

PERTUSSIS REPORT

July 2010 (Weeks 29-30)

This report includes cases of pertussis reported in EpiSurv up to midnight 23 July 2010. Data was extracted from EpiSurv at 10.00 am 27 July 2010.

Summary

In the past two weeks, 24 (10 and 14 consecutively) new cases of pertussis were notified, including seven confirmed cases, nine probable cases, and eight cases still under investigation. Three hospitalisations were reported in the last two weeks.

There has been a total of 541 pertussis notifications reported in EpiSurv since 26 December 2009 (the beginning of surveillance week 1 for 2010), including 291 confirmed cases, 222 probable cases, 14 suspect cases, and 14 cases still under investigation. Fifty-three hospitalisations and no deaths have been reported during this period.

The highest cumulative rate since 26 December 2009 was recorded in West Coast DHB (30.7 per 100 000 population, 10 cases), followed by Capital and Coast (27.8 per 100 000, 80 cases), Canterbury (24.3 per 100 000, 122 cases), and South Canterbury (23.4 per 100 000, 13 cases) DHBs.

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

Temporal distribution of pertussis cases

Figure 1 shows weekly total pertussis notifications for 2008, 2009 and 2010 (to date). 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. Substantial increase in notifications, with weekly fluctuations, can be clearly seen in 2009 compared to 2008.

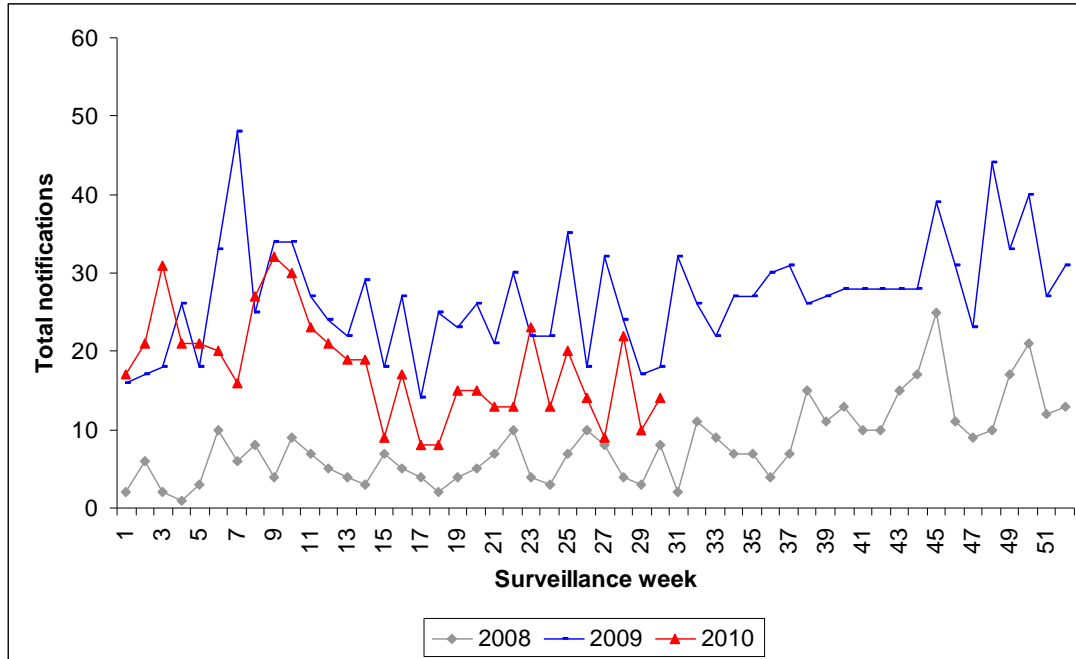


Figure 1: Comparative epidemic curves of total pertussis notifications by week reported during years 2008, 2009 and 2010 (surveillance week = Saturday to Friday inclusive).

Figure 2 shows pertussis notifications and hospitalisations by calendar month since 1997. A clear four-year cycle can be seen with notifications peaking in years 2000 and 2004. While a slight increase of cases was recorded in 2009, monthly notifications appear to be declining this year.

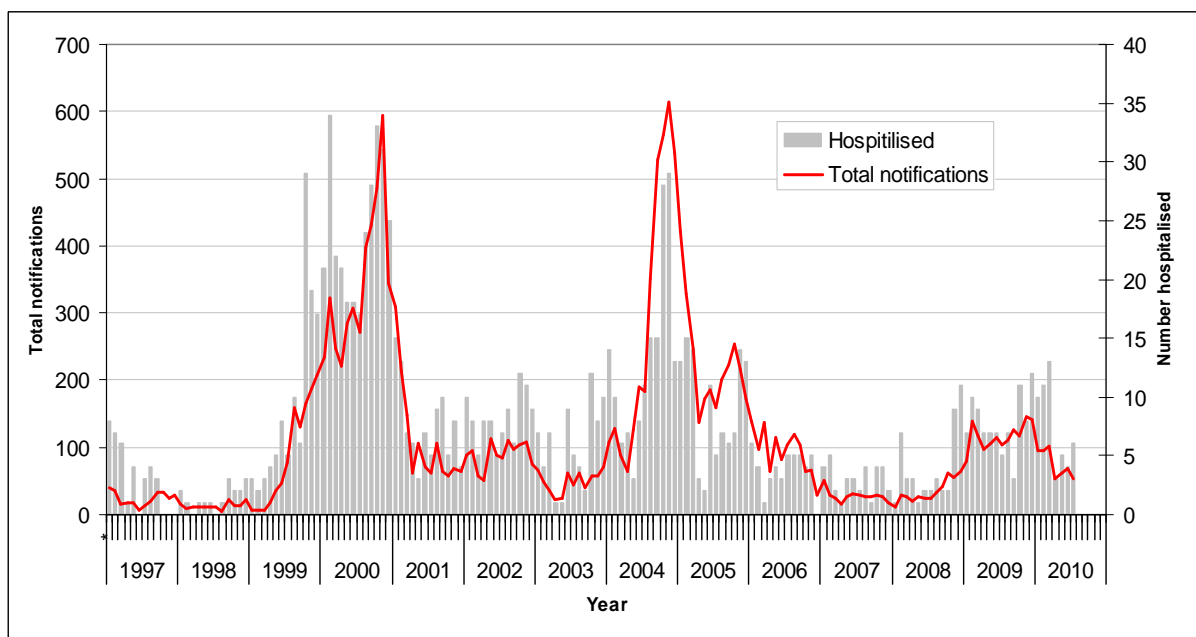


Figure 2: Epidemic curve of pertussis notifications by calendar month-year since 1997 in New Zealand

Geographic distribution

The rates of pertussis notifications by DHB can be seen in Figure 3 and Table 5 (appendix). In the last two weeks, the highest number of notifications was reported in Canterbury (7 cases) followed by Counties Manukau DHB (4 cases). The highest cumulative rate since 26 December 2009 was recorded in West Coast DHB (30.7 per 100 000 population, 10 cases), followed by Capital and Coast (27.8 per 100 000 population, 80 cases), Canterbury (24.3 per 100 000, 122 cases), and South Canterbury (23.4 per 100 000, 13 cases) DHBs. Canterbury DHB reported the highest number of notifications (122 cases) over this period followed by Capital and Coast DHB (80 cases).

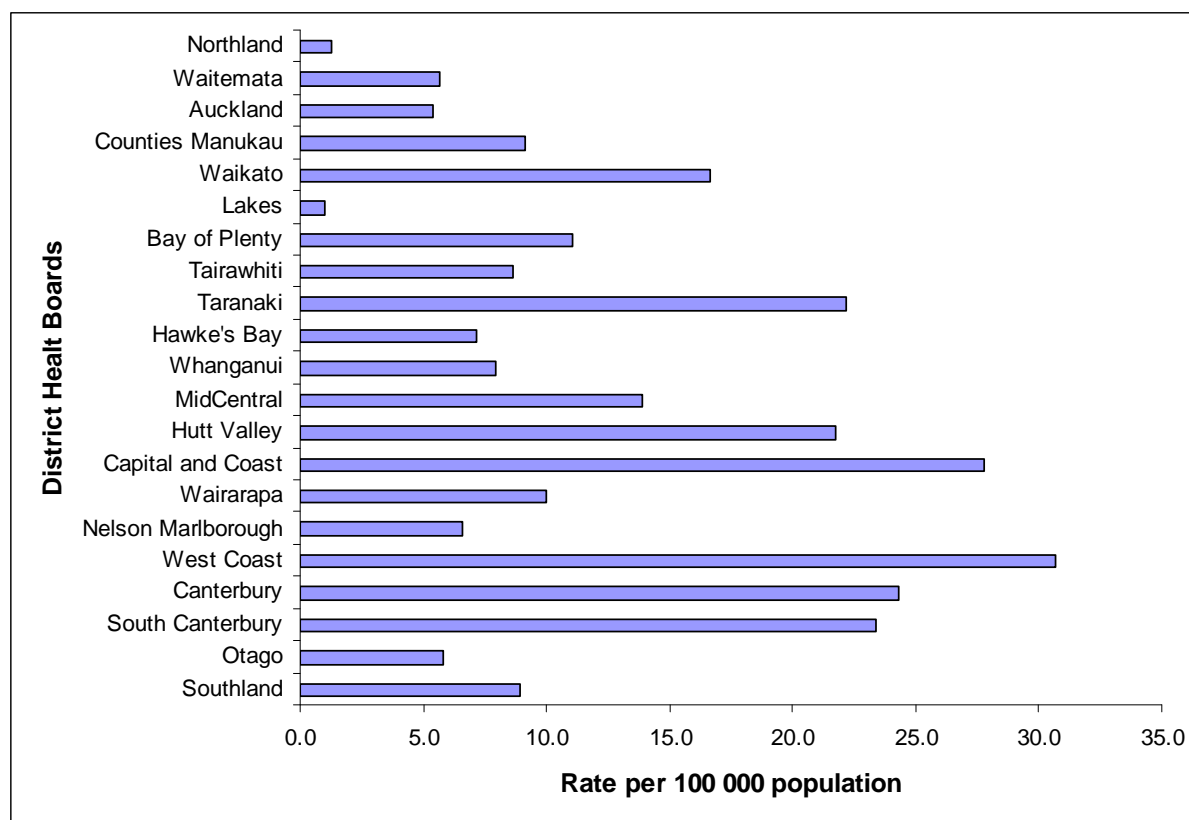


Figure 3: Geographical distribution of pertussis crude rates (cases per 100 000 populations) since 26 December 2009. Rates were calculated using 2009 mid-year population estimates. Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

Age distribution of cases

Figure 4 displays age-specific cumulative incidence of pertussis cases and Table 1 shows notifications and associated rates by age, including new cases for the past two weeks. Children aged less than one year had the highest cumulative incidence of pertussis cases since 26 December 2009, (69.8 per 100 000 population, 44 cases), followed by the 1 to 4 (34.6 per 100 000, 84 cases) and 5 to 9 (19.4 per 100 000, 56 cases) year age groups.

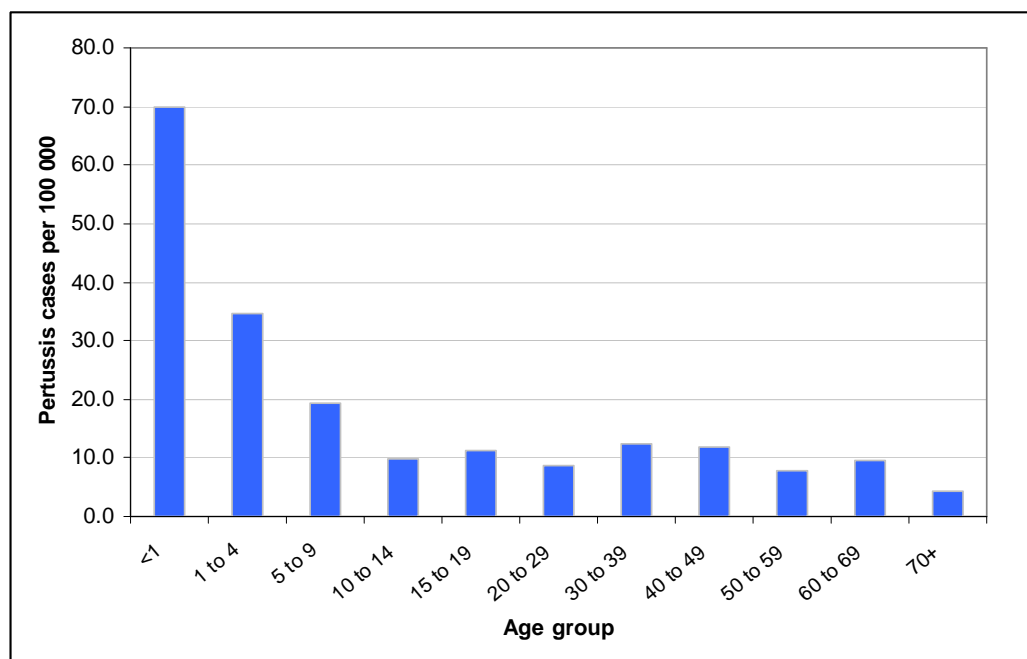


Figure 4: Age-specific pertussis cases per 100 000 populations since end of December 2009

Table 1: Pertussis cases and rates by age group since 26 December 2009, including new cases in the last two weeks

Age group (Years)	Cumulative ² notifications			Last two weeks ³	
	Cases	Rates ¹	Hosp	New cases	Hosp
<1	44	69.8	32	0	0
1 to 4	84	34.6	5	1	1
5 to 9	56	19.4	0	1	0
10 to 14	29	9.7	3	1	0
15 to 19	36	11.1	2	0	0
20 to 29	50	8.5	3	3	0
30 to 39	71	12.3	2	3	1
40 to 49	75	11.8	1	7	0
50 to 59	41	7.7	2	2	0
60 to 69	38	9.7	2	4	0
70+	17	4.5	1	2	1
Overall	541	12.5	53	24	3

¹Rate of pertussis cases per 100 000 population calculated using 2009 mid-year population estimates.

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

²Cumulative notifications between 26 December 2009 and 23 July 2010

³Rates for the last two weeks were not calculated because of small numbers (<5 cases) in majority of the categories

Hosp: hospitalisation counts

Ethnicity

Pertussis notifications and rates by ethnicity are shown in Table 2. Of the pertussis cases with known ethnicity in the past two weeks, Europeans had the highest numbers of cases (16 cases), followed by Maori (2 cases). Of the total notifications since 26 December 2009, the ethnic-specific rate was highest in Pacific peoples (15.0 per 100 000, 34 cases) and Europeans (15.0 per 100 000, 403 cases), followed by Maori (12.6 per 100 000, 71 cases). However, notifications remain highest in Europeans during this period.

Table 2: Pertussis cases and rates by ethnicity (prioritised) since 26 December 2009, including new cases in the last two weeks

Ethnicity	Cumulative ² notifications			Last two weeks ³	
	Cases	Rates ¹	Hosp	New cases	Hosp
Maori	71	12.6	17	2	1
Pacific Peoples	34	15.0	13	0	0
Other	10	2.7	1	1	0
European	403	15.0	21	16	2
Unknown	23		1	5	0
Overall	541	13.4	53	24	3

¹Rate of pertussis cases per 100 000 population calculated using 2006 census data from the NZ statistics.

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

²Cumulative notifications between 26 December 2009 and 23 July 2010

³Rates for the last two weeks were not calculated because of small numbers (<5 cases) in majority of the categories

Hosp: hospitalisation counts

Hospitalisations

In the last two weeks, three hospitalisations were recorded in the 1 to 4, 30 to 39, and 70+ age groups (1 hospitalisation each). There have been 53 hospitalisations reported in EpiSurv since 26 December 2009. Thirty-two (60.4%) of these were children aged less than one year and 6 aged less than 6 weeks. Counties Manukau and Waitemata DHBs had the highest number of cumulative hospitalisations (11 and 7, respectively). The distribution of hospitalisations by age group, ethnicity, and DHB are described in Table 1, Table 2 and Table 3 respectively. Based on confirmed cases with known hospitalisation status since end-December 2009, the proportion of hospitalisations was highest in Pacific Peoples (66.7%, 10/15) compared to Maori (37.5%, 15/40), Other (14.3%, 1/7) and Europeans (7.9%, 16/203).

Figure 4 depicts the proportion of hospitalised pertussis cases by immunisation status since 1997. The proportion of hospitalisations has remained higher among unimmunised cases compared to those who were immunised over the last 13 years, except in 1998.

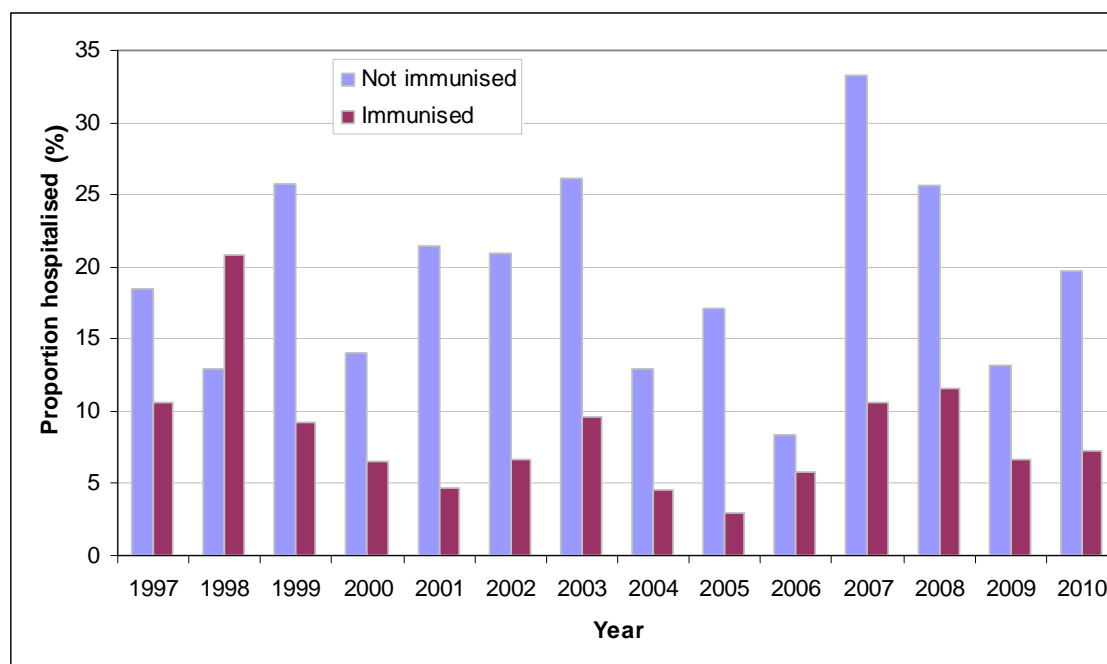


Figure 5: Pertussis hospitalisations (%) by immunisation status since January 1997 to date.

Immunisation status

The immunisation status for confirmed pertussis cases is shown in Table 3 and Table 4 for the last two weeks and since end of December, respectively. Of the seven confirmed cases reported in the last two weeks, three (42.9 %) had a known vaccination status. Of these three cases, one was not vaccinated, one case had completed pertussis vaccination, and one case reported being vaccinated but no dose information was available.

Table 3: 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		Unknown
							(no dose info)	Not vaccinated	
<6wks	0	-	-	-	-	-	-	-	-
6wks - 2mths	0	-	-	-	-	-	-	-	-
3-4 mths	0	-	-	-	-	-	-	-	-
5mths - 3yrs	0	-	-	-	-	-	-	-	-
4 - 10yrs	1	0	0	0	0	1	0	0	0
11+ yrs	6	0	0	0	0	0	1	1	4
Total	7	0	0	0	0	1	1	1	4

Of the 291 confirmed cases reported since 26 December 2009, 196 (67.4%) had a known vaccination status Table 4. Of these 196 cases, 99 were not vaccinated including six cases aged less than six weeks and therefore not eligible for vaccination. Twenty-four cases had received one dose of vaccine, six cases had received two doses of vaccine, 24 cases had received three doses of vaccine, eight cases had received four doses, and 10 cases reported having completed pertussis vaccination. A further 25 cases reported being vaccinated but no dose information was available.

Table 4: 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		Unknown
							(no dose info)	Not vaccinated	
<6wks	7	-	-	-	-	-	-	6	1
6wks - 2mths	15	6	-	-	-	-	-	9	0
3-4 mths	11	4	3	-	-	-	1	2	1
5mths - 3yrs	42	1	3	12	-	-	4	19	3
4 - 10yrs	53	6	0	3	5	4	1	28	6
11+ yrs	163	7	0	9	3	6	19	35	84
Total	291	24	6	24	8	10	25	99	95

Appendix

Table 5 Pertussis cases and rates by DHB since 26 December 2009, including new cases in the last two weeks

DHB	Cumulative notifications			Last two weeks ³	
	Cases	Rates ¹	Hosp	Cases	Hosp
Northland	2	1.3	0	0	0
Waitemata	30	5.7	7	0	0
Auckland	24	5.4	3	1	0
Counties Manukau	44	9.1	11	4	0
Waikato	60	16.7	2	2	0
Lakes	1	1.0	0	0	0
Bay of Plenty	23	11.1	5	0	0
Tairāwhiti	4	8.7	1	1	0
Taranaki	24	22.2	5	0	0
Hawke's Bay	11	7.1	3	1	1
Whanganui	5	7.9	0	0	0
MidCentral	23	13.9	3	0	0
Hutt Valley	31	21.7	1	0	0
Capital and Coast	80	27.8	2	1	0
Wairarapa	4	10.0	1	2	0
Nelson Marlborough	9	6.6	0	1	0
West Coast	10	30.7	1	1	0
Canterbury	122	24.3	6	7	2
South Canterbury	13	23.4	1	2	0
Otago	11	5.8	1	0	0
Southland	10	8.9	0	1	0
Total	541	12.5	53	24	3

¹Rate of pertussis cases per 100 000 population calculated using 2009 mid-year population estimates.

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²Cumulative notifications between 26 December 2009 and 23 July 2010

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Hosp: hospitalisation counts

Case classification for pertussis notification in New Zealand

Confirmed	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.
Probable	Cough lasting longer than two weeks and one or more of the following: <ul style="list-style-type: none"> • Paroxysmal cough • Cough ending in vomiting or apnoea • Inspiratory whoop for which there is no other known cause.
Suspect	In children under five years of age any paroxysmal cough with whoop, vomiting or apnoea for which there is no other known cause.
Other	Status recorded as <i>under investigation</i> or suspect case.
Notifications	Include confirmed cases, probable, and other as specified above.

This report is available on the internet from www.surv.esr.cri.nz