

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

January to March 2010

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

by

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May 2010

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Acknowledgements

This report was prepared by the STI Surveillance Team at ESR. Members of the STI Surveillance Team, who have contributed to the collection, collation, analysis and reporting of data, include Pauline Quinn and Tammy Hambling.

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

In New Zealand, sexually transmitted infections (STIs) are not notifiable. However, acquired immune deficiency syndrome, the late sequelae of human immunodeficiency virus infection, is notifiable. Therefore surveillance efforts are based on voluntary provision of data from laboratories and clinics (sexual health clinics, family planning clinics and student and youth health clinics). 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 first quarter (January to March) 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 11 May 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. Calculating rates from fewer than five cases produces unstable rates 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 first quarter (January to March) 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 first quarter (January to March) 2010.

Gonorrhoea data was provided by 38 laboratories. All 38 laboratories submitted gonorrhoea data by the date required for all three months of the first quarter (January to March) 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 first quarter (January to March) 2010.

Table 1. Selected/excluded DHBs for reporting, January to March 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
Otago	✓	✓
Southland	✓	✓

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

HV-CC: Hutt Valley/Capital & Coast

✓ = Selected x = Excluded

Chlamydia Reporting - January to March 2010

In the first quarter (January to March) 2010, 39 laboratories from 16 DHBs met the selection criteria for reporting. Laboratories in these DHBs tested 73 577 specimens for chlamydia, of which 7042 (9.6%) specimens tested positive from 6841 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 16 DHBs, was 858 per 100 000 population (6841 cases). The highest DHB rate of chlamydia was reported for Tairāwhiti DHB (1397 per 100 000 population, 161 cases) followed by Lakes DHB (1240 per 100 000 population, 320 cases). Annualised chlamydia population rates by DHB are shown in Figure 1.

Sex was recorded for 99.5% (6806/6841) of chlamydia cases. The national annualised chlamydia rate for females (1255 per 100 000 population, 5095 cases) was almost three times the national annualised rate for males (437 per 100 000 population, 1711 cases).

Age was recorded for 98.6% (6742/6841) of chlamydia cases. Of these, 71.9% (4848 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 (2095 per 100 000 population, 597 cases) and for females in the 15 to 19 years age group (7275 per 100 000 population, 2146 cases).

Twenty-six (8 male, 14 female, 4 sex unknown) 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 was 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, January to March 2010

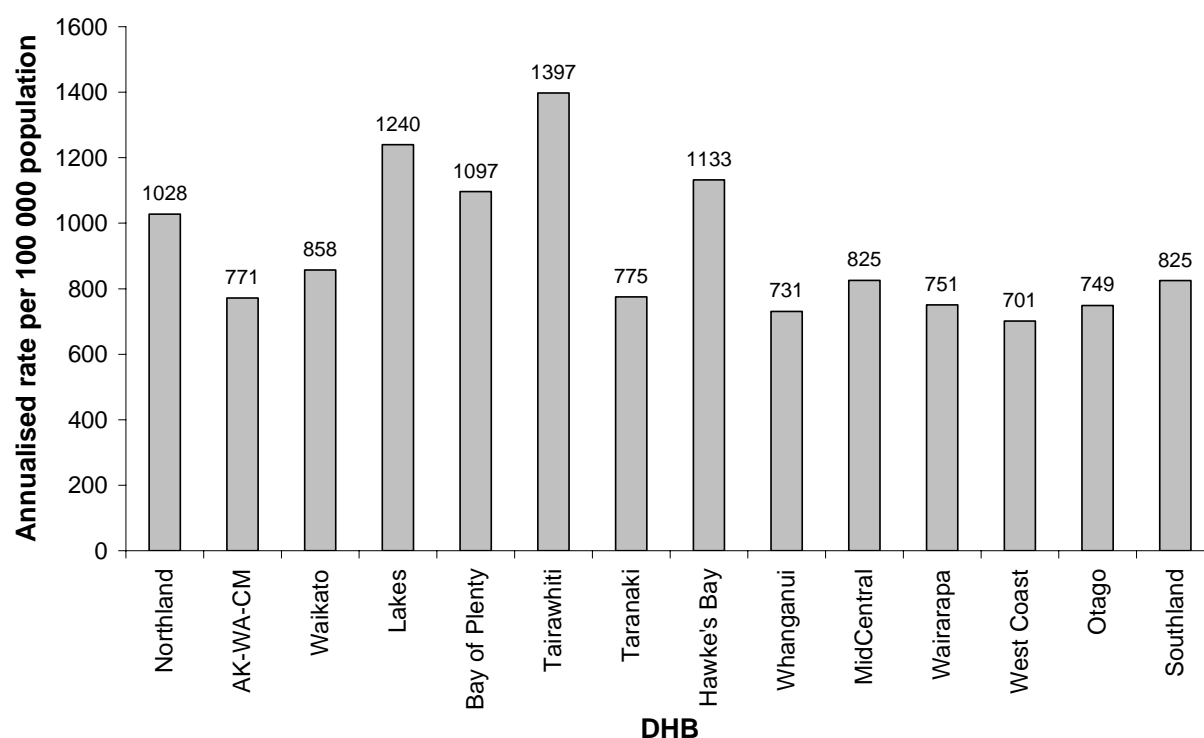
District Health Board	Specimens tested positive (%)	Number of test-positive cases				Annualised rate per 100 000 population		
		Male	Female	Unknown	Total	Male	Female	Total
Northland	13.1	82	318	0	400	428	1608	1028
AK-WA-CM	8.2	728	2070	6	2804	408	1118	771
Waikato	10.3	202	570	0	772	456	1247	858
Lakes	12.9	64	255	1	320	505	1941	1240
Bay of Plenty	10.8	102	468	0	570	402	1758	1097
Tairāwhiti	13.2	44	116	1	161	784	1964	1397
Taranaki	9.6	64	146	0	210	478	1065	775
Hawke's Bay	13.1	104	330	0	434	557	1679	1133
Whanganui	11.0	26	87	0	113	343	1104	731
MidCentral	11.3	105	235	2	342	521	1104	825
Wairarapa	13.4	9	46	20	75	185	899	751
West Coast	12.4	11	43	3	57	267	1075	701
Otago	7.6	105	246	2	353	455	1024	749
Southland	10.2	65	165	0	230	466	1184	825
Other ¹	11.9	124	259	0	383	-	-	-
Total ²	9.6	1711	5095	35	6841	437	1255	858

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, January to March 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, January to March 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	0	-	0	-	11	366	197	7070	123	5978	35	2083	12	640	8	332	14	72	0	-	400	1028
AK-WA-CM	20	74	2	-	30	119	840	3032	942	3373	465	1663	242	948	118	425	143	96	2	-	2804	771
Waikato	2	-	0	-	17	255	301	4282	290	4622	95	1709	36	694	20	332	10	25	1	-	772	858
Lakes	0	-	0	-	7	347	150	7797	106	6917	25	1735	21	1366	7	391	4	-	0	-	320	1240
Bay of Plenty	2	-	0	-	10	266	279	7520	172	6350	56	2127	27	979	12	356	7	27	5	-	570	1097
Tairāwhiti	1	-	0	-	6	613	69	7677	36	5143	16	2650	12	1916	12	1600	5	99	4	-	161	1397
Taranaki	0	-	0	-	2	-	50	2554	52	3328	10	683	15	1003	7	391	9	68	65	-	210	775
Hawke's Bay	1	-	1	-	12	406	193	6905	132	6204	54	2796	19	913	11	438	11	60	0	-	434	1133
Whanganui	0	-	1	-	0	-	40	3490	31	3272	10	1320	5	659	5	526	1	-	20	-	113	731
MidCentral	2	-	1	-	4	-	143	4299	127	4061	36	1432	15	663	9	341	5	26	0	-	342	825
Wairarapa	1	-	0	-	2	-	38	5527	21	4641	5	1136	3	-	4	-	1	-	0	-	75	751
West Coast	0	-	0	-	2	-	25	4577	17	4121	6	1548	5	1136	0	-	2	-	0	-	57	701
Otago	0	-	0	-	3	-	154	3795	123	2689	48	1689	9	356	9	306	5	22	2	-	353	749
Southland	0	-	0	-	0	-	116	6322	81	4829	16	846	10	532	6	296	1	-	0	-	230	825
Other ¹	1	-	0	-	8	-	130	-	150	-	51	-	19	-	10	-	14	-	0	-	383	-
Total ²	29	50	5	9	106	188	2595	4296	2253	4017	877	1683	431	872	228	406	218	61	99	-	6841	858

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 - January to March 2010

In the first quarter (January to March) 2010, 38 laboratories from 18 DHBs met the selection criteria for reporting. Laboratories in these DHBs tested 84 945 specimens for gonorrhoea, of which 726 (0.9%) specimens tested positive from 638 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 18 DHBs, was 71 per 100 000 population (638 cases). The highest DHB rate of gonorrhoea was reported for Tairāwhiti DHB (503 per 100 000 population, 58 cases) followed by Hawke's Bay DHB (157 per 100 000 population, 60 cases). Annualised gonorrhoea population rates by DHB are shown in Figure 2.

Sex was recorded for 99.5% (635/638) of gonorrhoea cases. The national annualised gonorrhoea rate for males (83 per 100 000 population, 369 cases) was almost one and a half times the national annualised rate for females (58 per 100 000 population, 266 cases).

Age was recorded for 99.1% (632/638) of gonorrhoea cases. Of these, 65.0% (411 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 (403 per 100 000 population, 132 cases) and for females in the 15 to 19 years age group (333 per 100 000 population, 111 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 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, January to March 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	0.3	8	1	0	9	42	-	23
AK-WA-CM	0.6	146	107	0	253	82	58	70
Waikato	0.8	35	20	0	55	79	44	61
Lakes	1.1	13	8	0	21	103	61	81
Bay of Plenty	1.0	15	19	0	34	59	71	65
Tairāwhiti	5.2	38	20	0	58	677	339	503
Taranaki	0.6	3	8	0	11	-	58	41
Hawke's Bay	4.6	29	31	0	60	155	158	157
Whanganui	0.9	4	2	0	6	-	-	39
MidCentral	1.3	18	10	1	29	89	47	70
Wairarapa	1.0	5	5	0	10	103	98	100
HV-CC	2.7	42	23	0	65	80	42	60
West Coast	0.2	1	0	0	1	-	-	-
Otago	0.4	4	6	1	11	-	25	23
Southland	2.0	8	6	1	15	57	43	54
Other ¹	1.6	19	10	0	29	-	-	-
Total ²	0.9	369	266	3	638	83	58	71

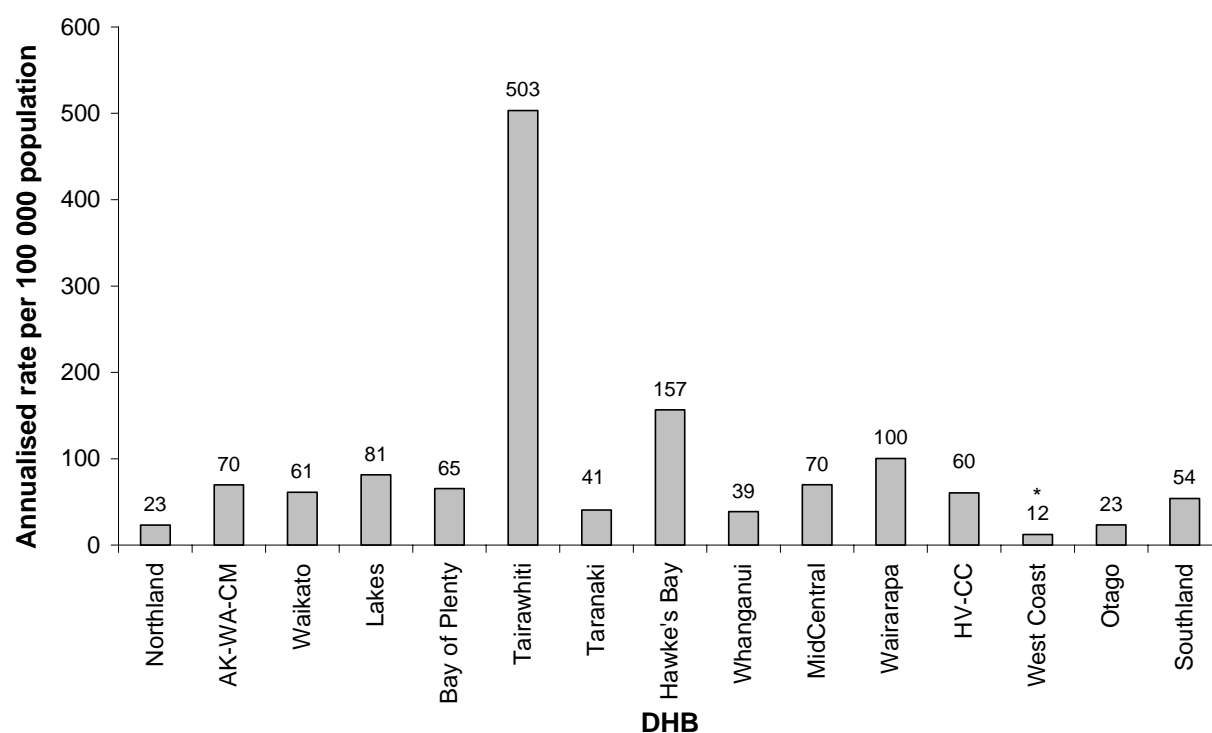
AK-WA-CM: Auckland/Waikato/Counties Manukau

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, January to March 2010



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

HV-CC: Hutt Valley/Capital & Coast

* Annualised population rates 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, January to March 2010

Age group (years)	Number of cases	Annualised rate per 100 000 population
0 to 4	2	-
5 to 9	0	-
10 to 14	10	16
15 to 19	202	296
20 to 24	209	323
25 to 29	96	159
30 to 34	49	86
35 to 39	27	42
40+	37	9
Unknown	6	-
Total ¹	638	71

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, Otago
- Dunstan Southern Community Laboratory, Otago
- Otago Southern Community Laboratory, Otago
- Balclutha Southern Community Laboratory, Otago
- Queenstown Southern Community Laboratory, Southland
- Gore Southern Community Laboratories, Southland
- Invercargill Southern Community Laboratory, Southland

Appendix B: Maps of STI Laboratory Surveillance Coverage for Chlamydia and Gonorrhoea

Figure 3. Laboratory surveillance coverage for chlamydia by DHB, January to March 2010

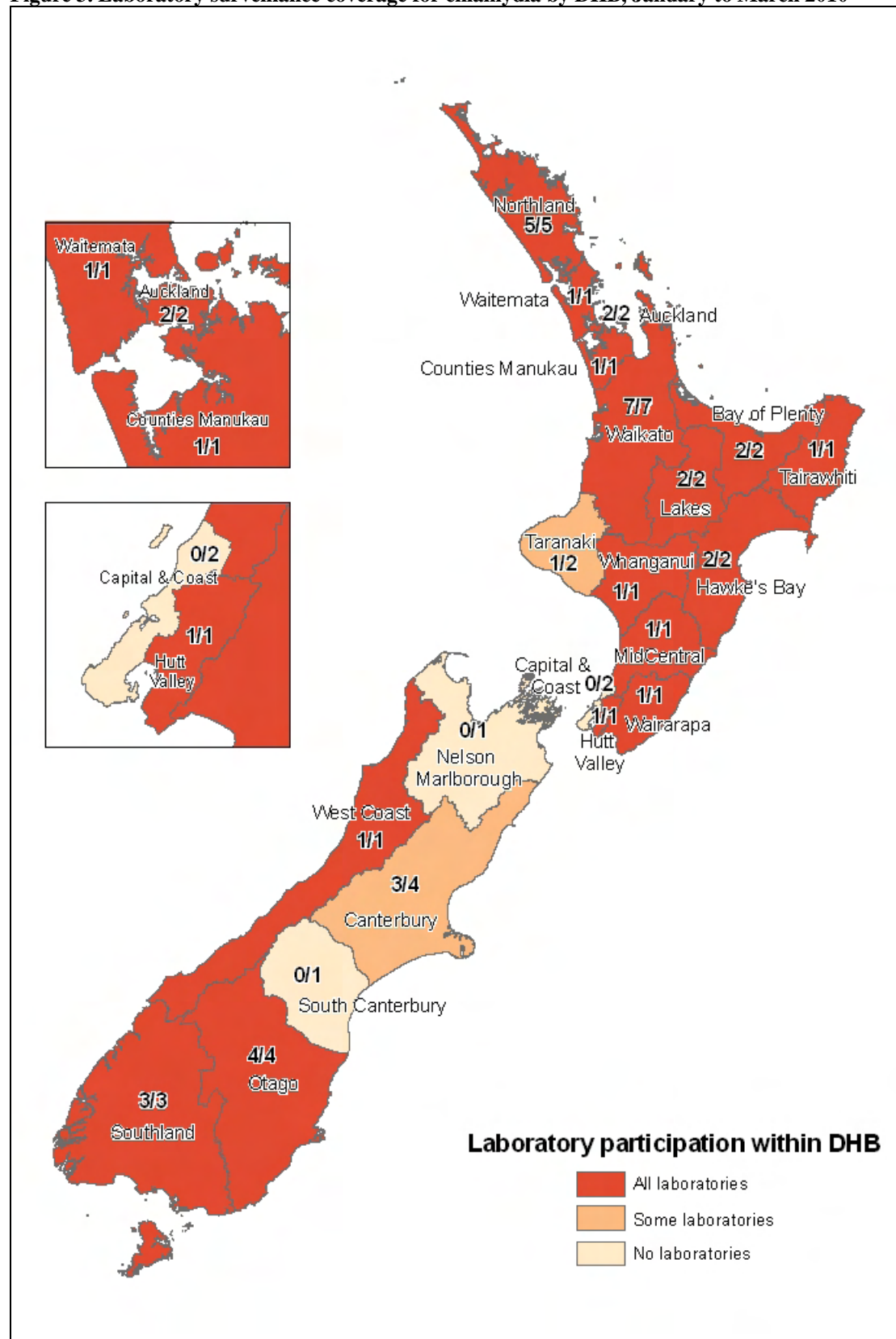


Figure 4. Laboratory surveillance coverage for gonorrhoea by DHB, January to March 2010

