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

OCTOBER TO DECEMBER 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
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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 fourth quarter (October to December) 2011 from 40 laboratories across New Zealand.

METHODS

All results and analyses are based on data submitted prior to 1 February 2012. 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 fourth quarter (October to December) 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 fourth quarter (October to December) 2011.

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

Table 1. Selected/excluded DHBs for reporting, October to December 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 – OCTOBER TO DECEMBER 2011

In the fourth quarter (October to December) 2011, 35 laboratories from 15 DHBs met the selection criteria for chlamydia reporting. Laboratories in these DHBs tested 69 499 specimens for chlamydia, of which 5971 (8.6%) specimens tested positive from 5821 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 721 per 100 000 population (5821 cases). The highest DHB rate of chlamydia was reported for Tairāwhiti DHB (1242 per 100 000 population, 144 cases) followed by Lakes DHB (1222 per 100 000 population, 318 cases). Annualised chlamydia population rates by DHB are shown in Figure 1.

Sex was recorded for 99.8% (5810/5821) of chlamydia cases. The national annualised chlamydia rate for females (1046 per 100 000 population, 4296 cases) was almost three times the national annualised rate for males (382 per 100 000 population, 1514 cases).

Age was recorded for 99.2% (5774/5821) of chlamydia cases. Of these, 70.4% (4064 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 (1786 per 100 000 population, 529 cases) and for females in the 15–19 years age group (5495 per 100 000 population, 1616 cases).

Twenty-one (10 male, 11 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, October to December 2011

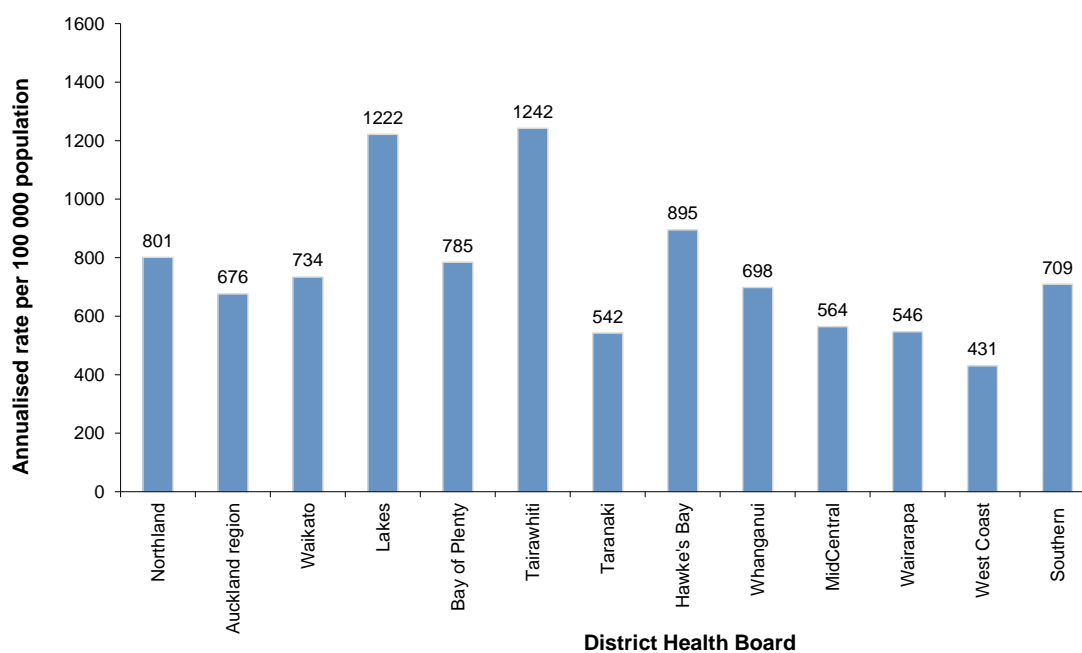
District Health Board	Specimens tested positive (%)	Number of test-positive cases				Annualised rate per 100 000 population		
		Male	Female	Unknown	Total	Male	Female	Total
Northland	11.0	73	240	2	315	378	1202	801
Auckland region ¹	7.4	696	1800	3	2499	384	957	676
Waikato	9.6	167	501	0	668	373	1082	734
Lakes	12.0	70	247	1	318	547	1866	1222
Bay of Plenty	9.8	98	312	2	412	383	1159	785
Tairāwhiti	13.1	28	115	1	144	496	1935	1242
Taranaki	7.9	36	112	0	148	267	811	542
Hawke's Bay	12.3	78	268	0	346	414	1351	895
Whanganui	11.3	29	79	0	108	384	998	698
MidCentral	9.1	68	167	1	236	334	778	564
Wairarapa	10.9	7	48	0	55	143	931	546
West Coast	8.1	10	24	1	35	241	602	431
Southern	8.0	154	383	0	537	411	1000	709
Other ²	7.8	139	226	0	365	-	-	-
Total ³	8.6	1514	4296	11	5821	382	1046	721

¹Auckland region: Waitemata, Auckland, and Counties Manukau DHBs

²Data from other DHBs where selection criteria were not met

³Total number and denominator for annualised rate calculations only includes DHBs meeting the selection criteria

Figure 1. Annualised chlamydia population rate by DHB, October to December 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, October to December 2011

Age group (years)	0–4		5–9		10–14		15–19		20–24		25–29		30–34		35–39		40+		Unknown		Total	
	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	-	5	169	146	5264	105	4932	21	1207	17	923	11	473	9	45	1	-	315	801
Auckland region ¹	15	54	0	-	31	123	715	2571	890	3097	425	1466	187	723	108	394	128	84	0	-	2499	676
Waikato	0	-	0	-	7	106	231	3313	269	4138	85	1489	39	741	19	325	18	44	0	-	668	734
Lakes	0	-	0	-	14	699	134	7067	99	6111	39	2667	19	1271	5	290	8	67	0	-	318	1222
Bay of Plenty	0	-	0	-	11	292	170	4613	131	4586	38	1421	30	1089	12	365	20	76	0	-	412	785
Tairāwhiti	1	-	0	-	2	-	63	7010	44	6069	14	2196	7	1148	8	1087	4	-	1	-	144	1242
Taranaki	0	-	0	-	3	-	31	1607	45	2748	12	796	4	-	10	572	6	45	37	-	148	542
Hawke's Bay	2	-	0	-	15	512	157	5635	110	4930	29	1483	14	689	10	407	9	48	0	-	346	895
Whanganui	0	-	2	-	0	-	37	3267	41	4200	18	2308	2	-	0	-	2	-	6	-	108	698
MidCentral	0	-	0	-	6	208	91	2728	91	2757	25	984	15	673	4	-	4	-	0	-	236	564
Wairarapa	0	-	0	-	3	-	12	1822	26	5213	4	-	7	1547	0	-	3	-	0	-	55	546
West Coast	0	-	0	-	0	-	15	2721	7	1652	7	1755	2	-	0	-	3	-	1	-	35	431
Southern	2	-	0	-	3	-	182	3076	222	3480	73	1486	28	634	13	266	13	36	1	-	537	709
Other ²	3	-	0	-	2	-	101	-	146	-	58	-	28	-	15	-	12	-	0	-	365	-
Total ³	20	34	2	-	100	178	1984	3288	2080	3585	790	1470	371	748	200	363	227	63	47	-	5821	721

¹ Auckland region: Waitemata, Auckland, and Counties Manukau DHBs

² Data from other DHBs where selection criteria were not met

³ Total number and denominator for annualised rate calculations only includes DHBs meeting the selection criteria

Rates suppressed where fewer than 5 cases

GONORRHOEA REPORTING – OCTOBER TO DECEMBER 2011

In the fourth quarter (October to December) 2011, 36 laboratories from 17 DHBs met the selection criteria for gonorrhoea reporting. Laboratories in these DHBs tested 95 091 specimens for gonorrhoea, of which 695 (0.7%) specimens tested positive from 583 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 64 per 100 000 population (583 cases). The highest DHB rate of gonorrhoea was reported for Tairāwhiti DHB (259 per 100 000 population, 30 cases) followed by Hawke’s Bay DHB (98 per 100 000 population, 38 cases). Annualised gonorrhoea population rates by DHB are shown in Figure 2.

Sex was recorded for 99.7% (581/583) of the gonorrhoea cases. The national annualised gonorrhoea rate for males (77 per 100 000 population, 344 cases) was approximately one and a half times higher than the national annualised rate for females (51 per 100 000 population, 237 cases).

Age was recorded for 99.0% (577/583) of the gonorrhoea cases. Of these, 60.5% (349 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 (335 per 100 000 population, 114 cases) and for females also in the 20–24 years age group (289 per 100 000 population, 95 cases).

No cases of gonorrhoea were reported for the less than one year age group.

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, October to December 2011

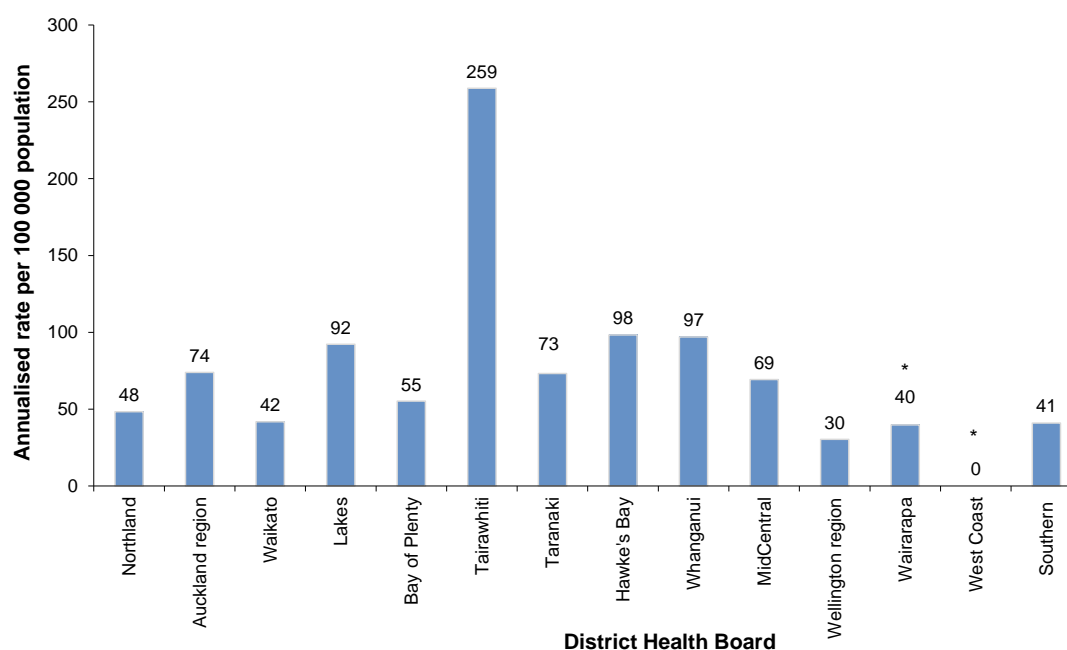
District Health Board	Specimens tested positive (%)	Number of test-positive cases				Annualised rate per 100 000 population		
		Male	Female	Unknown	Total	Male	Female	Total
Northland	0.5	8	11	0	19	41	55	48
Auckland region ¹	0.7	181	91	1	273	100	48	74
Waikato	0.6	26	12	0	38	58	26	42
Lakes	1.1	13	11	0	24	102	83	92
Bay of Plenty	0.9	20	9	0	29	78	33	55
Tairāwhiti	3.4	12	18	0	30	212	303	259
Taranaki	0.8	8	11	1	20	59	80	73
Hawke's Bay	1.3	14	24	0	38	74	121	98
Whanganui	2.3	10	5	0	15	132	63	97
MidCentral	1.3	19	10	0	29	93	47	69
Wellington region ²	0.5	20	13	0	33	38	23	30
Wairarapa	0.9	0	4	0	4	-	-	-
West Coast	0.0	0	0	0	0	-	-	-
Southern	0.5	13	18	0	31	35	47	41
Other ³	0.4	11	14	1	26	-	-	-
Total ⁴	0.7	344	237	2	583	77	51	64

¹Auckland region: Waitemata, Auckland, and Counties Manukau DHBs

²Wellington region: Hutt Valley and Capital & Coast DHBs

³Data from other DHBs where selection criteria were not met

⁴Total number and denominator for annualised rate calculations only includes DHBs meeting the selection criteria
Rates suppressed where fewer than 5 cases

Figure 2. Annualised gonorrhoea population rate by DHB, October to December 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, October to December 2011

Age group (years)	Number of cases	Annualised rate per 100 000 population
0-4	5	8
5-9	1	-
10-14	4	-
15-19	140	206
20-24	209	312
25-29	89	143
30-34	54	94
35-39	25	40
40+	50	12
Unknown	6	-
Total ¹	583	64

¹ Total number and denominator for annualised rate calculations only includes DHBs meeting the selection criteria
Rates 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

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

Figure 3. Laboratory surveillance coverage for chlamydia by DHB, October to December 2011

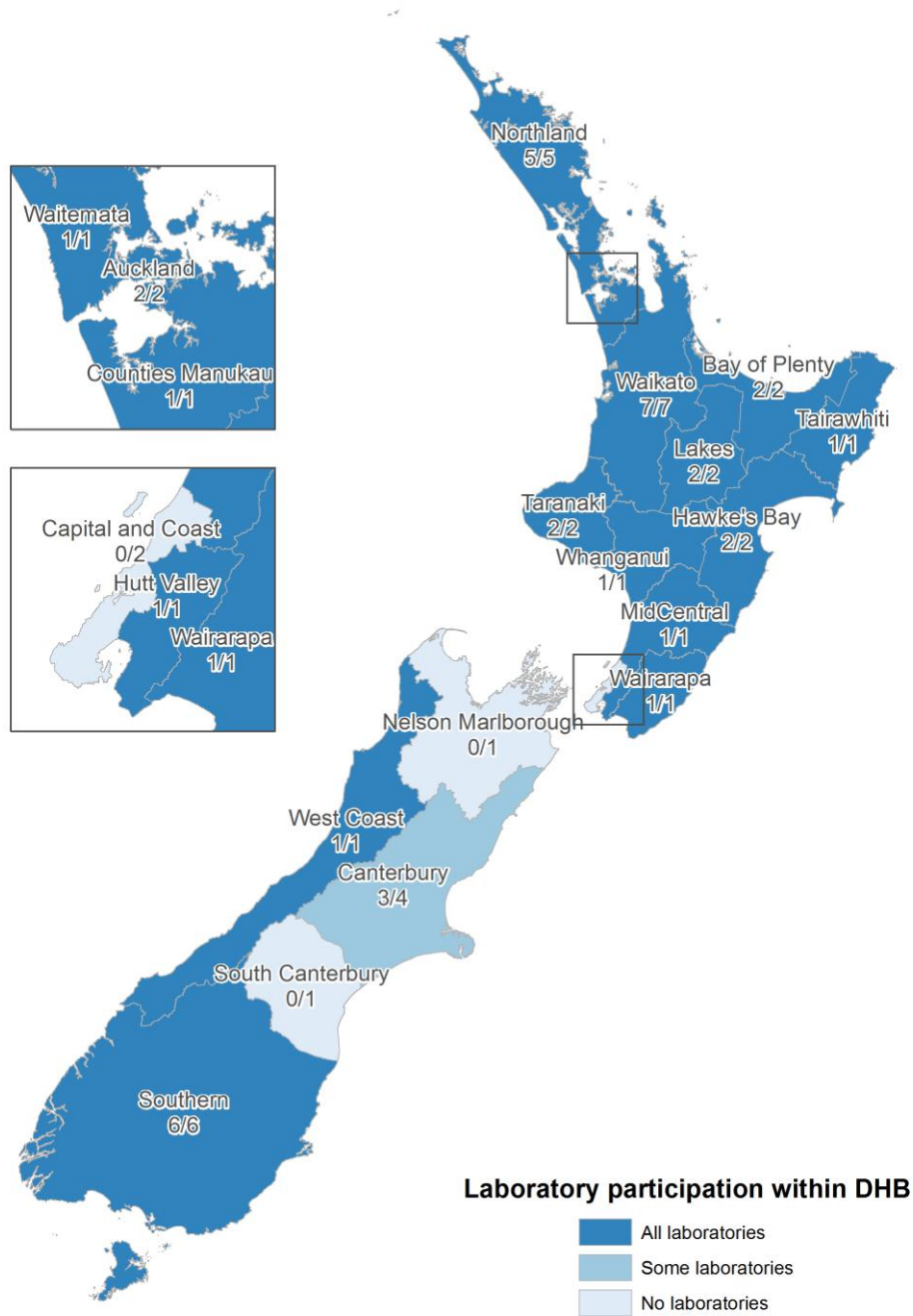


Figure 4. Laboratory surveillance coverage for gonorrhoea by DHB, October to December 2011

