

# PERTUSSIS REPORT

## March 2010 (Weeks 12-13)

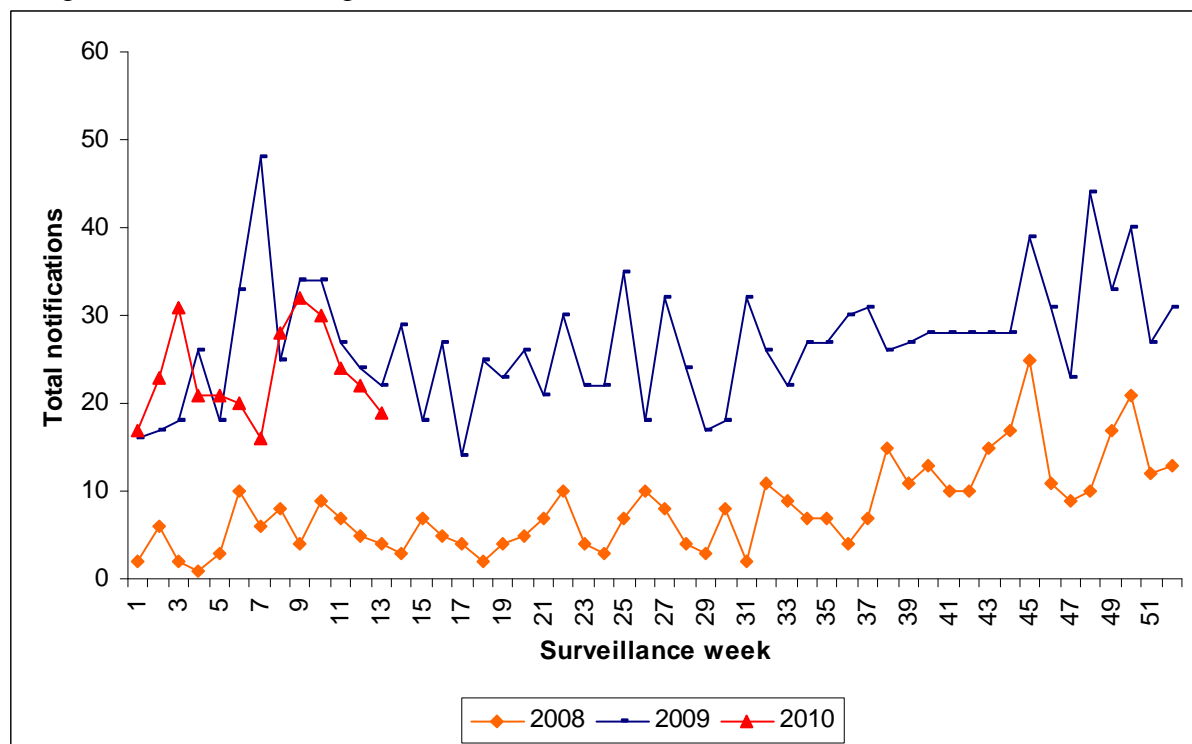
This report includes cases of pertussis reported in EpiSurv up to midnight 27 March 2010. Data was extracted from EpiSurv at 10.00am 30 March 2010.

There have been a total of 304 pertussis notifications reported in EpiSurv since 26 December 2009 (the beginning of surveillance week 1 for 2010), including 178 confirmed cases, 99 probable cases, seven suspect case, and 20 cases under investigation. Thirty-four cases were hospitalised. There have been no deaths reported. In the past two weeks, 41 (22 and 19 consecutively) new cases of pertussis were notified, including 23 confirmed cases, seven probable cases, three suspect case, and eight cases under investigation. Two hospitalisations were reported in week 12 and four in week 13.

This report incorporates the temporal distribution of cases, and the distribution of cases by age, ethnicity (prioritised), and district health board (DHB), as well as hospitalisations. The case classification used in this report is specified in the appendix.

### Temporal distribution of cases

Figure 1 shows the epidemic curve of total pertussis notifications for 2008, 2009 and 2010 (to date). A substantial increase in notifications, with weekly fluctuations is clearly visible for 2009 compared to 2008. After an initial peak in week 3, notifications have generally followed the 2009 trend but at slightly lower levels. However, the total number of notifications may change as cases are investigated.



**Figure 1: Comparative epidemic curves of total pertussis notifications by week reported during years 2008, 2009 and 2010 (surveillance week = Saturday to Friday inclusive).**

## Age distribution of cases

Pertussis notifications and associated age-specific rates, including new cases for the past two weeks, are shown in Table 1. Of the total cases since 26 December 2009, the age-specific rate was highest in the less than one year age group (44.4 per 100 000 population, 28 cases), followed by the 1 to 4 (20.6 per 100 000 population, 50 cases) and 5 to 9 (11.5 per 100 000 population, 33 cases) year age groups. For the last two weeks, children aged less than one year had the highest age-specific rate (6.3 per 100 000 population, 4 cases).

**Table 1: Pertussis cases and rates by age group since January 2009, including new cases in the last two weeks**

Age group (Years)	Cumulative <sup>2</sup> notifications			Last two weeks		
	Cases	Rates <sup>1</sup>	Hosp	Cases	Rates <sup>1</sup>	Hosp
<1	28	44.4	21	4	6.3	3
1 to 4	50	20.6	3	4	1.6	1
5 to 9	33	11.5	0	2	0.7	0
10 to 14	23	7.7	3	3	1.0	1
15 to 19	17	5.3	2	7	2.2	1
20 to 29	26	4.4	1	4	0.7	0
30 to 39	37	6.4	0	8	1.4	0
40 to 49	41	6.5	1	5	0.8	0
50 to 59	21	4.0	1	3	0.6	0
60 to 69	22	5.6	2	1	0.3	0
70+	5	1.3	0	0	0.0	0
Unknown	1	-	0	0	-	0
<b>Overall</b>	<b>304</b>	<b>7.0</b>	<b>34</b>	<b>41</b>	<b>0.9</b>	<b>6</b>

<sup>1</sup>Age specific rate per 100,000 population, calculated using 2009 mid-year population estimates

<sup>2</sup>Cumulative notifications between 26 December 2009 and 27 March 2010

**Hosp:** hospitalisation counts

Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

## Ethnicity

Pertussis notifications and rates by ethnicity are shown in Table 2. Of the 285 cases with a known ethnicity, Maori had the highest rate (9.4 per 100 000 population, 53 cases), followed by Pacific Peoples (8.8 per 100 000 population, 20 cases). In the last two weeks, Maori had the highest rate (1.6 per 100 000 population, 9 cases).

**Table 2: Pertussis cases and rates by ethnicity (prioritised) since 26 December 2010, including new cases in the last two weeks**

Ethnicity	Cumulative <sup>2</sup> notifications			Last two weeks		
	Cases	Rates <sup>1</sup>	Hosp	Cases	Rates <sup>1</sup>	Hosp
Maori	53	9.4	12	9	1.6	0
Pacific Peoples	20	8.8	8	2	0.9	1
Other	2	0.5	0	2	0.5	0
European	210	7.8	12	22	0.8	4
Unknown	19	-	2	6	-	1
<b>Overall</b>	<b>304</b>	<b>7.5</b>	<b>34</b>	<b>41</b>	<b>1.0</b>	<b>6</b>

<sup>1</sup>Ethnic specific rates computed using the 2006 usually resident census population

<sup>2</sup>Cumulative notifications between 26 December 2009 and 27 March 2010

**Hosp:** hospitalisation counts

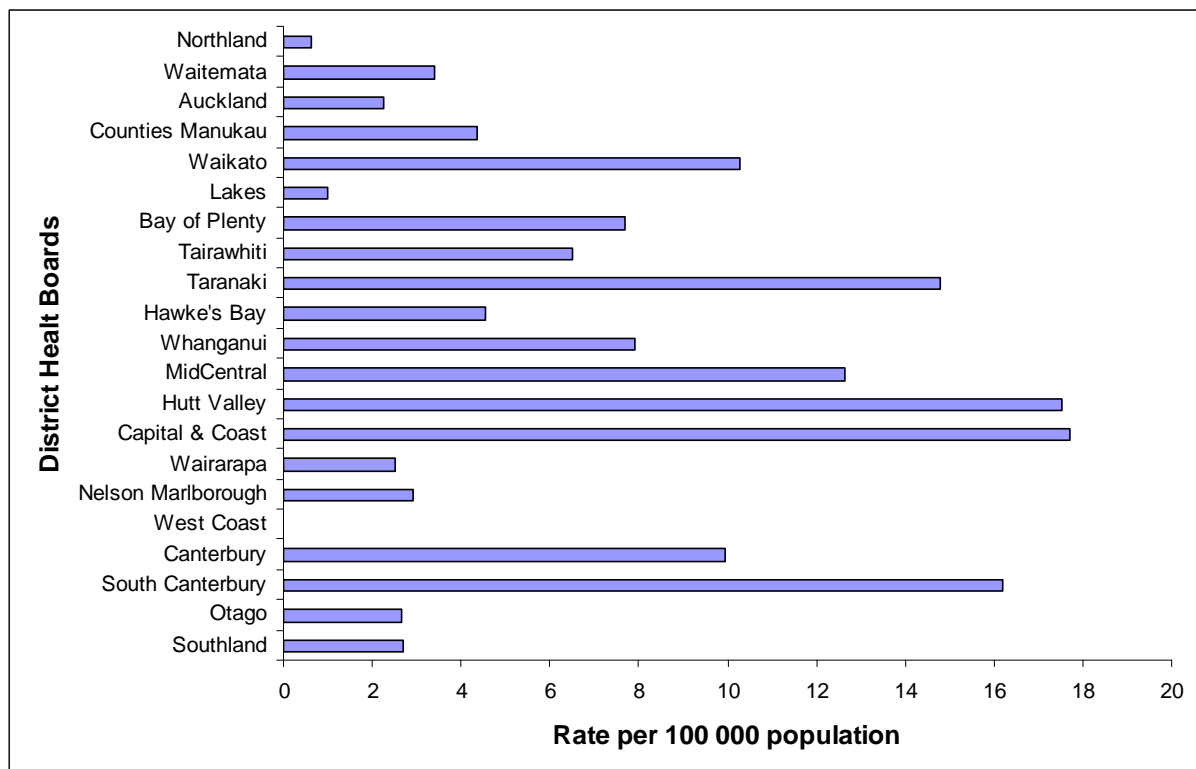
Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

## Hospitalisations

There have been 34 hospitalisations reported in EpiSurv since 26 December 2009, including six in the last two weeks. Twenty-one (61.8%) of the 34 hospitalisations were children aged less than one year of age. The six cases that were hospitalised in the last two weeks were aged less than one year (3 cases), 1 to 4 years (1 case), 10-14 years (1 case), and 15 to 19 years (1 case). The cases hospitalised in the last two weeks were of European (4 cases), Pacific Peoples (1 case) and unknown (1 case) ethnicity. Counties Manukau DHB had the highest number of cumulative hospitalisations (7 cases). The distributions of hospitalisations by age group, ethnicity, and DHB are described in Table 1, Table 2, and Table 3, respectively.

## Geographical distribution

The rates of pertussis notifications by DHB can be seen in Figure 2 and Table 3. The highest rates were recorded in Capital and Coast DHB (17.7 per 100 000 population, 51 cases), followed by Hutt Valley (17.5 per 100 000 population, 25 cases), South Canterbury (16.2 per 100 000 population, 9 cases) and Taranaki (14.8 per 100 000 population, 16 cases) DHBs. Capital and Coast DHB reported the highest number of notifications (51 cases) followed by Canterbury DHB (50 cases). In the last two weeks, the highest number of notifications was reported in MidCentral DHB (7 cases), followed by Canterbury DHB (6 cases). As noted above, Counties Manukau DHB had the highest number of cumulative hospitalisations.



**Figure 2: Geographical distribution of pertussis crude rates (cases per 100,000 population) since 26 December 2009.**

Rates were calculated using 2009 mid-year population estimates. Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

**Table 3 Pertussis cases and rates by DHB since 26 December 2009, including new cases in the last two weeks**

DHB	Cumulative notifications			Last two weeks		
	Cases	Rates <sup>1</sup>	Hosp	Cases	Rates <sup>1</sup>	Hosp
Northland	1	0.6	0	0	0.0	0
Waitemata	18	3.4	5	3	0.6	1
Auckland	10	2.3	1	1	0.2	0
Counties Manukau	21	4.4	7	6	1.2	2
Waikato	37	10.3	2	5	1.4	0
Lakes	1	1.0	0	0	0.0	0
Bay of Plenty	16	7.7	3	1	0.5	0
Tairāwhiti	3	6.5	1	0	0.0	0
Taranaki	16	14.8	4	1	0.9	0
Hawke's Bay	7	4.5	2	2	1.3	0
Whanganui	5	7.9	0	0	0.0	0
MidCentral	21	12.7	3	7	4.2	0
Hutt Valley	25	17.5	1	2	1.4	0
Capital and Coast	51	17.7	2	3	1.0	0
Wairarapa	1	2.5	1	1	2.5	1
Nelson Marlborough	4	2.9	0	1	0.7	0
West Coast	0	0.0	0	0	0.0	0
Canterbury	50	10.0	2	6	1.2	2
South Canterbury	9	16.2	0	2	3.6	0
Otago	5	2.7	0	0	0.0	0
Southland	3	2.7	0	0	0.0	0
<b>Total</b>	<b>304</b>	<b>7.0</b>	<b>34</b>	<b>41</b>	<b>1.0</b>	<b>6</b>

<sup>1</sup>Rate of confirmed and probable pertussis cases per 100,000 population calculated using 2009 mid-year population estimates.

<sup>2</sup>Cumulative notifications between 26 December 2009 and 27 March 2010

**Hosp:** hospitalisation counts

Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

## Immunisation status

The immunisation status as reported to Public Health Service staff for confirmed pertussis cases is shown in Table 4 and Table 5.

Of the 23 confirmed cases reported in the last two weeks, 14 (60.9%) had a known vaccination status. Of these 14 cases, eight were not vaccinated including one case aged less than six weeks and therefore not eligible for vaccination. One case had received one dose of vaccine, and three cases had received three doses of vaccine.

**Table 4 : Immunisation status of pertussis cases (confirmed) notified in the last two weeks**

Age Group	Total cases	One dose	Two doses	Three doses	Four doses	Five doses	Vaccinated (no dose info)	Not vaccinated	Unknown
<6wks	1	0	0	0	0	0	0	1	0
6wks - 2mths	1	0	0	0	0	0	0	0	1
3-4 mths	1	1	0	0	0	0	0	0	0
5mths - 3yrs	2	0	0	1	0	0	0	1	0
4 - 10yrs	3	0	0	0	0	0	0	3	0
11+ yrs	15	0	0	2	0	0	2	3	8
<b>Total</b>	<b>23</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>8</b>	<b>9</b>

Of the 178 confirmed cases reported since 26 December 2009, 116 (65.2%) had a known vaccination status. Of these 116 cases, 61 were not vaccinated including four cases aged less than six weeks and therefore not eligible for vaccination. Fourteen cases had received one dose of vaccine, four cases had received two doses of vaccine, 13 cases had received three doses of vaccine, four cases had received four doses and five cases reported having completed pertussis vaccination.

**Table 5 : Immunisation status of pertussis cases (confirmed) notified since 26 December 2009**

Age Group	Total cases	One dose	Two doses	Three doses	Four doses	Five doses	Vaccinated (no dose info)	Not vaccinated	Unknown
<6wks	4	0	0	0	0	0	0	4	0
6wks - 2mths	10	3	0	0	0	0	0	6	1
3-4 mths	6	2	2	0	0	0	1	0	1
5mths - 3yrs	29	1	2	7	0	0	3	13	3
4 - 10yrs	32	3	0	2	4	1	1	17	4
11+ yrs	97	5	0	4	0	4	10	21	53
<b>Total</b>	<b>178</b>	<b>14</b>	<b>4</b>	<b>13</b>	<b>4</b>	<b>5</b>	<b>15</b>	<b>61</b>	<b>62</b>

## Appendix

**Table 4 Case classification for pertussis notification in New Zealand**

<b>Confirmed</b>	A clinically compatible illness that is laboratory confirmed by isolation of <i>Bordetella pertussis</i> from a pernasal swab, or epidemiologically linked to a confirmed case.
<b>Probable</b>	Cough lasting longer than two weeks and one or more of the following: <ul style="list-style-type: none"> <li>• Paroxysmal cough</li> <li>• Cough ending in vomiting or apnoea</li> <li>• Inspiratory whoop for which there is no other known cause.</li> </ul>
<b>Suspect</b>	In children under five years of age any paroxysmal cough with whoop, vomiting or apnoea for which there is no other known cause.
<b>Other</b>	Status recorded as <i>under investigation</i> or suspect case.
<b>Notifications</b>	Include confirmed cases, probable, and other as specified above.

This report is available on the internet from [www.surv.esr.cri.nz](http://www.surv.esr.cri.nz)