

ISSN 1176-7316

**LABORATORY SURVEILLANCE OF
CHLAMYDIA AND GONORRHOEA
IN NEW ZEALAND**

JULY TO SEPTEMBER 2011

Prepared as part of a Ministry of Health contract for scientific services

by

Health Intelligence Team
Institute of Environmental Science & Research Ltd.

November 2011

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Acknowledgements

This report was prepared by the Health Intelligence Team at ESR, with particular contributions from Pauline Quinn, Tim Wood and Kerry Sexton.

The authors wish to acknowledge that this report could not have been generated without the continuing support of the participating laboratories (see Appendix A).

**This report is available on the Internet at www.surv.esr.cri.nz
STI data requests may be emailed to survqueries@esr.cri.nz**

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INTRODUCTION

The cornerstone of communicable disease surveillance in New Zealand is statutorily-mandated disease notification. However, with the exception of acquired immune deficiency syndrome, the late sequelae of human immunodeficiency virus infection and hepatitis B, sexually transmitted infections (STIs) are not notifiable. Therefore surveillance efforts are based on voluntary provision of microbiologic data from diagnostic laboratories and of clinic-based data from sexual health clinics (SHCs), family planning clinics (FPCs) and student and youth health clinics (SYHCs). Population and disease coverage varies by data source.

Laboratory surveillance of gonorrhoea began in the Auckland, Waikato and Bay of Plenty regions in 1998. Laboratory surveillance of chlamydia began in the Waikato and Bay of Plenty regions in 1998 and in the Auckland region in 2001. Since June 2004, efforts have been made to extend STI surveillance to additional laboratories across New Zealand. Improvements to the reporting of laboratory surveillance data were implemented during 2009. As a result population-based rates of chlamydia and gonorrhoea for many District Health Boards (DHBs) and estimates of national rates based on the data from these DHBs have been reported since 2009.

In addition to laboratory surveillance, clinic-based surveillance of STIs has traditionally been based on data from specialist SHCs. Since 1998, clinic-based STI surveillance has been progressively expanded to include data from FPCs and SYHCs to provide a more comprehensive picture of the disease burden in New Zealand. At present, data from SHCs provide the most comprehensive information on the epidemiology of STIs in New Zealand. This is for a number of reasons including the stability of both the number of SHCs across New Zealand, number of SHCs participating in the surveillance programme, and the availability of ethnicity data. Quarterly reports for clinic-based STI surveillance are produced separately and are available at www.surv.esr.cri.nz.

The number of cases of STIs reported through the clinic-based surveillance system underestimates the true burden of STIs in New Zealand because a substantial percentage of STIs are diagnosed by other health care providers, particularly primary health care practitioners. Laboratories receive specimens from all health providers, and so, provide a useful, complementary source of STI data. For example, in areas where both clinic and laboratory surveillance data are collected, laboratory data aggregated across New Zealand in 2010 reported approximately four times the number of chlamydia and three times the number of gonorrhoea cases compared with that reported by clinic-based surveillance.

This report presents data on chlamydia and gonorrhoea cases reported in the third quarter (July to September) 2011 from 40 laboratories across New Zealand.

METHODS

All results and analyses are based on data submitted prior to 4 November 2011. Any data submitted after this date are not included in this report due to time constraints. All results are provisional.

Data collection

The participating laboratories (see Appendices A and B) report anonymised data on laboratory-confirmed cases of chlamydia and gonorrhoea, by age and sex, as well as the total number of specimens and/or patients tested. Laboratories generally only report on specimens received directly from health care settings within their own region, except where it has been mutually agreed that the subcontracted laboratory will report another region's data for them. Diagnostic tests used for chlamydia and gonorrhoea are not standardised across the country. With chlamydia testing some laboratories use nucleic acid amplification and others use an enzyme immunoassay. These tests have different sensitivities and specificities that may influence the data. Gonorrhoea testing has traditionally been based on culture methods. However, some laboratories are in the process of introducing polymerase chain reaction (PCR) testing for gonorrhoea. As a result, gonorrhoea rates will increase due to increased detection of gonorrhoea rather than an increase in prevalence.

With current laboratory data and reporting practices it is not possible to determine the total number of positive individuals and specimens. An attempt has been made to remove duplicates from the data where one patient may have multiple positive specimens. If this was not possible, it was assumed that each test-positive specimen was equivalent to one test-positive patient. As a patient may have more than one specimen tested for each STI episode, the true incidence may be less than that reported here.

Each month laboratories send data to ESR, where the data are entered into a database by ESR staff.

Analysis methods

Laboratory STI surveillance data are stored in a database and were extracted and analysed using Microsoft Access and Microsoft Excel.

Calculation of rates

Population-based disease rates for the quarter were calculated by dividing the total number of test-positive reported cases for chlamydia or gonorrhoea by the total population for each DHB and multiplying by four to provide an annualised rate. Population data are 2010 mid-year population estimates published by Statistics New Zealand.

Where a community laboratory carried out testing for more than one DHB, these DHBs have been combined for reporting purposes, these are, Auckland, Waitemata, and Counties Manukau DHBs (Labtests), and Hutt Valley and Capital & Coast DHBs (Aotea Pathology).

Rates were not calculated where there were fewer than five cases in any category. Rates calculated from fewer than five cases are unstable and are not suitable for comparisons. Care should also be exercised when interpreting and comparing rates based on fewer than 20 cases. Readers should also be advised to consider the absolute number of cases in the categories analysed by rate. This is because categories with the highest rates may sometimes involve a relatively small proportion of the overall disease burden.

Data completeness

In the third quarter (July to September) 2011, 40 laboratories across 18 DHBs in New Zealand participated in the STI surveillance programme.

Chlamydia data were provided by 39 laboratories. All 39 laboratories submitted chlamydia data by the date required for all three months of the third quarter (July to September) 2011.

Gonorrhoea data were provided by 39 laboratories. All 39 laboratories submitted gonorrhoea data by the date required for all three months of the third quarter (July to September) 2011.

Selection criteria for DHB reporting

For a DHB to be included in the analysis, all laboratories servicing that DHB must have participated in the surveillance programme (unless the non-participating laboratory(ies) was a hospital laboratory undertaking a small proportion of the DHB's STI testing). In addition, each laboratory in the DHB must have provided data for all three months of the quarter. Table 1 shows the DHBs that met the selection criteria for reporting for the third quarter (July to September) 2011.

Table 1. Selected/excluded DHBs for reporting, July to September 2011

District health board	Chlamydia	Gonorrhoea
Northland	✓	✓
Auckland region	✓	✓
Waikato	✓	✓
Lakes	✓	✓
Bay of Plenty	✓	✓
Tairāwhiti	✓	✓
Taranaki	✓	✓
Hawke's Bay	✓	✓
Whanganui	✓	✓
MidCentral	✓	✓
Wairarapa	✓	✓
Wellington region	×	✓
Nelson Marlborough	×	×
West Coast	✓	✓
Canterbury	×	×
South Canterbury	×	×
Southern	✓	✓

Auckland region: Waitemata, Auckland, and Counties Manukau DHBs

Wellington region: Hutt Valley and Capital & Coast DHBs

✓ = Selected × = Excluded

CHLAMYDIA REPORTING – JULY TO SEPTEMBER 2011

In the third quarter (July to September) 2011, 35 laboratories from 15 DHBs met the selection criteria for chlamydia reporting. Laboratories in these DHBs tested 75 106 specimens for chlamydia, of which 6713 (8.9%) specimens tested positive from 6548 patients. Table 2 presents the percentage of specimens tested for chlamydia that were positive, the number of test-positive chlamydia cases, and the annualised chlamydia population rates by DHB and sex. Data from a further four laboratories from two DHBs not meeting the selection criteria are included in tables 2 and 3 under 'Other'.

The national annualised chlamydia rate, based on 15 DHBs, was 811 per 100 000 population (6548 cases). The highest DHB rate of chlamydia was reported for Tairāwhiti DHB (1501 per 100 000 population, 174 cases) followed by Lakes DHB (1375 per 100 000 population, 358 cases). Annualised chlamydia population rates by DHB are shown in Figure 1.

Sex was recorded for 99.8% (6537/6548) of chlamydia cases. The national annualised chlamydia rate for females (1168 per 100 000 population, 4798 cases) was almost three times the national annualised rate for males (439 per 100 000 population, 1739 cases).

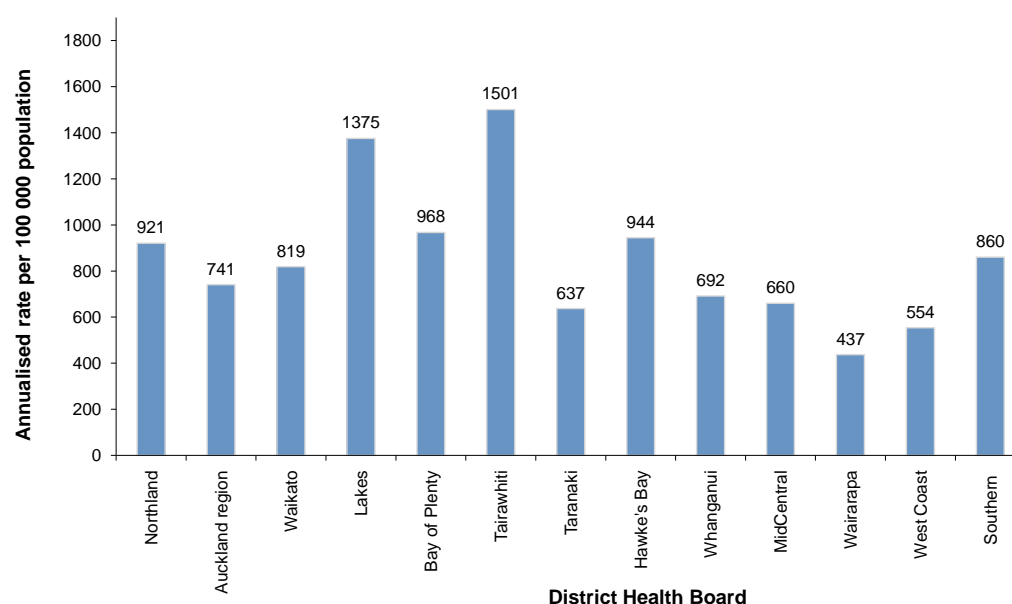
Age was recorded for 98.9% (6473/6548) of chlamydia cases. Of these, 72.3% (4683 cases) were aged 15–24 years. The highest national age-specific annualised rate of chlamydia in males occurred in the 20–24 years age group (2178 per 100 000 population, 645 cases) and for females in the 15–19 years age group (6437 per 100 000 population, 1893 cases).

Twenty-eight (19 male, 9 female) cases of chlamydia were reported for the less than one year age group. Annualised rates by DHB could not be calculated separately for this age group, as estimated population data were not available.

Table 3 presents the number of test-positive chlamydia cases and annualised chlamydia population rates by DHB and age group.

Table 2. Percentage of specimens tested that were positive for chlamydia, number of test-positive chlamydia cases, and annualised chlamydia population rates by DHB and sex, July to September 2011

District Health Board	Specimens tested positive (%)	Number of test-positive cases				Annualised rate per 100 000 population		
		Male	Female	Unknown	Total	Male	Female	Total
Northland	12.2	75	285	2	362	388	1427	921
Auckland region ¹	7.6	747	1991	0	2738	412	1059	741
Waikato	9.6	220	525	1	746	491	1134	819
Lakes	12.5	78	280	0	358	610	2115	1375
Bay of Plenty	11.1	129	379	0	508	504	1408	968
Tairāwhiti	13.9	49	125	0	174	867	2103	1501
Taranaki	8.5	53	121	0	174	393	876	637
Hawke's Bay	11.5	84	281	0	365	446	1417	944
Whanganui	10.1	22	85	0	107	291	1074	692
MidCentral	9.6	83	193	0	276	407	899	660
Wairarapa	9.0	9	35	0	44	183	679	437
West Coast	8.2	14	31	0	45	338	777	554
Southern	8.7	176	467	8	651	470	1220	860
Other ²	6.8	117	248	0	365	–	–	–
Total ³	8.9	1739	4798	11	6548	439	1168	811

¹ Auckland region: Waitemata, Auckland, and Counties Manukau DHBs² Data from other DHBs where selection criteria were not met³ Total number and denominator for annualised rate calculations only includes DHBs meeting the selection criteria**Figure 1. Annualised chlamydia population rate by DHB, July to September 2011**

Auckland region: Waitemata, Auckland, and Counties Manukau DHBs

Table 3. Number of test-positive chlamydia cases and annualised chlamydia population rates by DHB and age group, July to September 2011

Age group (years)	0–4		5–9		10–14		15–19		20–24		25–29		30–34		35–39		40+		Unknown		Total	
District Health Board	Cases	Rate per 100 000	Cases	Rate per 100 000	Cases	Rate per 100 000	Cases	Rate per 100 000	Cases	Rate per 100 000	Cases	Rate per 100 000	Cases	Rate per 100 000	Cases	Rate per 100 000	Cases	Rate per 100 000	Cases	Rate per 100 000	Cases	Rate per 100 000
Northland	0	0	0	0	12	406	179	6453	113	5308	33	1897	13	706	6	258	6	30	0	–	362	921
Auckland region ¹	15	54	1	–	39	154	846	3042	969	3372	424	1463	207	800	99	361	138	90	0	–	2738	741
Waikato	8	116	0	0	9	136	267	3829	279	4292	92	1612	46	875	32	547	13	32	0	–	746	819
Lakes	0	0	0	0	20	998	167	8807	108	6667	32	2188	16	1070	9	522	6	51	0	–	358	1375
Bay of Plenty	0	0	0	0	16	425	216	5862	174	6092	54	2020	25	908	6	183	12	46	5	–	508	968
Tairāwhiti	0	0	0	0	3	–	90	10014	47	6483	16	2510	5	820	4	–	4	–	5	–	174	1501
Taranaki	0	0	0	0	2	–	44	2281	48	2931	11	730	9	602	5	286	1	–	54	–	174	637
Hawke's Bay	3	–	0	0	15	512	132	4738	136	6095	39	1995	13	640	12	488	15	80	0	–	365	944
Whanganui	0	0	0	0	3	–	37	3267	41	4200	13	1667	3	–	4	–	1	–	5	–	107	692
MidCentral	2	–	3	–	2	–	102	3057	119	3605	25	984	12	539	9	349	2	–	0	–	276	660
Wairarapa	0	0	0	0	2	–	16	2429	19	3810	4	–	2	–	1	–	0	0	0	–	44	437
West Coast	0	0	0	0	0	0	21	3810	14	3304	6	1505	2	–	1	–	1	–	0	–	45	554
Southern	3	–	1	–	1	–	218	3684	281	4405	89	1811	32	725	13	266	7	20	6	–	651	860
Other ²	2	–	0	–	2	–	109	–	151	–	43	–	34	–	10	–	14	–	0	–	365	–
Total ³	31	53	5	–	124	221	2335	3869	2348	4047	838	1559	385	776	201	365	206	57	75	–	6548	811

¹ Auckland region: Waitemata, Auckland, and Counties Manukau DHBs² Data from other DHBs where selection criteria were not met³ Total number and denominator for annualised rate calculations only includes DHBs meeting the selection criteria

Rates suppressed where fewer than 5 cases

GONORRHOEA REPORTING – JULY TO SEPTEMBER 2011

In the third quarter (July to September) 2011, 36 laboratories from 17 DHBs met the selection criteria for gonorrhoea reporting. Laboratories in these DHBs tested 94 594 specimens for gonorrhoea, of which 712 (0.8%) specimens tested positive from 576 patients. Table 4 presents the percentage of specimens tested for gonorrhoea that were positive, the number of test-positive gonorrhoea cases, and the annualised gonorrhoea population rates by DHB and sex. Data from three further laboratories from one DHB not meeting the selection criteria are included in table 4 under ‘Other’.

The national annualised gonorrhoea rate, based on 17 DHBs, was 63 per 100 000 population (576 cases). The highest DHB rate of gonorrhoea was reported for Tairāwhiti DHB (405 per 100 000 population, 47 cases) followed by Taranaki DHB (106 per 100 000 population, 29 cases). Annualised gonorrhoea population rates by DHB are shown in Figure 2.

Sex was recorded for 99.8% (575/576) of the gonorrhoea cases. The national annualised gonorrhoea rate for males (73 per 100 000 population, 329 cases) was almost one and a half times higher than the national annualised rate for females (53 per 100 000 population, 246 cases).

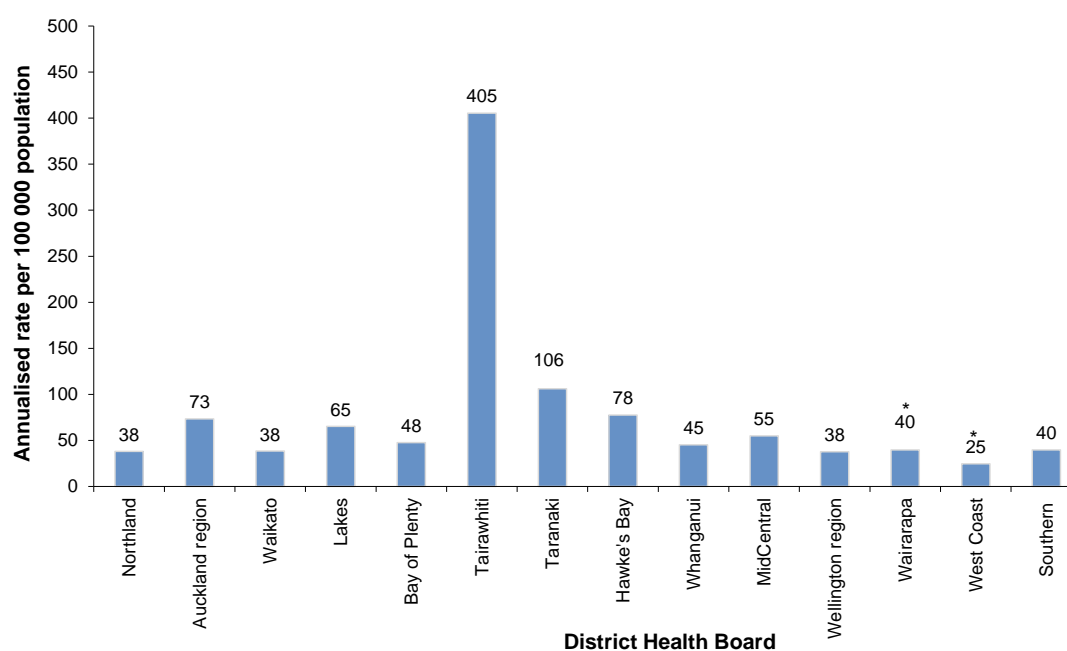
Age was recorded for 99.3% (572/576) of the gonorrhoea cases. Of these, 50.9% (291 cases) were aged 15–24 years. The highest national age-specific annualised rate of gonorrhoea in males occurred in the 20–24 years age group (361 per 100 000 population, 123 cases) and for females also in the 20–24 years age group (271 per 100 000 population, 89 cases).

One case of gonorrhoea was reported for the less than one year age group. Annualised rates by DHB could not be calculated separately for this age group, as estimated population data were not available.

Table 5 presents the number of test-positive gonorrhoea cases and annualised population rates of gonorrhoea by age group.

Table 4. Percentage of specimens tested that were positive for gonorrhoea, number of test-positive gonorrhoea cases, and annualised gonorrhoea population rates by DHB and sex, July to September 2011

District Health Board	Specimens tested positive (%)	Number of test-positive cases				Annualised rate per 100 000 population		
		Male	Female	Unknown	Total	Male	Female	Total
Northland	0.4	7	8	0	15	36	40	38
Auckland region ¹	0.7	161	110	0	271	89	58	73
Waikato	0.5	19	16	0	35	42	35	38
Lakes	1.0	9	8	0	17	70	60	65
Bay of Plenty	0.8	17	8	0	25	66	30	48
Tairāwhiti	4.4	28	19	0	47	496	320	405
Taranaki	1.3	14	15	0	29	104	109	106
Hawke's Bay	2.7	12	18	0	30	64	91	78
Whanganui	1.0	5	2	0	7	66	25	45
MidCentral	0.9	13	10	0	23	64	47	55
Wellington region ²	0.5	23	18	0	41	43	32	38
Wairarapa	1.0	3	1	0	4	61	19	40
West Coast	0.3	2	0	0	2	48	0	25
Southern	0.8	16	13	1	30	43	34	40
Other ³	0.5	8	9	0	17	-	-	-
Total ⁴	0.8	329	246	1	576	73	53	63

¹ Auckland region: Waitemata, Auckland, and Counties Manukau DHBs² Wellington region: Hutt Valley and Capital & Coast DHBs³ Data from other DHBs where selection criteria were not met⁴ Total number and denominator for annualised rate calculations only includes DHBs meeting the selection criteria**Figure 2. Annualised gonorrhoea population rate by DHB, July to September 2011**

Auckland region: Waitemata, Auckland, and Counties Manukau DHBs

Wellington region: Hutt Valley and Capital & Coast DHBs

* Annualised population rate may be unreliable as fewer than five cases were reported

Table 5. Number of gonorrhoea cases and national annualised gonorrhoea population rates by age group, July to September 2011

Age group (years)	Number of cases	Annualised rate per 100 000 population
0–4	1	-
5–9	0	0
10–14	9	14
15–19	164	241
20–24	212	317
25–29	79	127
30–34	44	77
35–39	27	43
40+	36	9
Unknown	4	-
Total ¹	576	63

¹ Total number and denominator for annualised rate calculations only includes DHBs meeting the selection criteria
 Rates and Cases suppressed where fewer than 5 cases

APPENDIX A: LIST OF PARTICIPATING LABORATORIES

STI surveillance data is received from the following laboratories:

- Northland Pathology Laboratory, Northland
- Kaitaia Hospital Laboratory, Northland
- Bay of Islands Hospital Laboratory, Northland
- Whangarei Hospital Laboratory, Northland
- Dargaville Hospital Laboratory, Northland
- North Shore Hospital Laboratory, Waitemata
- LabPlus, Auckland
- Labtests, Auckland
- Middlemore Hospital Laboratory, Counties Manukau
- Medlab Hamilton, Waikato
- Pathlab Waikato, Waikato
- Waikato Hospital Laboratory, Waikato
- Thames Hospital, Waikato
- Tokoroa Hospital, Waikato
- Te Kuiti Hospital, Waikato
- Taumarunui Hospital, Waikato
- Laboratory Services Rotorua, Lakes
- Taupo Southern Community Laboratory, Lakes
- Pathlab Bay of Plenty, Bay of Plenty
- Whakatane Hospital Laboratory, Bay of Plenty
- TLab Gisborne, Tairāwhiti
- Taranaki MedLab, Taranaki
- Taranaki Base Hospital, Taranaki
- Hawke's Bay Hospital, Hawke's Bay (Chlamydia only)
- Hawke's Bay Southern Community Laboratory, Hawke's Bay
- Medlab Whanganui, Whanganui
- Medlab Central, MidCentral
- Medlab Wairarapa, Wairarapa
- Hutt Hospital Laboratory, Hutt Valley
- Aotea Pathology, Capital & Coast (Gonorrhoea only)
- Grey Hospital Laboratory, West Coast
- Canterbury Health Laboratories, Canterbury
- Christchurch Southern Community Laboratory, Canterbury
- Ashburton Southern Community Laboratory, Canterbury
- Oamaru Southern Community Laboratory, Southern
- Dunstan Southern Community Laboratory, Southern
- Otago Southern Community Laboratory, Southern
- Balclutha Southern Community Laboratory, Southern
- Queenstown Southern Community Laboratory, Southern
- Invercargill Southern Community Laboratory, Southern

Figure 4. Laboratory surveillance coverage for gonorrhoea by DHB, July to September 2011

