

**Laboratory Surveillance of
Chlamydia and Gonorrhoea
in New Zealand**

April to June 2010

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

by

Population and Environmental Health Group
Institute of Environmental Science & Research Ltd.

August 2010

Client Report FW10075

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Acknowledgements

This report was prepared by the Population and Environmental Health Group at ESR. With particular contributions from, Pauline Quinn (data collation and reporting), Tammy Hambling (reporting and peer review) and Craig Thornley (peer review).

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
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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 data of clinic-based data from sexual health clinics, family planning clinics and student and youth health clinics, and microbiologic data from diagnostic laboratories. Population and disease coverage varies by data source. Laboratories are an important source of STI surveillance data as they receive specimens from all health providers. In 2009, it was estimated that laboratory surveillance reported nearly four-times the number of cases of chlamydia and gonorrhoea that were reported by clinic surveillance.

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.

This report presents data on chlamydia and gonorrhoea cases reported in the second quarter (April to June) 2010 from 40 laboratories across New Zealand.

Quarterly reports for clinic-based STI surveillance are produced separately and are available at www.surv.esr.cri.nz.

Methods

All results and analyses are based on data submitted prior to 9 August 2010. Any data submitted after this date are not included in this report due to time constraints. All results should be regarded as provisional.

Data collection

The participating laboratories (see Appendix 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. The 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 practice 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 is not possible then it was assumed that each test-positive specimen was equivalent to one test-positive patient. As it is possible that 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 either directly to ESR, or to a regional co-ordinator who forwards the data to ESR. Laboratory data is entered into a database by ESR staff.

Analysis methods

Laboratory STI surveillance data is stored in a database and was extracted and analysed using Microsoft Access and 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.

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

Rates have not been calculated where there are 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 twenty 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 second quarter (April to June) 2010, 40 laboratories across 18 DHBs in New Zealand participated in the STI surveillance programme.

Chlamydia data was 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) 2010.

Gonorrhoea data was provided by 38 laboratories. All 38 laboratories submitted gonorrhoea data by the date required for all three months of the second quarter (April to June) 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 meeting the selection criteria for reporting for the second quarter (April to June) 2010.

As of 1 May 2010, Otago and Southland DHBs were combined to become the Southern DHB. For reporting purposes data from laboratories in Otago and Southland DHBs have been combined for the second quarter (April to June) 2010.

Table 1. Selected/excluded DHBs for reporting, April to June 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 - April to June 2010

In the second quarter (April to June) 2010, 34 laboratories from 15 DHBs met the selection criteria for reporting. Laboratories in these DHBs tested 73 109 specimens for chlamydia, of which 6535 (8.9%) specimens tested positive from 6369 patients. Table 2 presents the percentage of specimens tested for chlamydia that were positive, number of test-positive chlamydia cases, and annualised chlamydia population rates by DHB and sex.

The national annualised chlamydia rate, based on 15 DHBs, was 799 per 100 000 population (6369 cases). The highest DHB rate of chlamydia was reported for Tairāwhiti DHB (1423 per 100 000 population, 164 cases) followed by Lakes DHB (1220 per 100 000 population, 315 cases). Annualised chlamydia population rates by DHB are shown in Figure 1.

Sex was recorded for 99.8% (6359/6369) of chlamydia cases. The national annualised chlamydia rate for females (1172 per 100 000 population, 4759 cases) was almost three times the national annualised rate for males (409 per 100 000 population, 1600 cases).

Age was recorded for 98.3% (6258/6369) of chlamydia cases. Of these, 71.6% (4480 cases) were aged 15 to 24 years. The highest national age-specific annualised rate of chlamydia in males occurred in the 20 to 24 years age group (1888 per 100 000 population, 538 cases) and for females in the 15 to 19 years age group (6740 per 100 000 population, 1988 cases).

Twenty-four (11 male, 13 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 2010

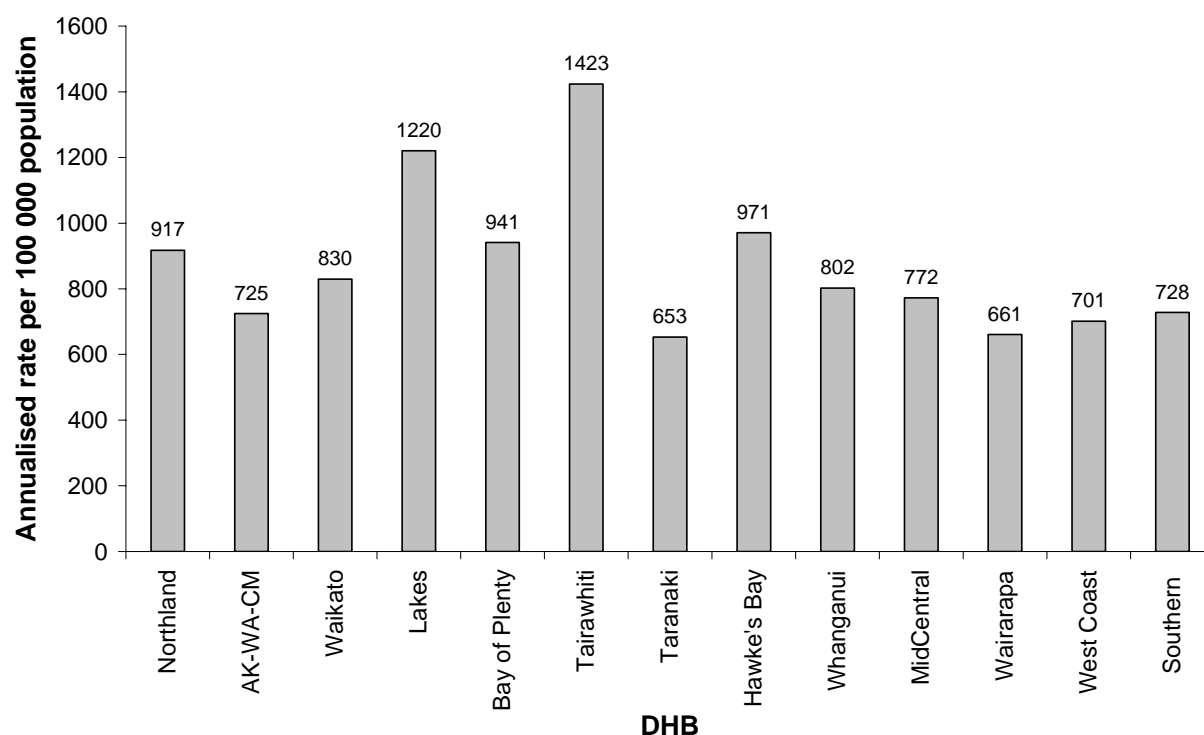
District Health Board	Specimens tested positive (%)	Number of test-positive cases				Annualised rate per 100 000 population		
		Male	Female	Unknown	Total	Male	Female	Total
Northland	12.0	80	277	0	357	418	1401	917
AK-WA-CM	7.6	711	1922	2	2635	399	1038	725
Waikato	10.1	179	568	0	747	404	1242	830
Lakes	12.2	69	246	0	315	544	1873	1220
Bay of Plenty	10.8	117	372	0	489	462	1398	941
Tairāwhiti	14.2	29	135	0	164	516	2285	1423
Taranaki	8.6	51	122	4	177	381	890	653
Hawke's Bay	11.4	79	293	0	372	423	1491	971
Whanganui	12.5	31	92	1	124	409	1168	802
MidCentral	11.2	88	230	2	320	437	1080	772
Wairarapa	11.7	10	56	0	66	205	1094	661
West Coast	10.9	21	36	0	57	509	900	701
Southern	7.4	135	410	1	546	365	1080	728
Other ¹	14.9	163	300	0	463	-	-	-
Total ²	8.9	1600	4759	10	6369	409	1172	799

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, April to June 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, April to June 2010

Age group (years)	0 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 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	366	166	5958	122	5930	23	1369	14	746	12	498	8	41	0	-	357	917
AK-WA-CM	14	52	1	-	39	155	803	2898	899	3219	433	1549	201	787	116	418	126	84	3	-	2635	725
Waikato	6	89	0	-	10	150	315	4481	249	3968	96	1727	46	887	16	265	9	22	0	-	747	830
Lakes	0	-	0	-	12	595	140	7277	89	5808	33	2290	17	1106	6	335	18	155	0	-	315	1220
Bay of Plenty	3	-	0	-	11	292	229	6173	140	5168	52	1975	19	689	18	534	17	66	0	-	489	941
Tairāwhiti	0	-	0	-	5	511	67	7455	30	4286	15	2484	9	1437	7	933	1	-	30	-	164	1423
Taranaki	0	-	0	-	4	-	65	3321	45	2880	10	683	5	334	1	-	2	-	45	-	177	653
Hawke's Bay	0	-	1	-	6	203	182	6512	97	4559	51	2641	16	769	12	477	7	38	0	-	372	971
Whanganui	0	-	0	-	1	-	42	3664	27	2850	14	1848	3	-	1	-	3	-	33	-	124	802
MidCentral	0	-	0	-	5	172	134	4029	117	3741	32	1273	19	840	3	-	10	52	0	-	320	772
Wairarapa	0	-	0	-	0	-	36	5236	17	3757	6	1364	2	-	3	-	2	-	0	-	66	661
West Coast	0	-	0	-	0	-	32	5858	14	3394	7	1806	2	-	1	-	1	-	0	-	57	701
Southern	0	-	0	-	7	154	225	3818	198	3167	63	1331	30	681	11	221	12	34	0	-	546	728
Other ¹	0	-	1	-	8	-	135	-	204	-	61	-	24	-	15	-	15	-	0	-	463	-
Total ²	24	42	2	-	111	197	2436	4033	2044	3645	835	1603	383	775	207	369	216	61	111	-	6369	799

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 - April to June 2010

In the second quarter (April to June) 2010, 35 laboratories from 17 DHBs met the selection criteria for reporting. Laboratories in these DHBs tested 86 789 specimens for gonorrhoea, of which 691 (0.8%) specimens tested positive from 600 patients. Table 4 presents the percentage of specimens tested for gonorrhoea that were positive, number of test-positive gonorrhoea cases, and annualised gonorrhoea population rates by DHB and sex.

The national annualised gonorrhoea rate, based on 17 DHBs, was 66 per 100 000 population (600 cases). The highest DHB rate of gonorrhoea was reported for Tairāwhiti DHB (208 per 100 000 population, 24 cases) followed by Hawke's Bay DHB (144 per 100 000 population, 55 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, 325 cases) was slightly higher than the national annualised rate for females (60 per 100 000 population, 275 cases).

Age was recorded for 98.7% (592/600) of gonorrhoea cases. Of these, 62.2% (369 cases) were aged 15 to 24 years. The highest national age-specific annualised rate of gonorrhoea in males occurred in the 20 to 24 years age group (318 per 100 000 population, 104 cases) and for females in the 15 to 19 years age group (348 per 100 000 population, 116 cases).

Two (1 male, 1 female) 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 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, April to June 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	0.7	11	14	25	57	71	64
AK-WA-CM	0.6	159	101	260	89	55	72
Waikato	0.8	30	20	50	68	44	56
Lakes	0.9	10	6	16	79	46	62
Bay of Plenty	1.2	17	25	42	67	94	81
Tairāwhiti	2.9	7	17	24	125	288	208
Taranaki	0.3	3	3	6	-	-	22
Hawke's Bay	4.1	28	27	55	150	137	144
Whanganui	2.0	9	2	11	119	-	71
MidCentral	1.0	10	13	23	50	61	56
Wairarapa	1.2	2	3	5	-	-	50
HV-CC	0.8	32	29	61	61	53	57
West Coast	0.4	2	1	3	-	-	-
Southern (Otago/Southland)	0.6	5	14	19	14	37	25
Other ¹	2.0	20	19	39	-	-	-
Total ²	0.8	325	275	600	73	60	66

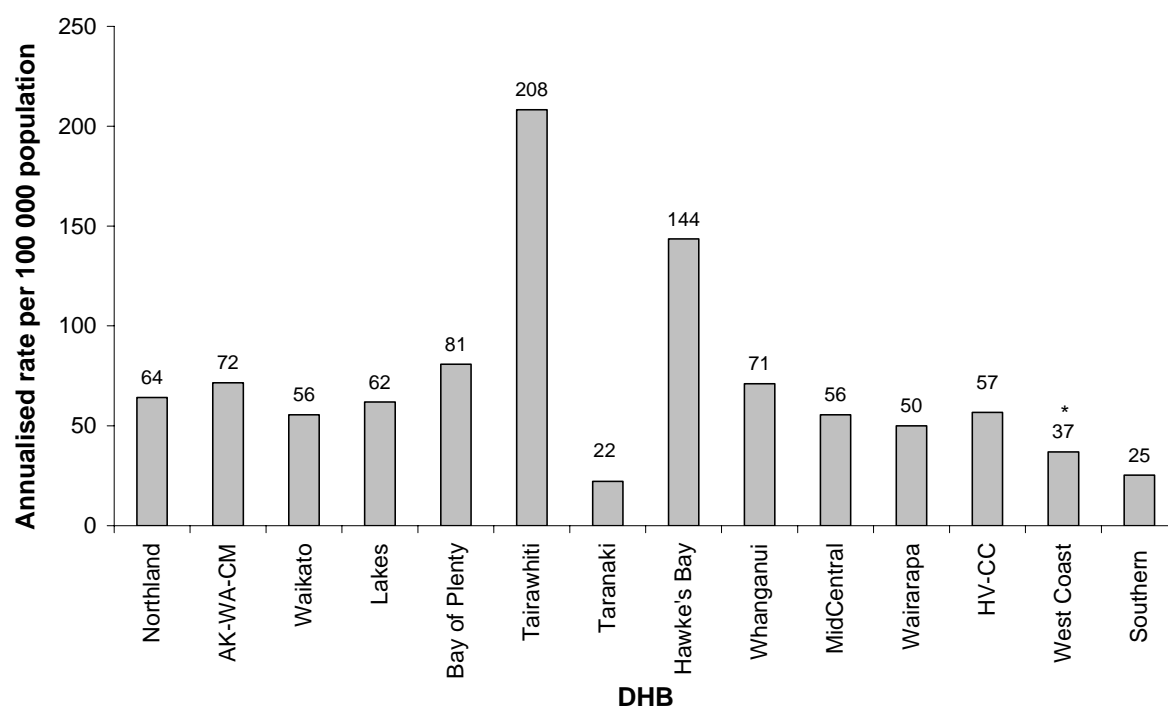
AK-WA-CM: Auckland/Waikato/Counties Manukau

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, April to June 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, April to June 2010

Age group (years)	Number of cases	Annualised rate per 100 000 population
0 to 4	3	-
5 to 9	1	-
10 to 14	16	25
15 to 19	182	267
20 to 24	187	289
25 to 29	101	168
30 to 34	34	60
35 to 39	30	46
40+	39	10
Unknown	7	-
Total ¹	600	66

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
- Gisborne Hospital Laboratory, 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 2010

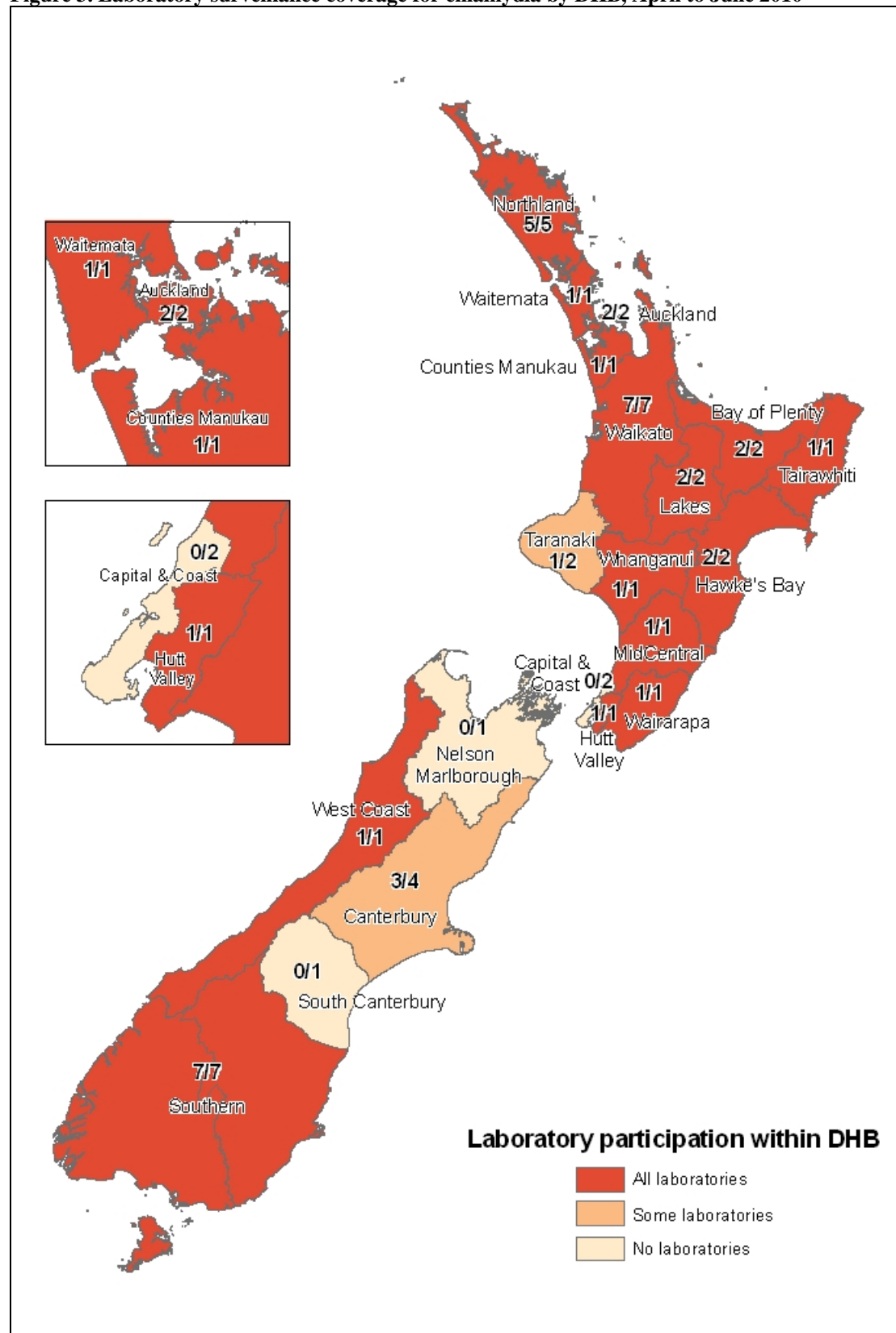


Figure 4. Laboratory surveillance coverage for gonorrhoea by DHB, April to June 2010

