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Laboratory Surveillance of Chlamydia and Gonorrhoea in New Zealand

October to December 2010

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by

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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**

Contents

Introduction.....	1
Methods.....	2
Data collection.....	2
Analysis methods.....	2
Data completeness	3
Chlamydia Reporting – October to December 2010.....	4
Gonorrhoea Reporting – October to December 2010.....	7
Appendix A: List of Participating Laboratories	10
Appendix B: Maps of STI Laboratory Surveillance Coverage for Chlamydia and Gonorrhoea.....	11

List of Tables

Table 1. Selected/excluded DHBs for reporting, October to December 2010.....	3
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 2010.....	5
Table 3. Number of test-positive chlamydia cases and annualised chlamydia population rates by DHB and age group, October to December 2010	6
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 2010	8
Table 5. Number of gonorrhoea cases and national annualised gonorrhoea population rates by age group, October to December 2010.....	9

List of Figures

Figure 1. Annualised chlamydia population rate by DHB, October to December 2010 ..	5
Figure 2. Annualised gonorrhoea population rate by DHB, October to December 2010.	8
Figure 3. Laboratory surveillance coverage for chlamydia by DHB, October to December 2010	11
Figure 4. Laboratory surveillance coverage for gonorrhoea by DHB, October to December 2010	12

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. 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 are now being reported. This is the first time since STI surveillance began that population estimates of chlamydia and gonorrhoea incidence have been produced.

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 2009 reported nearly four-times the number of chlamydia and 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) 2010 from 40 laboratories across New Zealand.

Methods

All results and analyses are based on data submitted prior to 4 February 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 are not standardised. Some laboratories use nucleic acid amplification and others use an enzyme immunoassay. These tests have different sensitivities and specificities that may influence the data.

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 was 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 2009 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

Laboratory participation

In the fourth quarter (October to December) 2010, 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) 2010.

Gonorrhoea data were provided by 38 laboratories. All 38 laboratories submitted gonorrhoea data by the date required for all three months of the fourth quarter (October to December) 2010.

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) 2010.

Table 1. Selected/excluded DHBs for reporting, October to December 2010

District Health Board	Chlamydia	Gonorrhoea
Northland	✓	✓
AK-WA-CM	✓	✓
Waikato	✓	✓
Lakes	✓	✓
Bay of Plenty	✓	✓
Tairāwhiti	✓	✓
Taranaki	✓	✓
Hawke's Bay	✓	✓
Whanganui	✓	✓
MidCentral	✓	✓
Wairarapa	✓	✓
HV-CC	x	✓
Nelson Marlborough	x	x
West Coast	✓	✓
Canterbury	x	x
South Canterbury	x	x
Southern	✓	✓

AK-WA-CM: Auckland/Waikato/Counties Manukau

HV-CC: Hutt Valley/Capital & Coast

✓ = Selected x = Excluded

Chlamydia Reporting – October to December 2010

In the fourth quarter (October to December) 2010, 35 laboratories from 15 DHBs met the selection criteria for chlamydia reporting. Laboratories in these DHBs tested 68 074 specimens for chlamydia, of which 6016 (8.8%) specimens tested positive from 5903 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.

The national annualised chlamydia rate, based on 15 DHBs, was 741 per 100 000 population (5903 cases). The highest DHB rate of chlamydia was reported for Tairāwhiti DHB (1310 per 100 000 population, 151 cases) followed by Lakes DHB (1209 per 100 000 population, 312 cases). Annualised chlamydia population rates by DHB are shown in Figure 1.

Sex was recorded for 99.6% (5880/5903) of chlamydia cases. The national annualised chlamydia rate for females (1092 per 100 000 population, 4432 cases) was almost three times the national annualised rate for males (370 per 100 000 population, 1448 cases).

Age was recorded for 99.2% (5853/5903) of chlamydia cases. Of these, 71.1% (4164 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 (1751 per 100 000 population, 499 cases) and for females in the 15–19 years age group (5895 per 100 000 population, 1739 cases).

Thirty-five (17 male, 18 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 2010

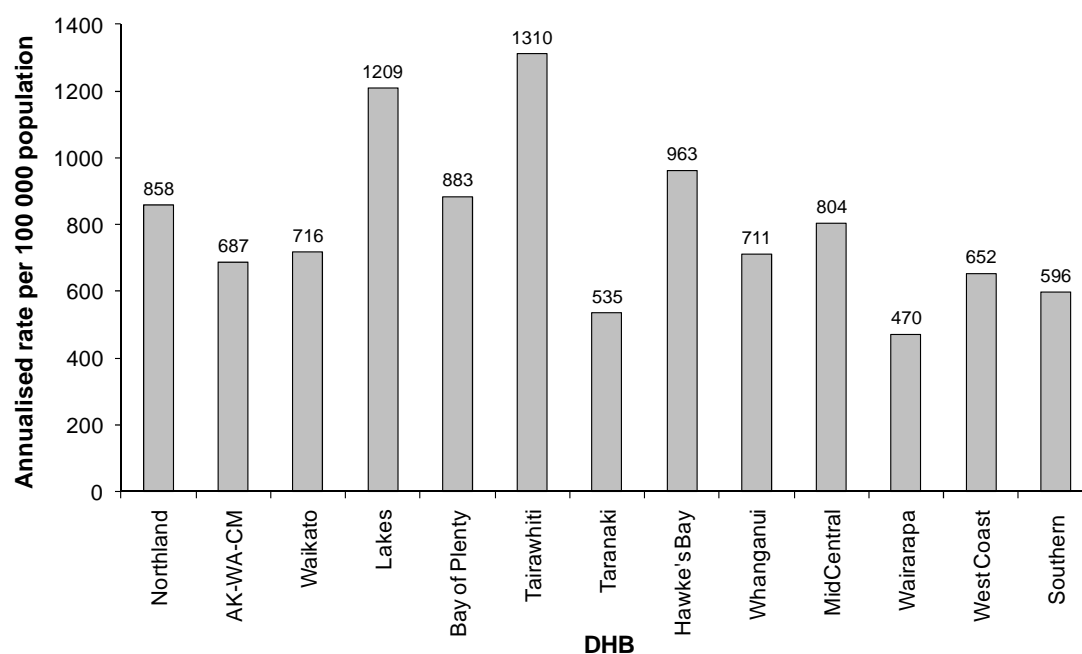
District Health Board	Specimens tested positive (%)	Number of test-positive cases				Annualised rate per 100 000 population		
		Male	Female	Unknown	Total	Male	Female	Total
Northland	11.4	63	271	–	334	329	1371	858
AK-WA-CM	7.7	632	1865	1	2498	355	1007	687
Waikato	9.3	170	475	–	645	384	1039	716
Lakes	11.9	59	252	1	312	465	1918	1209
Bay of Plenty	10.8	119	336	4	459	470	1263	883
Tairāwhiti	13.5	34	117	–	151	606	1981	1310
Taranaki	7.3	41	104	–	145	306	759	535
Hawke's Bay	12.2	80	289	–	369	429	1471	963
Whanganui	11.2	19	90	1	110	250	1142	711
MidCentral	11.8	88	245	–	333	437	1151	804
Wairarapa	8.8	7	25	15	47	144	488	470
West Coast	11.9	18	35	–	53	436	875	652
Southern	6.8	118	328	1	447	319	864	596
Other ¹	11.9	111	235	–	346	–	–	–
Total ²	8.8	1448	4432	23	5903	370	1092	741

AK-WA-CM: Auckland/Waikato/Counties Manukau

¹ Data from other DHBs where selection criteria were not met

² Total 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 2010



AK-WA-CM: Auckland/Waikato/Counties Manukau

Table 3. Number of test-positive chlamydia cases and annualised chlamydia population rates by DHB and age group, October to December 2010

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	5	179	0	–	7	233	157	5635	105	5103	35	2083	11	586	8	332	6	31	0	–	334	858
AK-WA-CM	18	67	0	–	38	151	744	2685	887	3176	425	1520	185	725	92	331	108	72	1	–	2498	687
Waikato	2	–	0	–	7	105	223	3172	228	3633	83	1493	47	906	25	415	30	75	0	–	645	716
Lakes	0	–	0	–	4	–	146	7589	98	6395	30	2082	15	976	8	447	10	86	1	–	312	1209
Bay of Plenty	2	–	0	–	16	425	169	4555	151	5575	53	2013	26	943	19	563	19	74	4	–	459	883
Tairāwhiti	0	–	1	–	4	–	82	9124	39	5571	16	2650	5	798	3	–	1	–	0	–	151	1310
Taranaki	2	–	0	–	1	–	36	1839	46	2944	13	888	5	334	2	–	3	–	37	–	145	535
Hawke's Bay	0	–	0	–	10	339	171	6118	119	5593	39	2019	20	961	5	199	5	27	0	–	369	963
Whanganui	0	–	1	–	4	–	49	4275	35	3694	14	1848	0	–	0	–	1	–	6	–	110	711
MidCentral	1	–	2	–	3	–	125	3758	139	4444	26	1034	22	973	9	341	6	31	0	–	333	804
Wairarapa	0	–	0	–	2	–	20	2909	16	3536	4	–	2	–	0	–	2	–	1	–	47	470
West Coast	0	–	0	–	1	–	27	4943	11	2667	8	2065	0	–	3	–	3	–	0	–	53	652
Southern	2	–	0	–	5	110	170	2885	171	2735	61	1289	19	431	9	181	10	28	0	–	447	596
Other ¹	0	–	0	–	6	–	115	–	128	–	45	–	23	–	14	–	12	–	0	–	346	–
Total ²	2	–	4	–	102	181	2119	3508	2045	3646	807	1549	357	722	183	326	204	58	50	–	5903	741

AK-WA-CM: Auckland/Waikato/Counties Manukau

¹ Data from other DHBs where selection criteria was not met

² Total number and denominator for annualised rate calculations only includes DHBs meeting the selection criteria

Gonorrhoea Reporting – October to December 2010

In the fourth quarter (October to December) 2010, 35 laboratories from 17 DHBs met the selection criteria for gonorrhoea reporting. Laboratories in these DHBs tested 82 357 specimens for gonorrhoea, of which 683 (0.8%) specimens tested positive from 608 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.

The national annualised gonorrhoea rate, based on 17 DHBs, was 67 per 100 000 population (608 cases). The highest DHB rate of gonorrhoea was reported for Tairāwhiti DHB (486 per 100 000 population, 56 cases) followed by Hawke's Bay DHB (97 per 100 000 population, 37 cases). Annualised gonorrhoea population rates by DHB are shown in Figure 2.

Sex was recorded for all of the gonorrhoea cases. The national annualised gonorrhoea rate for males (73 per 100 000 population, 326 cases) was almost one fifth higher than the national annualised rate for females (61 per 100 000 population, 282 cases).

Age was recorded for 99.7% (606/608) gonorrhoea cases. Of these, 58.9% (357 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 (260 per 100 000 population, 85 cases) and for females in the 15–19 years age group (297 per 100 000 population, 99 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 DHB and 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 2010

District Health Board	Specimens tested positive (%)	Number of test-positive cases			Annualised rate per 100 000 population		
		Male	Female	Total	Male	Female	Total
Northland	0.6	8	17	25	42	86	64
AK-WA-CM	0.6	122	103	225	68	56	62
Waikato	0.7	28	16	44	63	35	49
Lakes	1.2	12	9	21	95	69	81
Bay of Plenty	1.4	20	25	45	79	94	87
Tairāwhiti	6.0	26	30	56	463	508	486
Taranaki	0.2	3	1	4	–	–	–
Hawke's Bay	3.9	20	17	37	107	87	97
Whanganui	1.3	5	4	9	66	–	58
MidCentral	1.2	14	14	28	69	66	68
Wairarapa	1.2	1	3	4	–	–	40
HV-CC	1.0	53	27	80	101	49	74
West Coast	1.1	4	3	7	–	–	86
Southern	0.7	10	13	23	27	34	31
Other ¹	1.1	–	–	–	–	–	–
Total ²	0.8	326	282	608	73	61	67

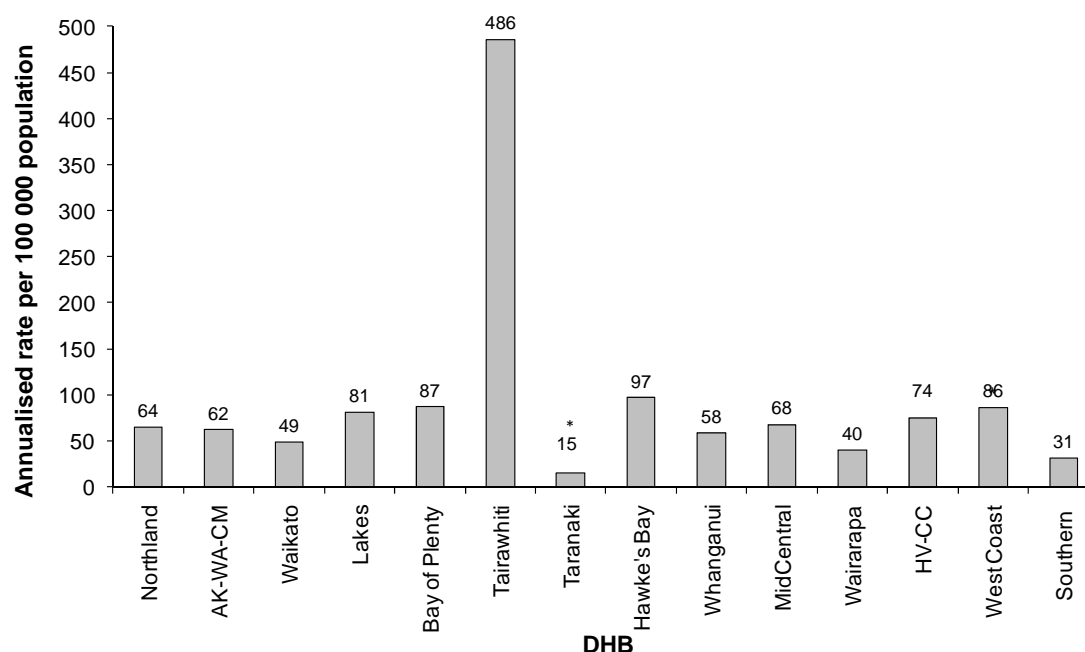
AK-WA-CM: Auckland/Waikato/Counties Manukau

HV-CC: Hutt Valley/Capital & Coast

¹ Data from other DHBs where selection criteria were not met

² Total number and denominator for annualised rate calculations only includes DHBs meeting the selection criteria

Figure 2. Annualised gonorrhoea population rate by DHB, October to December 2010



AK-WA-CM: Auckland/Waikato/Counties Manukau

HV-CC: Hutt Valley/Capital & Coast

* 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 2010

Age group (years)	Number of cases	Annualised rate per 100 000 population
0–4	1	–
5–9	1	–
10–14	8	13
15–19	187	274
20–24	170	263
25–29	95	158
30–34	50	88
35–39	33	51
40+	61	15
Unknown	2	–
Total ¹	608	67

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

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 (Chlamydia only)
- 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, Octoebr to December 2010

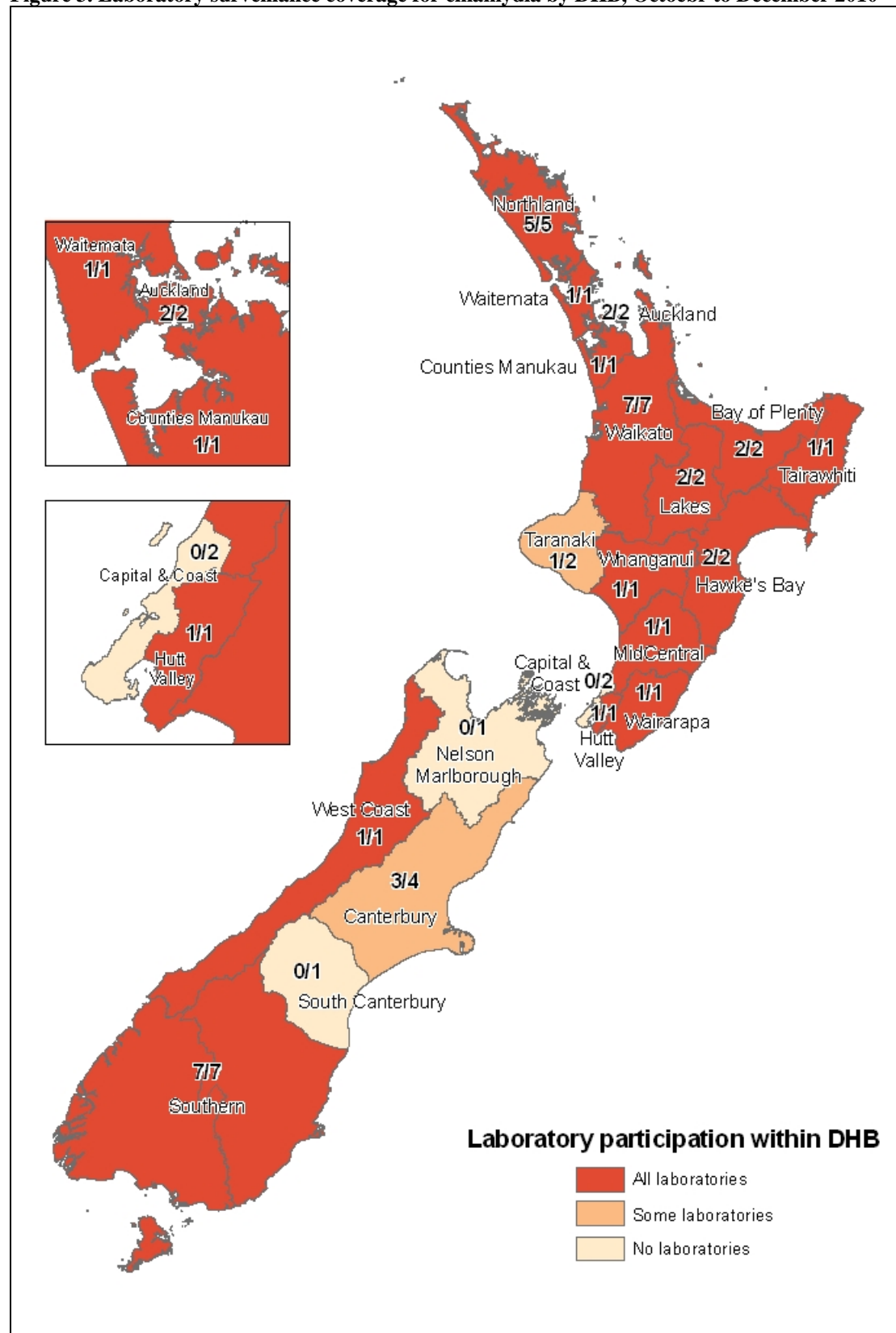


Figure 4. Laboratory surveillance coverage for gonorrhoea by DHB, October to December 2010

