 years age group were male for each of these years. Other increases were observed in the 20–24 years, 25–29 years, 30–34 years, 50–54 years and 60–69 years age groups. The largest decreases occurred in the 35–39 years and the 40–44 years age groups (11 to 5 and 13 to 7 cases respectively) (Figure 2).

**Figure 2. Infectious syphilis case numbers by age group, 2011–2013**



Note: The lines denote the number of female cases if any for each of the years.



## Sexual behaviour

### 2013

Sexual behaviour for the 12 months prior to diagnosis was recorded for all cases. 86.3% (63/73) of male cases were men who had sex with men (MSM) including four cases who also had sex with females. All females were heterosexual (Table 3).

**Table 3. Number of infectious syphilis cases by sexual behaviour and sex, 2013**

Sexual behaviour <sup>1</sup>	Male	Female	Total
Same sex partners only	59	0	59
Opposite sex partners only	10	8	18
Both opposite and same sex partners	4	0	4
<b>Total</b>	<b>73</b>	<b>8</b>	<b>81</b>

<sup>1</sup>Sexual behaviour in past 12 months

### Trends

There has been little change in the sexual behaviour reported in infectious syphilis cases since 2011. In 2013 the majority of cases reported remained MSM and all female cases were heterosexual.

## Ethnicity

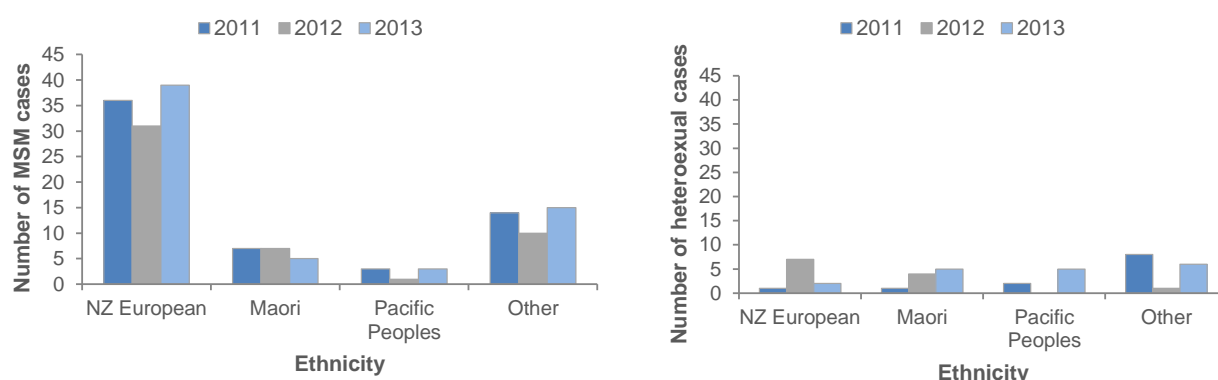
### 2013

Ethnicity information was recorded for all but one case. The main ethnic group reported in MSM cases was NZ European (62.9%), followed by Asian (9.7%), Maori (8.1%), and Pacific Peoples (4.8%) ethnic groups. In contrast, the majority of heterosexual cases reported were not from the NZ European ethnic group with most cases from Maori and Pacific Peoples ethnic groups. In both MSM and heterosexual cases there was no pattern to the range that made up the Other ethnicities reported (Table 4).

### Trends

The most commonly reported ethnic group for MSM cases remained NZ European between 2011 and 2013. In heterosexual cases there was no distinct pattern over the three years. Infectious syphilis case numbers by ethnicity and sexual behaviour are presented in Figure 3.

**Figure 3. Infectious syphilis case numbers by ethnicity and sexual behaviour, 2011–2013**



Note: The Asian ethnic group has been combined with the Other ethnic group for these graphs as in previous years it was not reported separately.

## Country of infection

### 2013

Information on country of infection was recorded for 90.1% (73/81) cases. Most MSM and heterosexual cases were infected in New Zealand (81.0% and 80.0% respectively). In MSM cases Australia was the next most common country of infection (5 cases). No heterosexual cases were reported as being infected in Australia (Table 4).

## Trends

The most common country of infection for both MSM and heterosexual cases remained New Zealand between 2011 and 2013. Australia also remained a common country of infection in MSM cases (Figure 4).

Figure 4. Infectious syphilis case numbers by country of infection and sexual behaviour, 2011–2013

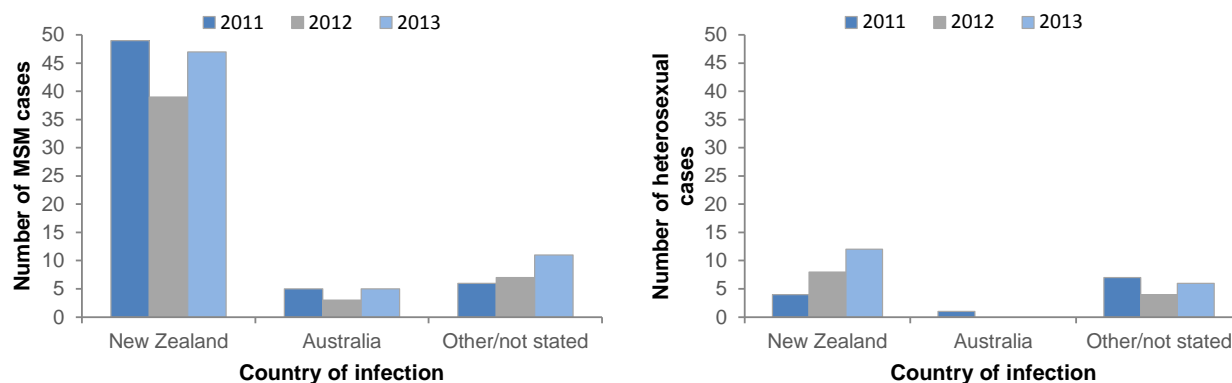


Table 4. Number of infectious syphilis cases by sexual behaviour and ethnicity, country of infection and clinical setting of initial syphilis test 2013

Ethnicity, Country of infection and Clinical setting	MSM	Heterosexual men and women	Heterosexual		Total <sup>1</sup>
			men	women	
<b>Ethnicity</b>					
NZ European	39	2	1	1	41
Maori	5	5	3	2	10
Pacific Peoples	3	5	2	3	8
Asian	6	2	1	1	8
Other <sup>2</sup>	9	4	3	1	13
Unknown	1	0	0	0	1
<b>Country of infection</b>					
New Zealand	47	12	5	7	59
Australia	5	0	0	0	5
Other	6	3	2	1	9
Unknown	5	3	3	0	8
<b>Clinical setting of initial syphilis test</b>					
Sexual Health Clinic	46	6	4	2	52
General practice	8	8	6	2	16
Antenatal clinic	0	2	0	2	2
Family planning clinic	0	1	0	1	1
Body positive testing clinic	2	0	0	0	2
Infectious diseases clinic	6	0	0	0	6
Other	1	1	0	1	1
<b>Total number of cases</b>	<b>63</b>	<b>18</b>	<b>10</b>	<b>8</b>	<b>81</b>

<sup>1</sup>Total includes MSM and heterosexual men and women

<sup>2</sup>Other ethnicities included Argentinian, Australian, English, European, Latin American, South African, South American, Turkish, and Ukrainian

## Clinical setting of initial syphilis test

### 2013

This report only includes cases reported by SHCs, however, some of these cases may have had their initial testing for syphilis done in other clinical settings. The clinical setting for the initial syphilis test was recorded for all cases (Table 4). Initial testing of MSM cases was most commonly reported in SHCs (46 cases), followed by general practices (8 cases) and infectious disease clinics (6 cases). In heterosexual cases males were more likely to have been tested in general practices (6 cases) and SHCs (4 cases). Females were more likely to have been tested at an antenatal or family planning clinic (3 cases), followed by general practice and SHCs (2 cases each). The clinical settings for initial tests have not changed over the three years of enhanced syphilis surveillance.

## Primary reason for testing

### 2013

The primary reason for testing was recorded for all cases (Table 5). The most commonly reported primary reason for testing in MSM cases was clinical symptoms or suspicion (38 cases). In heterosexual men the most commonly reported reasons for testing were clinical symptoms or suspicion (4 cases), followed by syphilis contact and immigration purposes (3 cases each). However, in heterosexual women the most commonly reported reasons were antenatal screening (5 cases), followed by asymptomatic STI screening (2 cases) and syphilis contact (1 case).

### Trends

The most commonly reported primary reason for testing in MSM cases remained clinical symptoms or suspicion between 2011 and 2013. This was also the most commonly reported primary reason for testing in heterosexual men. However, for heterosexual women the most commonly reported primary reasons for testing were asymptomatic STI screening or being a contact.

## Symptoms

### 2013

Forty-one (65.1%) MSM cases reported symptoms. Only five (27.8%) heterosexual cases reported symptoms. The most commonly reported symptom in both MSM and heterosexual cases was genital ulceration (21 cases and 3 cases respectively). None of the females were recorded as being symptomatic (Table 5).

### Trends

The most commonly reported symptoms have continued to be genital ulceration, rash or lymphadenopathy since 2011. Neurological symptoms were not reported for any of the years. In both 2013 and 2012 all females were reported to be asymptomatic.

## Rapid Plasma Reagin (RPR) titres

### 2013

RPR titre information was recorded for all cases (Table 5). The most commonly reported titres in both MSM and heterosexual cases were 1:32 or 1:64 (22 cases and 11 cases respectively).

### Trends

RPR titre information was available for all cases except one in both 2011 and 2012. The most commonly reported titres for MSM cases in 2011 were 1:128 or greater. In 2012 and 2013 the most commonly reported titres were 1:32 or 1:64. In heterosexuals the most commonly reported titres were 1:32 or 1:64 for all three years, although in 2012 titres of 1:128 or greater had the same number of cases reported as 1:32 or 1:64.

**Table 5. Number of infectious syphilis cases by sexual behaviour and primary reason for testing, symptoms, and RPR titres, 2013**

Primary reason for testing, Symptoms and RPR titres	MSM	Heterosexual men and women	Heterosexual		Total <sup>1</sup>
			men	women	
<b>Primary reason for testing</b>					
Clinical symptoms or suspicion	38	4	4	0	42
Asymptomatic STI screening	13	2	0	2	15
Syphilis contact	9	4	3	1	13
Immigration purposes	0	3	3	0	3
Antenatal screening	0	5	0	5	5
Other	3	0	0	0	3
<b>Symptoms</b>	<b>41</b>	<b>5</b>	<b>5</b>	<b>0</b>	<b>46</b>
Genital ulceration	21	3	3	0	24
Rash	16	1	1	0	17
Lymphadenopathy	5	2	2	0	7
Oral ulceration	3	1	1	0	4
Other	7	1	1	0	8
<b>No symptoms</b>	<b>22</b>	<b>13</b>	<b>5</b>	<b>8</b>	<b>35</b>
<b>RPR titres</b>					
0	5	1	1	0	6
1:1, 1:2, 1:4	14	1	1	0	15
1:8, 1:16	15	3	2	1	18
1:32, 1:64	22	11	5	6	33
1:128, 1:256, 1:512	7	2	1	1	9
<b>Total number of cases</b>	<b>63</b>	<b>18</b>	<b>10</b>	<b>8</b>	<b>81</b>

<sup>1</sup>Total includes MSM and heterosexual men and women

## Concurrent STI diagnoses

### 2013

Seventeen (27.0%) MSM cases had a concurrent STI diagnoses of which 14 had chlamydia, five had gonorrhoea and one had genital warts. Two (11.1%) heterosexual cases had a concurrent STI diagnosis of which one female had chlamydial infection and one male had both NSU and hepatitis B (Table 6).

### Trends

The most commonly reported concurrent STI diagnosis in MSM cases has continued to be chlamydia since 2011. Heterosexual cases also reported having chlamydia as a concurrent STI diagnosis but only in very small numbers in both 2012 and 2013.

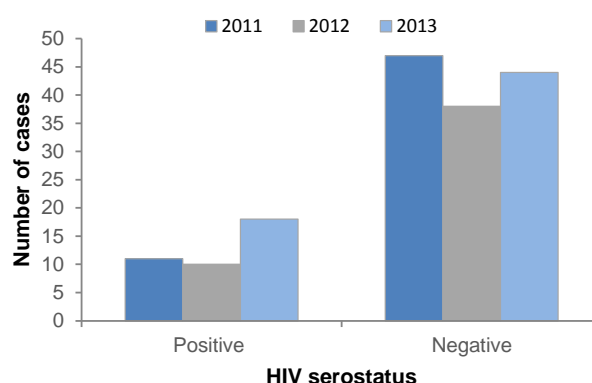
## HIV serostatus

### 2013

HIV serostatus was recorded for all cases except for one. Eighteen (29.0%) MSM cases were HIV seropositive and all heterosexual cases were HIV seronegative (Table 6).

### Trends

HIV seropositivity for MSM cases ranged from 19.0% to 29.0% between 2011 and 2013. HIV seropositivity for heterosexual cases was only reported in 2012 (2 cases, both male). Infectious syphilis case numbers by HIV serostatus in MSM are presented in Figure 5.

**Figure 5. MSM Infectious syphilis case numbers by HIV serostatus, 2011–2013****Table 6. Number of infectious syphilis cases by sexual behaviour and concurrent STIs and HIV serostatus, 2013**

Concurrent bacterial STIs and HIV serostatus	MSM	Heterosexual men and women	Heterosexual		Total <sup>1</sup>
			men	women	
<b>Concurrent bacterial STIs</b>					
Chlamydia	14	1	0	1	15
Gonorrhoea	5	0	0	0	5
Genital warts	1	0	0	0	1
NSU	0	1	1	0	1
Hepatitis B	0	1	1	0	1
<b>HIV serostatus</b>					
Positive	18	0	0	0	18
Negative	44	18	10	8	62
Unknown	1	0	0	0	1
<b>Total number of cases</b>	<b>63</b>	<b>18</b>	<b>10</b>	<b>8</b>	<b>81</b>

<sup>1</sup>Total includes MSM and heterosexual men and women

## Sexual activity

### 2013

No women reported having same sex partners in the three months prior to diagnosis. For MSM the number of same sex partners in the past three months was recorded for all but two cases. The majority (65.6%) of MSM cases had two or more sexual partners in the three months prior to diagnosis (Table 7).

The number of opposite sex partners in the three months prior to diagnosis was recorded for all cases (Table 7). Three (4.8%) MSM cases reported having opposite sex partners in the previous three months. Thirteen (72.2%) of heterosexual cases reported having only one opposite sex partner in the previous three months.

Two cases were recorded as being sex workers (one MSM and one heterosexual woman). Of the MSM cases with information recorded (96.8%) none of the cases were reported as acquiring the infection through a sex worker. However, of the heterosexual cases with information recorded (83.3%) two male cases were reported as acquiring the infection through a sex worker and the gender of the sex worker was female (Table 7).

**Trends**

The most commonly reported number of same sex partners in the three months prior to diagnosis in MSM cases, where information was available, has remained 2-4 partners between 2011 and 2013.

In heterosexual cases the most commonly reported number of opposite sex partners in the three months prior to diagnosis has remained one partner.

Before 2013 no cases were recorded as being sex workers. One MSM case was reported as acquiring infectious syphilis via a transgender sexworker in 2011. Heterosexual cases were reported as acquiring infectious syphilis via female sex workers in 2012 (1 case) and 2013 (2 cases).

**Table 7. Number of infectious syphilis cases by sexual behaviour and sexual activity and sex work, 2013**

Sexual activity and Sex work	MSM	Heterosexual men and women			Total <sup>1</sup>
			Heterosexual men	Heterosexual women	
<b>Number of same sex partners in past 3 months</b>					
0	1	-	-	-	1
1	20	-	-	-	20
2-4	26	-	-	-	26
5-9	9	-	-	-	9
10-15	3	-	-	-	3
16 or more	2	-	-	-	2
Unknown	2	-	-	-	2
<b>Number of opposite sex partners in past 3 months</b>					
0	60	1	1	0	61
1	1	13	7	6	14
2-4	2	2	1	1	4
5-9	0	0	0	0	0
10-15	0	2	1	1	2
16 or more	0	0	0	0	0
<b>Sex work</b>					
<b>Patient was a sex worker</b>					
Yes	1	1	0	1	2
No	60	17	10	7	77
Unknown	2	0	0	0	2
<b>Acquired through sex worker</b>					
Yes	0	2	2	0	2
No	55	13	6	7	68
Unknown	8	3	2	1	11
<b>Gender of sex worker</b>					
Female	0	2	2	0	2
<b>Total number of cases</b>	<b>63</b>	<b>18</b>	<b>10</b>	<b>8</b>	<b>81</b>

<sup>1</sup>Total includes MSM and heterosexual men and women

## Context leading to infection

### 2013

The context leading to infection was reported for 28 cases (34.6%). The most commonly reported contexts, where recorded, in MSM cases were internet-dating and sex-on-site venues (10 cases each). Information for heterosexual cases was only recorded for two cases and those cases reported internet-dating as the context leading to infection.

**Table 8. Number of infectious syphilis cases by sexual behaviour and context leading to infection, 2013**

Context leading to infection	MSM	Heterosexual men and women	Heterosexual		Total <sup>1</sup>
			men	women	
Sex-on-site venue	10	0	0	0	10
Internet-based GPS mobile device App	6	0	0	0	6
Internet-dating	10	2	1	1	12
Bar	2	0	0	0	2
Beat	2	0	0	0	2
Fuck-buddies	2	0	0	0	2
Overseas travel	1	0	0	0	1
Other	3	0	0	0	3
Not stated	37	16	9	7	53
<b>Total number of cases</b>	<b>63</b>	<b>18</b>	<b>10</b>	<b>8</b>	<b>81</b>

<sup>1</sup>Total includes MSM and heterosexual men and women

### Trends

The most commonly reported contexts leading to infection in MSM cases remained the internet and sex-on-site venues between 2011 and 2013. For the majority of heterosexual cases, information on context was not provided.





## DISCUSSION

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## DISCUSSION

Syphilis is a curable disease. However the recent increase of cases in New Zealand, along with the long term consequences of untreated disease, including the effects on the developing foetus, and the interaction with HIV infection, mean that this disease continues to be of public health concern in New Zealand.

Epidemiological information for infectious syphilis in New Zealand relies on voluntary reporting from SHCs. The data collected for enhanced syphilis surveillance since 2011 shows that cases are concentrated among MSM living in the main centres with highest numbers in Auckland and Christchurch. There were 81 cases of infectious syphilis reported through enhanced syphilis surveillance during 2013, an increase from the 72 cases identified by AEG in the first year of the pilot project for enhanced syphilis surveillance in 2011 [3]. All 2013 cases were able to be matched and reconciled with syphilis cases reported as part of ESR's 2013 sentinel STI surveillance indicating a true increase in the number of cases diagnosed in SHCs since 2011. This increase follows several years of decreasing rates reported in the sentinel system [2]. However this information is limited by not having cases reported that were diagnosed and treated by other healthcare providers, particularly GPs, and also by incorrect diagnoses. A case series undertaken in Wellington in 2004-2005 showed a 20% undercount if using SHC data alone [5]. Another study in Auckland used laboratory data and identified 92 definite or probable cases from July 2006 – July 2007 [6]. This compares with the ESR sentinel STI surveillance which recorded 31 cases for 2006, and 51 cases for 2007 from Auckland SHCs, giving an average for 12 months of 41 cases [10]. Over-diagnosis of infectious syphilis was noted in the first enhanced syphilis report when 14/83 cases reported to ESR as part of sentinel surveillance in 2011 were found not to meet the criteria for infectious syphilis [3].

The 2013 cases were concentrated in males (90.1%), most of whom were MSM (86.3%). The highest number of MSM cases (and also for all male cases) was in the 45-49 year age group. MSM diagnosed with infectious syphilis during this period were most likely to be of NZ European ethnicity (62.9%), followed by Asian (9.7%), Maori (8.1%), Pacific Peoples (4.8%) and a diverse range of other ethnicities, usually single cases, making up the remainder. This has some differences with the profile for MSM newly diagnosed with HIV infection in 2013 where 60.2% were European/Pakeha ethnicity, followed by 23.9% Asian, 7.1% Maori and 3.5% Pacific Peoples ethnicity [11]. The lower percentage for Asian ethnicity for MSM syphilis cases may indicate that this group is under screened, has different exposure risks (eg, mixing patterns, sexual practices), or is more likely to attend a GP than a SHC.

65.1% of MSM and 50.0% of heterosexual males reported symptoms, most commonly genital ulceration or rash whereas no women reported symptoms in 2013. Although the numbers of women diagnosed each year is low (8 in 2013), it is of concern that these cases are most commonly found through asymptomatic screening for immigration purposes, antenatal care or when the case is followed up as a contact as this suggests that there are likely to be other women who remain undiagnosed.

Among MSM, 27.0% had a concurrent STI diagnosis and 29.0% were reported to be HIV seropositive. For heterosexual cases 11.1% had a concurrent STI and none were reported to be HIV seropositive. The Auckland study 2002-2004 found that 4/40 (10.0%) of infectious syphilis cases in MSM were also HIV seropositive and the 2011 enhanced surveillance reported that 19.0% of MSM were also HIV seropositive [3, 4]. This increase in HIV co-infection amongst MSM syphilis cases has also been noted in overseas surveillance, typically ranging from 30-60% [12]. Co-infection is known to be important as the risk of HIV acquisition and transmission is increased if genital ulceration is present [3]. Oral sex has been reported to be a risk reduction strategy for HIV among MSM (both seropositive and seronegative) in other countries where one analysis of syphilis cases were attributed to this practice [12]. Although oral sex was noted as the possible means of transmission in the 2011 enhanced syphilis surveillance report this information was not collected in the current questionnaire [3]. It may be useful to reinstate this question.

While most cases were infected in New Zealand, Australia was the next most common country of infection reported for MSM (5 cases, 8.6%). Three heterosexual cases (20.0%) were reported as being infected outside of New Zealand (Argentina, Cambodia and Ukraine). Interestingly no cases were reported as being infected in Fiji which had been noted as a risk country for overseas infection amongst heterosexuals (7/13 cases) in the Auckland study 2002-2004 [4]. This may be due to a change in risk behaviours among heterosexuals, a change in travel patterns or because heterosexuals are now more likely to attend general practice for STI check-ups (cases diagnosed and treated in general practice would not be covered by this surveillance).

Information on the context of infection was not recorded for 58.7% of MSM and 88.9% of heterosexual cases. Where it was known for MSM the most commonly reported contexts remained internet dating and sex-on-site venues. Internet-based GPS mobile device applications were reported far less commonly which contrasts with reports from overseas where these have been reported as important drivers of transmission. Use of these applications is thought to join previously isolated sexual networks and reduce the time for outbreaks to evolve [13]. As this was the first year this data was collected separately from internet dating it will be interesting to see if this becomes a more important risk factor in New Zealand in future years.

Several other risk factors noted overseas such as use of serosorting and frequency of screening may be useful to incorporate into the questionnaire for future years [14, 15]. Current guidelines in New Zealand recommend at least annual STI screening for MSM (more frequently if high risk activities) [16, 17].

This report highlights the usefulness of enhanced surveillance to inform a response to recent increases in case numbers for infectious syphilis in New Zealand, but also notes the limitations of this surveillance. Full reporting by laboratories and follow up by appropriately skilled sexual health or public health physicians to ascertain the case status, as is recommended in some other countries [12, 18], would give a more complete picture of the epidemiology of this serious disease in New Zealand.

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## REFERENCES

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## APPENDICES

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# APPENDICES

## Appendix A: Enhanced Syphilis Surveillance Questionnaire 2013



Enhanced Syphilis Surveillance Form - August 2013

Clinic patient ID:.....

### ENHANCED SYPHILIS SURVEILLANCE FORM

NAME OF CLINICIAN: .....

CITY OR TOWN OF CLINIC: .....

**1. SITE OF INITIAL SYPHILIS TESTING**

- Public Sexual Health Clinic
- General Practice
- Antenatal Clinic
- Body Positive Testing Clinic
- Other (please specify.....)
- Family Planning Clinic
- Student Health Clinic
- NZ AIDS Foundation Testing Clinic
- Infectious Diseases Clinic

**2. PATIENT ID CODE** Please complete the box with the first 2 letters of the surname (do not include the letters 'Mac', 'Mc', 'van der' if the surname starts with these), the first initial of given name, sex, and date of birth.

1 <sup>st</sup> letter surname	2 <sup>nd</sup> letter surname	1 <sup>st</sup> letter first name	Sex	Day	Month	Year

**3. GENDER**

- Male
- Female
- Transgender

**4. ETHNICITY (self-identified - may tick more than one box)**

- NZ European
- Maori
- Niuean
- Tongan
- Samoan
- Cook Island Maori
- Chinese
- Indian
- Other (please specify).....

**5. COUNTRY OF BIRTH** .....

**6. CITY OR TOWN OF RESIDENCE** .....

**7. WHERE WAS THE INFECTION MOST LIKELY ACQUIRED?**

- New Zealand (city/town if known.....)
- Overseas (country if known.....)
- Not known

**8. DATE PATIENT PRESENTED** ..... (Day)/ ..... (Month)/ ..... (Year)

**9. PRIMARY REASON FOR TESTING FOR SYPHILIS**

- Immigration purposes
- Antenatal Screening
- Other (please specify.....)
- Syphilis Contact
- Asymptomatic STI screening
- Clinical symptoms or suspicion

**10. IF SYMPTOMATIC (TICK ALL THAT APPLY)**

- Genital ulceration
- Lymphadenopathy
- Other (Please specify.....)
- Oral ulceration
- Rash
- Neurological symptoms

**11. HIGHEST RPR/VDRL TITRE BEFORE TREATMENT**

- .....  RPR
- .....  VDRL
- .....  Not tested
- .....  Unknown

**12. ON WHAT BASIS DO YOU CONSIDER THIS PERSON TO HAVE INFECTIOUS SYPHILIS? (TICK ALL THAT APPLY)**

- Clinical grounds
- RPR/VDRL titre



Enhanced Syphilis Surveillance Form - August 2013

Clinic patient ID:.....

Please describe why you think this person has infectious syphilis:

**13. HIV SEROSTATUS AT TIME of syphilis diagnosis**

- Negative                       Positive    Date of diagnosis (if applicable) ...../...../.....  
 Unknown

**14. OTHER CONCURRENT STI DIAGNOSIS(ES) AT TIME of syphilis diagnosis (Tick all that apply)**

- Chlamydia                       Gonorrhoea                       Trichomoniasis     Genital Herpes  
 Genital warts                       Other (please identify).....

**15. LAST NEGATIVE TEST FOR SYPHILIS**

- Tested                      Date ...../...../.....  
 Tested date unknown  
 Never tested before

**16. SEXUAL BEHAVIOUR PREVIOUS 12 MONTHS**

- Opposite sex partners only                       Same sex partners only  
 Both opposite and same sex partners                       Unknown

**17. NUMBER OF SEX PARTNERS IN THE PAST 3 MONTHS (Best estimate if unknown)**

- ..... Male                       Exact  Approximate  
 ..... Female                       Exact  Approximate

**18. NUMBER OF SEX PARTNERS IN THE PAST 12 MONTHS (Best estimate if unknown)**

- ..... Male                       Exact  Approximate  
 ..... Female                       Exact  Approximate

**19. PATIENT IS A SEX WORKER**

- Yes                       No                       Unknown

**20. LIKELY ACQUIRED SYPHILIS THROUGH CONTACT WITH SEX WORKER**

- Yes                       No                       Unknown

If "Yes" gender of SW

- Female                       Male                       Transgender

**21. ANY SOCIAL/SEXUAL NETWORK IMPLICATED?**

- "Sex on Site" venue (sauna, club)  
 Internet-based GPS mobile device App (e.g. Grindr App)  
 Internet-dating eg NZDating, Find Someone  
 "Beat" (public toilet, park etc.)  
 Bar  
 Other.....

Any other relevant comments:

Please return by email, mail or fax to Ali Boman:  
 Ali.Boman@esr.cri.nz  
 Health Intelligence Team, ESR, PO Box 50-348, Porirua 5240.  
 Fax: 04 978 6690

# Appendix B: Enhanced Syphilis Surveillance Questionnaire 2011

## ENHANCED SYPHILIS SURVEILLANCE FORM

**NAME OF CLINICIAN:** .....

**1. SITE OF INITIAL SYPHILIS TESTING**

- Public Sexual Health Clinic                       Family Planning Clinic  
 General Practice                                       Student Health Clinic  
 Antenatal Clinic  
 Other (please specify.....)

**2. PATIENT ID CODE** Please complete the box with the first 2 letters of the surname (do not include the letters 'Mac', 'Mc', 'van der' if the surname starts with these), the first initial of given name, sex, and date of birth.

1 <sup>st</sup> letter surname	2 <sup>nd</sup> letter surname	1 <sup>st</sup> letter first name	Sex	Day	Month	Year

**3. GENDER**

- Male     Female     Transgender

**4. ETHNICITY (self-identified - may tick more than one box)**

- NZ European     Chinese  
 Maori     Indian  
 Samoan     Cook Island Maori  
 Tongan     Niuean  
 Other (please specify).....

**5. COUNTRY OF BIRTH** .....

**6. CITY OR TOWN OF RESIDENCE** .....

**7. WHERE WAS THE INFECTION MOST LIKELY ACQUIRED?**

- New Zealand (city/town if known.....)  
 Overseas (country if known.....)  
 Not known

**8. DATE PATIENT PRESENTED** ..... (Day)/ ..... (Month)/ ..... (Year)

**9. REASON FOR TESTING FOR SYPHILIS**

- Asymptomatic STI screening                       Immigration purposes                       Syphilis Contact  
 Clinical symptoms or suspicion                       Antenatal Screening  
 Other (please specify.....)

**10. DID THE PATIENT HAVE ANY SYMPTOMS?**

- Yes     No

**11. IF SYMPTOMS...**

- Genital ulceration                       Rash                       Oral ulceration                       Neurological symptoms  
 Lymphadenopathy                       Other (Please specify.....)

**12. HIGHEST RPR/VDRL TITRE BEFORE TREATMENT**

.....  Unknown (not tested)

**13. HIV SEROSTATUS**

Negative  Positive  Unknown

**14. OTHER CONCURRENT STI DIAGNOSIS(ES) (Tick all that apply)**

Chlamydia  Gonorrhoea  Trichomoniasis  Genital Herpes

Genital warts  Other (please identify).....

**15. DATE OF LAST NEGATIVE TEST FOR SYPHILIS .../.../....**

Never tested before  Tested but date unknown

**16. SEXUAL BEHAVIOUR PREVIOUS 12 MONTHS**

Opposite sex partners only  Same sex partners only

Both opposite and same sex partners  Unknown

**17. NUMBER OF SEX PARTNERS IN THE PAST 3 MONTHS**

Male  Female  Unknown

**18. NUMBER OF SEX PARTNERS IN THE PAST 12 MONTHS**

Male  Female  Unknown

**19. DO YOU THINK ORAL SEX WAS RESPONSIBLE?**

Yes  No  Unknown

**20. PATIENT IS A SEX WORKER**

Yes  No  Unknown

**21. LIKELY ACQUIRED SYPHILIS THROUGH CONTACT WITH SEX WORKER**

Yes  No  Unknown

If "Yes" gender of SW  Female  Male  Transgender

**22. ANY SOCIAL/SEXUAL NETWORK IMPLICATED?**

"Sex on Site" venue (sauna, club)  Internet  "Beat" (public toilet, park etc.)  
 Bar  
 Other.....

**Any other relevant comments:**

Please return by mail or fax to:

**Rebecca Psutka**  
 Department of Preventive and Social Medicine, University of Otago  
 P.O. Box 913, Dunedin 9054. fax: 03 479 7298