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Laboratory Surveillance of Chlamydia and Gonorrhoea in New Zealand

July to September 2010

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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. 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 third quarter (July to September) 2010 from 40 laboratories across New Zealand.

Methods

All results and analyses are based on data submitted prior to 9 November 2010. 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 third quarter (July to September) 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 third quarter (July to September) 2010.

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

Table 1. Selected/excluded DHBs for reporting, July to September 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 - July to September 2010

In the third quarter (July to September) 2010, 35 laboratories from 15 DHBs met the selection criteria for chlamydia reporting. Laboratories in these DHBs tested 73 488 specimens for chlamydia, of which 6344 (8.6%) specimens tested positive from 6131 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 769 per 100 000 population (6131 cases). The highest DHB rate of chlamydia was reported for Lakes DHB (1139 per 100 000 population, 294 cases) followed by Tairāwhiti DHB (1137 per 100 000 population, 131 cases). Annualised chlamydia population rates by DHB are shown in Figure 1.

Sex was recorded for 99.7% (6110/6131) of chlamydia cases. The national annualised chlamydia rate for females (1126 per 100 000 population, 4571 cases) was almost three times the national annualised rate for males (393 per 100 000 population, 1539 cases).

Age was recorded for 98.8% (6058/6131) of chlamydia cases. Of these, 72.5% (4390 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 (1941 per 100 000 population, 553 cases) and for females in the 15–19 years age group (6021 per 100 000 population, 1776 cases).

Twenty-eight (10 male, 16 female, 2 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 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, July to September 2010

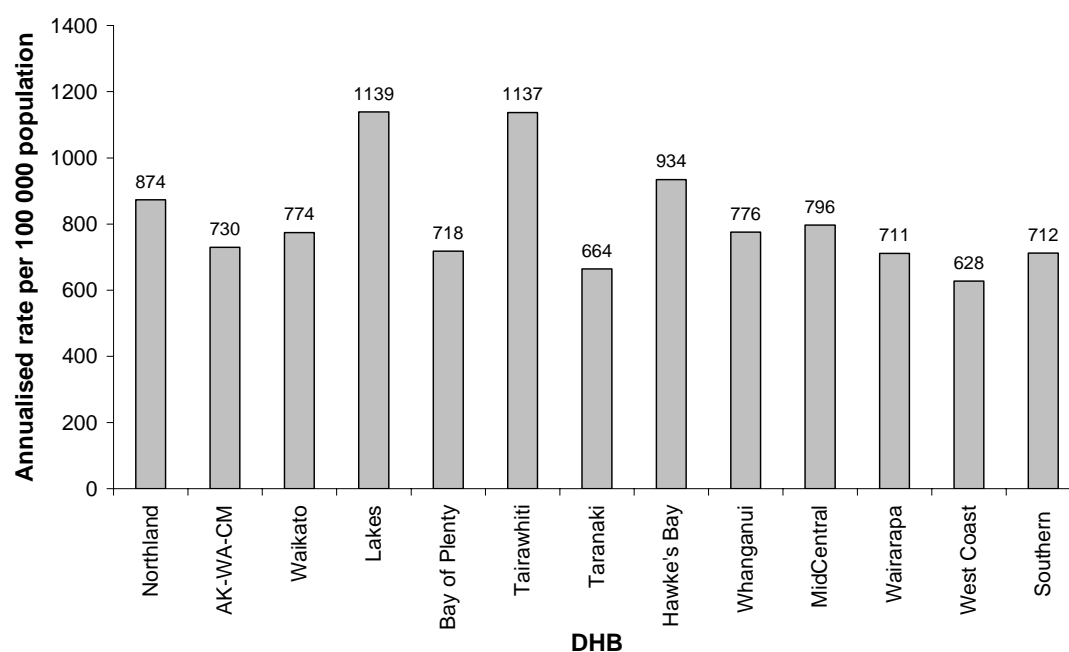
District Health Board	Specimens tested positive (%)	Number of test-positive cases				Annualised rate per 100 000 population		
		Male	Female	Unknown	Total	Male	Female	Total
Northland	11.2	77	263	0	340	402	1330	874
AK-WA-CM	7.6	681	1968	3	2652	382	1063	730
Waikato	9.4	175	520	2	697	395	1137	774
Lakes	11.1	59	235	0	294	465	1789	1139
Bay of Plenty	8.7	76	289	8	373	300	1086	718
Tairāwhiti	12.8	33	98	0	131	588	1659	1137
Taranaki	9.1	47	133	0	180	351	970	664
Hawke's Bay	10.8	89	269	0	358	477	1369	934
Whanganui	11.8	27	92	1	120	356	1168	776
MidCentral	11.4	94	235	1	330	467	1104	796
Wairarapa	13.1	18	53	0	71	370	1035	711
West Coast	10.7	18	32	1	51	436	800	628
Southern	7.1	145	384	5	534	392	1011	712
Other ¹	11.2	125	238	0	363	-	-	-
Total ²	8.6	1539	4571	21	6131	393	1126	769

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, July to September 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, July to September 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	0	-	0	-	11	366	174	6245	102	4957	29	1726	16	853	2	-	6	31	0	-	340	874
AK-WA-CM	22	82	0	-	27	107	816	2945	951	3405	400	1431	192	752	116	418	126	84	2	-	2652	730
Waikato	3	-	0	-	13	195	280	3983	245	3904	80	1439	41	790	14	232	21	52	0	-	697	774
Lakes	0	-	0	-	8	397	130	6758	98	6395	33	2290	19	1236	3	-	3	-	0	-	294	1139
Bay of Plenty	0	-	0	-	20	531	138	3720	133	4910	36	1368	16	580	14	415	7	27	9	-	373	718
Tairāwhiti	0	-	0	-	11	1124	46	5118	43	6143	17	2816	7	1118	4	-	3	-	0	-	131	1137
Taranaki	1	-	0	-	3	-	47	2401	47	3008	21	1435	8	535	3	-	1	-	49	-	180	664
Hawke's Bay	0	-	0	-	8	271	149	5331	122	5734	47	2434	14	673	13	517	5	27	0	-	358	934
Whanganui	0	-	0	-	3	-	47	4100	42	4433	7	924	5	659	4	-	3	-	9	-	120	776
MidCentral	0	-	0	-	3	-	141	4239	127	4061	25	995	11	486	10	379	13	68	0	-	330	796
Wairarapa	0	-	0	-	0	-	33	4800	27	5967	4	-	7	1505	0	-	0	-	0	-	71	711
West Coast	0	-	0	-	0	-	25	4577	19	4606	0	-	1	-	4	-	2	-	0	-	51	628
Southern	2	-	0	-	10	220	192	3258	216	3455	81	1711	13	295	8	161	8	23	4	-	534	712
Other ¹	1	-	2	-	3	-	112	-	153	-	51	-	21	-	5	-	15	-	0	-	363	-
Total ²	28	49	0	-	117	207	2218	3672	2172	3873	780	1497	350	708	195	347	198	56	73	-	6131	769

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 - July to September 2010

In the third quarter (July to September) 2010, 35 laboratories from 17 DHBs met the selection criteria for gonorrhoea reporting. Laboratories in these DHBs tested 87 100 specimens for gonorrhoea, of which 642 (0.7%) specimens tested positive from 540 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 60 per 100 000 population (540 cases). The highest DHB rate of gonorrhoea was reported for Tairāwhiti DHB (252 per 100 000 population, 29 cases) followed by Hawke's Bay DHB (102 per 100 000 population, 39 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 (70 per 100 000 population, 310 cases) was almost one and a half times higher than the national annualised rate for females (50 per 100 000 population, 230 cases).

Age was recorded for all of the gonorrhoea cases. Of these, 60.2% (325 cases) were aged 15–24 years. The highest national age-specific annualised rate of gonorrhoea in males and females occurred in the 20–24 years age group (287 per 100 000 population, 94 cases and 241 per 100 000 population, 77 cases, respectively).

No 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, July to September 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	19	5	24	99	25	62
AK-WA-CM	0.6	127	99	226	71	53	62
Waikato	0.7	32	16	48	72	35	53
Lakes	0.7	8	5	13	63	38	50
Bay of Plenty	0.7	11	11	22	43	41	42
Tairāwhiti	3.1	14	15	29	249	254	252
Taranaki	0.5	2	5	7	-	36	26
Hawke's Bay	4.2	20	19	39	107	97	102
Whanganui	1.3	7	1	8	92	-	52
MidCentral	1.4	17	18	35	84	85	84
Wairarapa	0.9	3	3	6	-	-	60
HV-CC	1.5	42	17	59	80	31	55
West Coast	0.4	1	2	3	-	-	-
Southern	0.6	7	14	21	19	37	28
Other ¹	1.1	9	10	19	-	-	-
Total ²	0.7	310	230	540	70	50	60

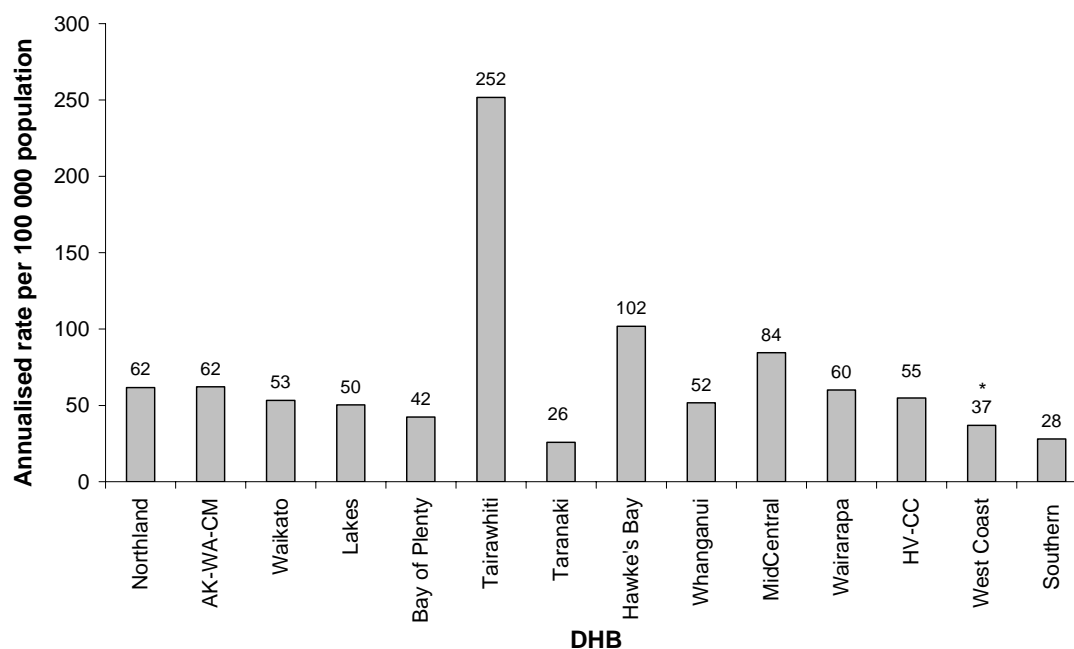
AK-WA-CM: Auckland/Waikato/Counties Manukau

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, July to September 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, July to September 2010

Age group (years)	Number of cases	Annualised rate per 100 000 population
0–4	2	-
5–9	3	-
10–14	7	11
15–19	154	226
20–24	171	264
25–29	86	143
30–34	46	81
35–39	27	42
40+	44	11
Total ¹	540	60

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, July to September 2010

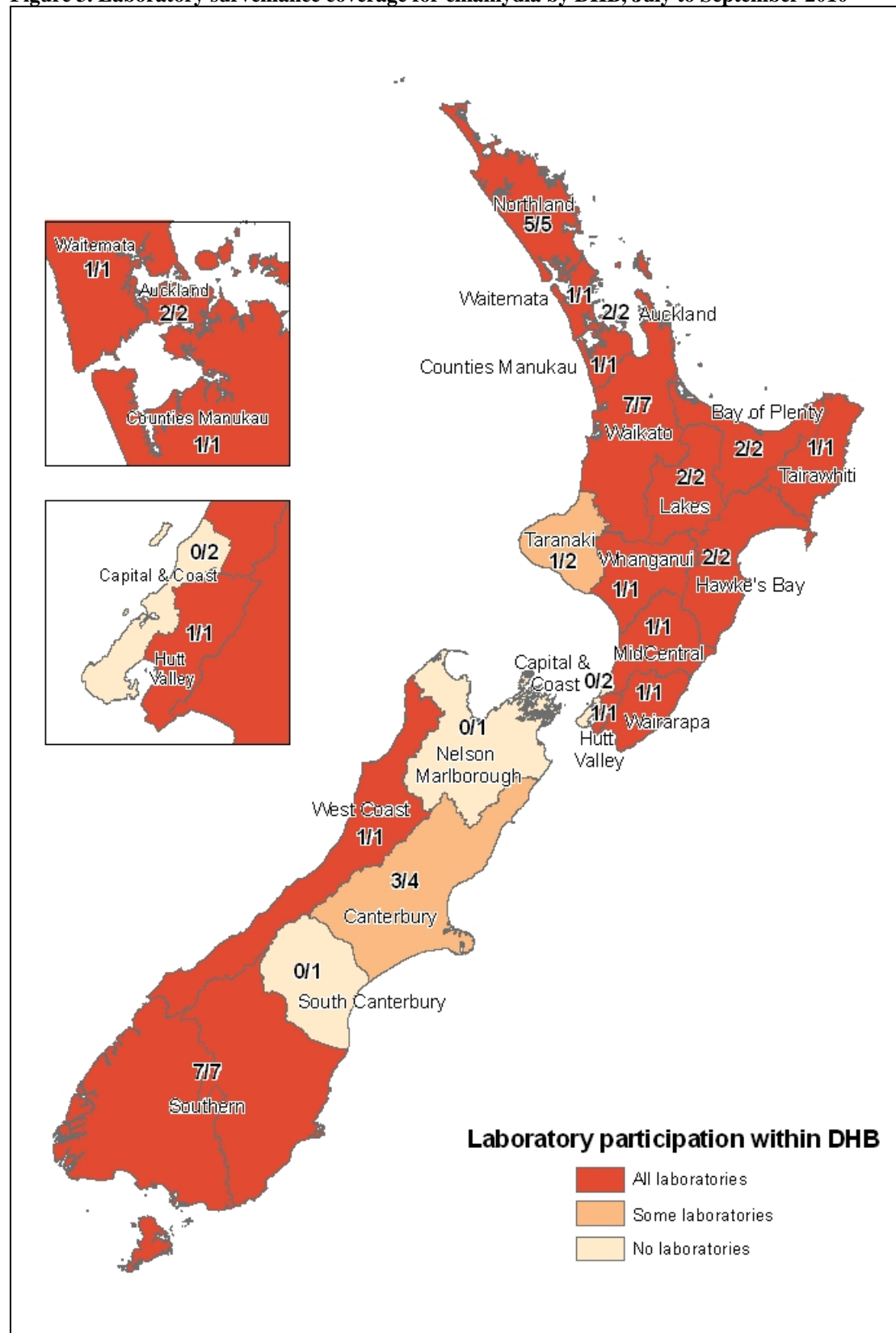


Figure 4. Laboratory surveillance coverage for gonorrhoea by DHB, July to September 2010

