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

APRIL TO JUNE 2011

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by

Health Intelligence Team
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**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 second quarter (April to June) 2011 from 40 laboratories across New Zealand.

METHODS

All results and analyses are based on data submitted prior to 1 August 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 only report on specimens received directly from health care settings within their own region. They do not report on specimens that were subcontracted to their laboratory from outside their region. Diagnostic tests used for chlamydia and gonorrhoea are not standardised. 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 second quarter (April to June) 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 second quarter (April to June) 2011.

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

Table 1. Selected/excluded DHBs for reporting, April to June 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 – APRIL TO JUNE 2011

In the second quarter (April to June) 2011, 35 laboratories from 15 DHBs met the selection criteria for chlamydia reporting. Laboratories in these DHBs tested 74 708 specimens for chlamydia, of which 6652 (8.9%) specimens tested positive from 6437 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 two 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 798 per 100 000 population (6437 cases). The highest DHB rate of chlamydia was reported for Tairāwhiti DHB (1492 per 100 000 population, 173 cases) followed by Lakes DHB (1210 per 100 000 population, 315 cases). Annualised chlamydia population rates by DHB are shown in Figure 1.

Sex was recorded for 99.8% (6427/6437) of chlamydia cases. The national annualised chlamydia rate for females (1168 per 100 000 population, 4799 cases) was almost three times the national annualised rate for males (411 per 100 000 population, 1628 cases).

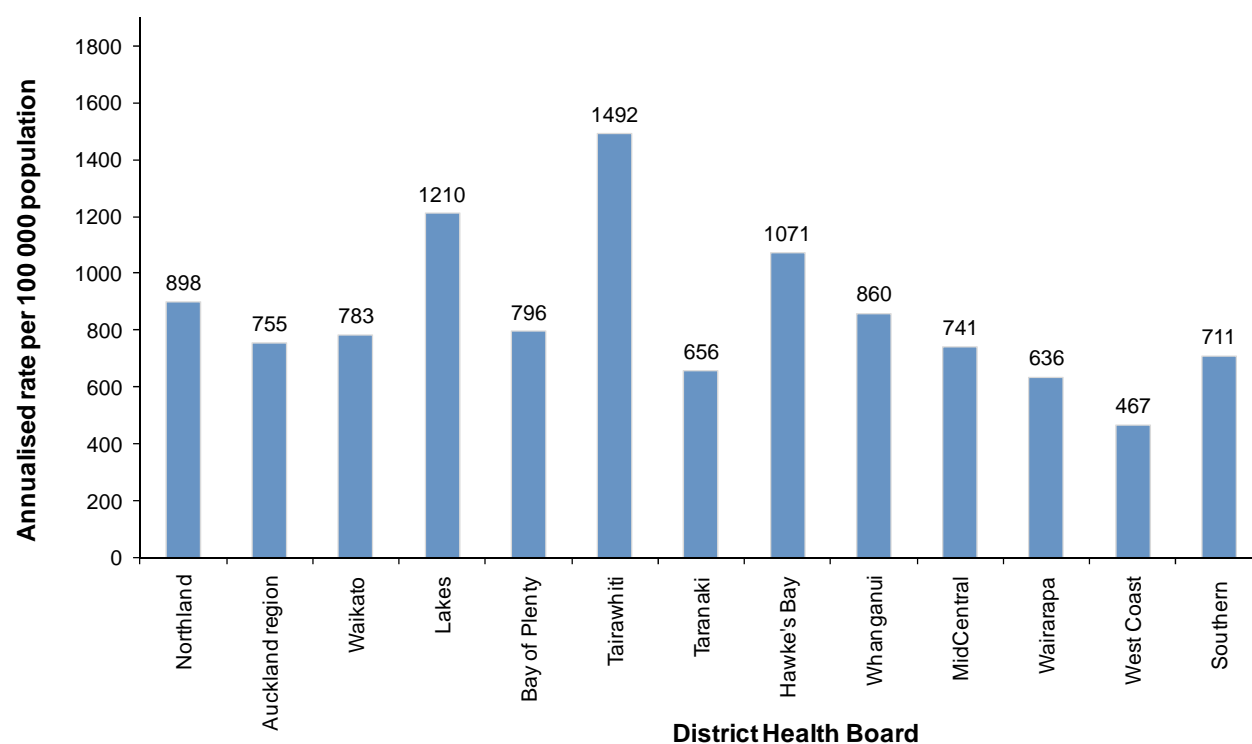
Age was recorded for 98.7% (3355/6437) of chlamydia cases. Of these, 72.1% (4582 cases) were aged 15–24 years. The highest national age-specific annualised rate of chlamydia in males occurred in the 20–24 years age group (2029 per 100 000 population, 601 cases) and for females in the 15–19 years age group (6294 per 100 000 population, 1851 cases).

Twenty-eight (18 male, 10 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, April to June 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	11.3	92	260	1	353	476	1302	898
Auckland region ¹	7.8	714	2074	1	2789	394	1103	755
Waikato	9.9	193	520	0	713	431	1124	783
Lakes	11.5	58	257	0	315	453	1941	1210
Bay of Plenty	10.2	102	316	0	418	399	1174	796
Tairāwhiti	13.7	32	140	1	173	566	2355	1492
Taranaki	8.6	63	115	1	179	467	833	656
Hawke's Bay	12.3	92	322	0	414	489	1624	1071
Whanganui	12.8	32	101	0	133	423	1276	860
MidCentral	10.6	80	229	1	310	393	1067	741
Wairarapa	11.1	16	48	0	64	326	931	636
West Coast	7.1	11	27	0	38	266	677	467
Southern	7.1	143	390	5	538	382	1019	711
Other ²	6.6	95	218	0	313	–	–	–
Total ³	10.3	1628	4799	10	6437	411	1168	798

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, April to June 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, April to June 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	1	–	0	–	11	372	169	6093	125	5872	24	1379	10	543	6	258	7	35	0	–	353	898
Auckland region ¹	26	94	0	–	54	214	823	2959	1013	3525	425	1466	212	819	114	416	121	79	1	–	2789	755
Waikato	0	–	0	–	8	121	302	4331	237	3646	87	1524	40	760	14	239	24	59	1	–	713	783
Lakes	0	–	0	–	8	399	142	7488	102	6296	37	2530	16	1070	7	406	3	–	0	–	315	1210
Bay of Plenty	1	–	0	–	12	319	191	5183	135	4726	38	1421	20	726	12	365	8	31	1	–	418	796
Tairāwhiti	2	–	0	–	8	842	65	7232	57	7862	20	3137	10	1639	6	815	3	–	2	–	173	1492
Taranaki	0	–	0	–	2	–	48	2489	50	3053	16	1061	1	–	4	–	3	–	55	–	179	656
Hawke's Bay	0	–	0	–	12	410	176	6317	140	6275	46	2353	24	1182	10	407	6	32	0	–	414	1071
Whanganui	0	–	0	–	4	–	43	3797	42	4302	19	2436	6	828	2	–	0	–	17	–	133	860
MidCentral	0	–	0	–	1	–	110	3297	112	3393	48	1890	23	1033	9	349	7	36	0	–	310	741
Wairarapa	0	–	0	–	1	–	29	4402	23	4612	6	1345	2	–	1	–	2	–	0	–	64	636
West Coast	0	–	0	–	0	–	14	2540	15	3540	6	1505	2	–	1	–	0	–	0	–	38	467
Southern	0	–	0	–	4	–	187	3160	234	3668	69	1404	20	453	7	143	12	34	5	–	538	711
Other ²	–	–	–	–	–	–	93	–	101	–	52	–	26	–	16	–	18	–	0	–	313	–
Total ³	30	51	–	–	125	223	2299	3810	2285	3939	841	1565	386	778	193	351	196	54	82	–	6437	798

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 – APRIL TO JUNE 2011

In the second quarter (April to June) 2011, 35 laboratories from 17 DHBs met the selection criteria for gonorrhoea reporting. Laboratories in these DHBs tested 96 669 specimens for gonorrhoea, of which 831 (0.9%) specimens tested positive from 657 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 one further laboratory 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 70 per 100 000 population (638 cases). The highest DHB rate of gonorrhoea was reported for Tairāwhiti DHB (293 per 100 000 population, 34 cases) followed by Wairarapa DHB (129 per 100 000 population, 13 cases). Annualised gonorrhoea population rates by DHB are shown in Figure 2.

Sex was recorded for 100% (638/638) of the gonorrhoea cases. The national annualised gonorrhoea rate for males (82 per 100 000 population, 367 cases) was almost one and a half times higher than the national annualised rate for females (58 per 100 000 population, 271 cases).

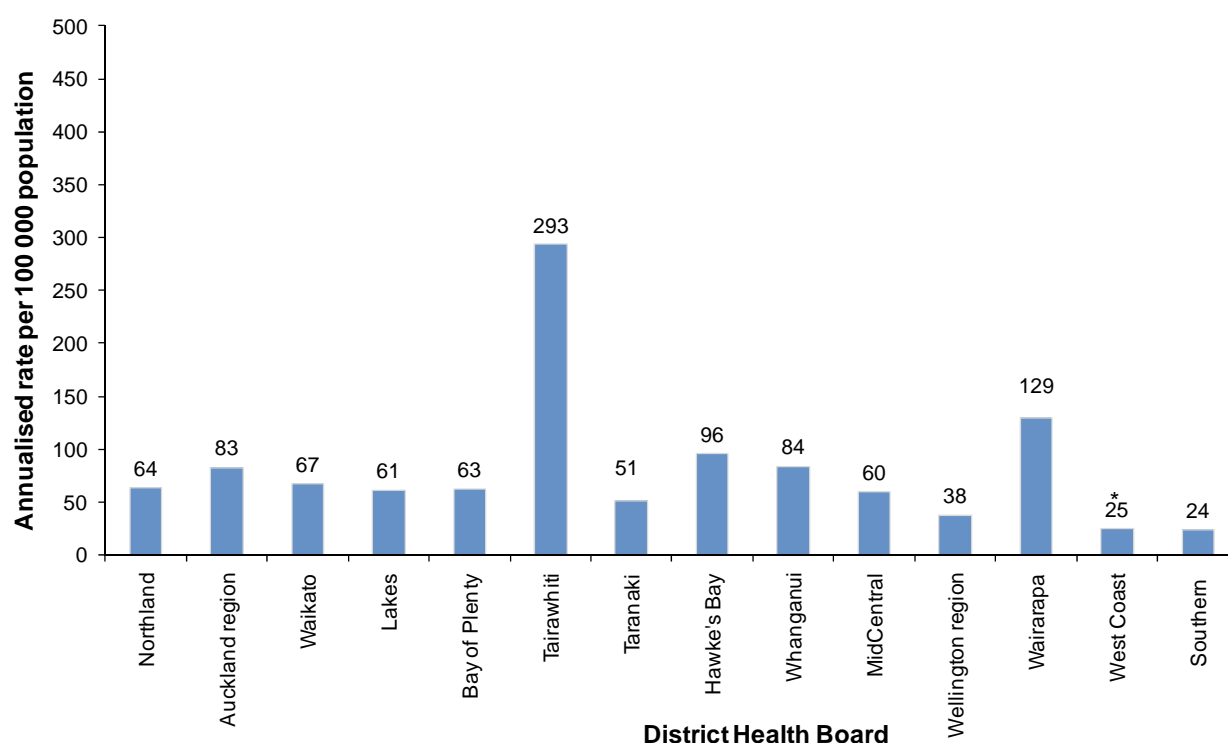
Age was recorded for 97.2% (620/638) of the gonorrhoea cases. Of these, 61.0% (389 cases) were aged 15–24 years. The highest national age-specific annualised rate of gonorrhoea in males occurred in the 20–24 years age group (379 per 100 000 population, 129 cases) and for females also in the 20–24 years age group (310 per 100 000 population, 102 cases).

Three cases of gonorrhoea 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 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, April to June 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	0.6	16	9	0	25	83	45	64
Auckland region ¹	0.8	191	115	0	306	105	61	83
Waikato	0.9	35	26	0	61	78	56	67
Lakes	0.9	9	7	0	16	70	53	61
Bay of Plenty	1.0	20	13	0	33	78	48	63
Tairāwhiti	2.8	14	20	0	34	248	336	293
Taranaki	1.0	4	10	0	14	30	72	51
Hawke's Bay	3.1	21	16	0	37	112	81	96
Whanganui	2.0	6	7	0	13	79	88	84
MidCentral	0.9	12	13	0	25	59	61	60
Wellington region ²	0.7	29	12	0	41	55	22	38
Wairarapa	2.8	5	8	0	13	102	155	129
West Coast	0.3	0	2	0	2	0	50	25
Southern	0.5	5	13	0	18	13	34	24
Other ³	0.5	0	10	0	19	–	–	–
Total ⁴	0.9	367	271	0	638	82	58	70

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, April to June 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, April to June 2011

Age group (years)	Number of cases	Annualised rate per 100 000 population
0–4	3	–
5–9	0	–
10–14	9	14
15–19	158	232
20–24	231	345
25–29	89	143
30–34	52	91
35–39	36	57
40+	42	10
Unknown	18	–
Total ¹	638	70

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
- 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
- Gore Southern Community Laboratories, Southern
- Invercargill Southern Community Laboratory, Southern

APPENDIX B: MAPS OF STI LABORATORY SURVEILLANCE COVERAGE FOR CHLAMYDIA AND GONORRHOEA

Figure 3. Laboratory surveillance coverage for chlamydia by DHB, April to June 2011

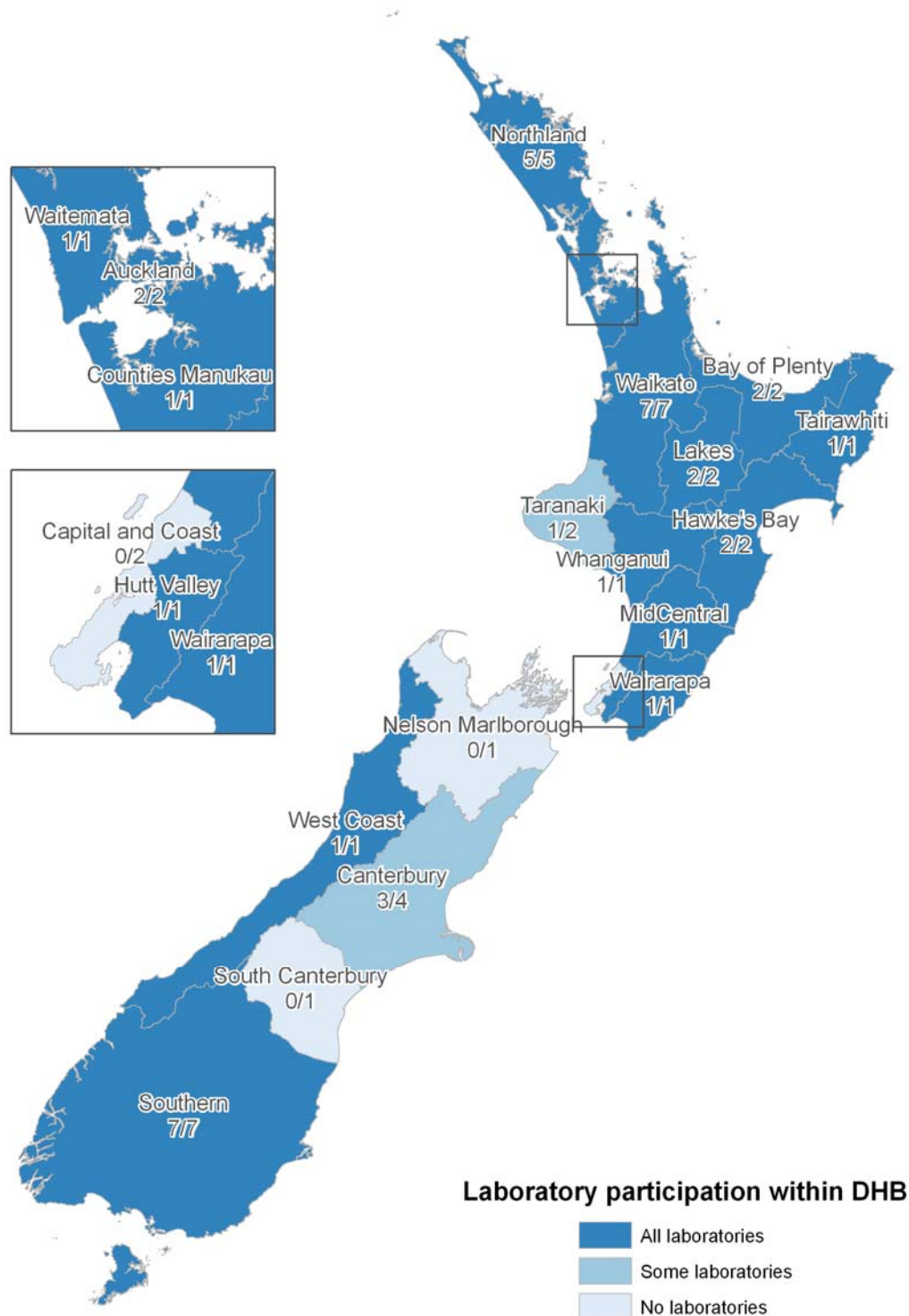


Figure 4. Laboratory surveillance coverage for gonorrhoea by DHB, April to June 2011

