

PERTUSSIS REPORT

July 2010 (Weeks 31-32)

This report includes cases of pertussis reported in EpiSurv up to midnight 6 August 2010. Data was extracted from EpiSurv at 10.00 am 10 August 2010.

Summary

In the past two weeks ending 6 August 2010, 51 (23 and 28 consecutively) new cases of pertussis were notified, a substantial increase from the previous two weeks (24 cases), including 22 confirmed cases, 19 probable cases, one suspect case, and nine cases still under investigation. Five hospitalisations were reported in the last two weeks.

There has been a total of 591 pertussis notifications reported in EpiSurv since 26 December 2009 (the beginning of surveillance week 1 for 2010), including 314 confirmed cases, 244 probable cases, 15 suspect cases, and 18 cases still under investigation. Fifty-eight hospitalisations and no deaths have been reported during this period.

The highest cumulative rate since 26 December 2009 was recorded in West Coast DHB (33.8 per 100 000 population, 11 cases), followed by Capital and Coast (28.1 per 100 000, 81 cases), Canterbury (25.7 per 100 000, 129 cases), South Canterbury (25.2 per 100 000, 14 cases) and Taranaki (24.0 per 100 000, 26 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, though a substantial increase can be seen in the past two weeks. However, the total number of notifications may change as cases are investigated.

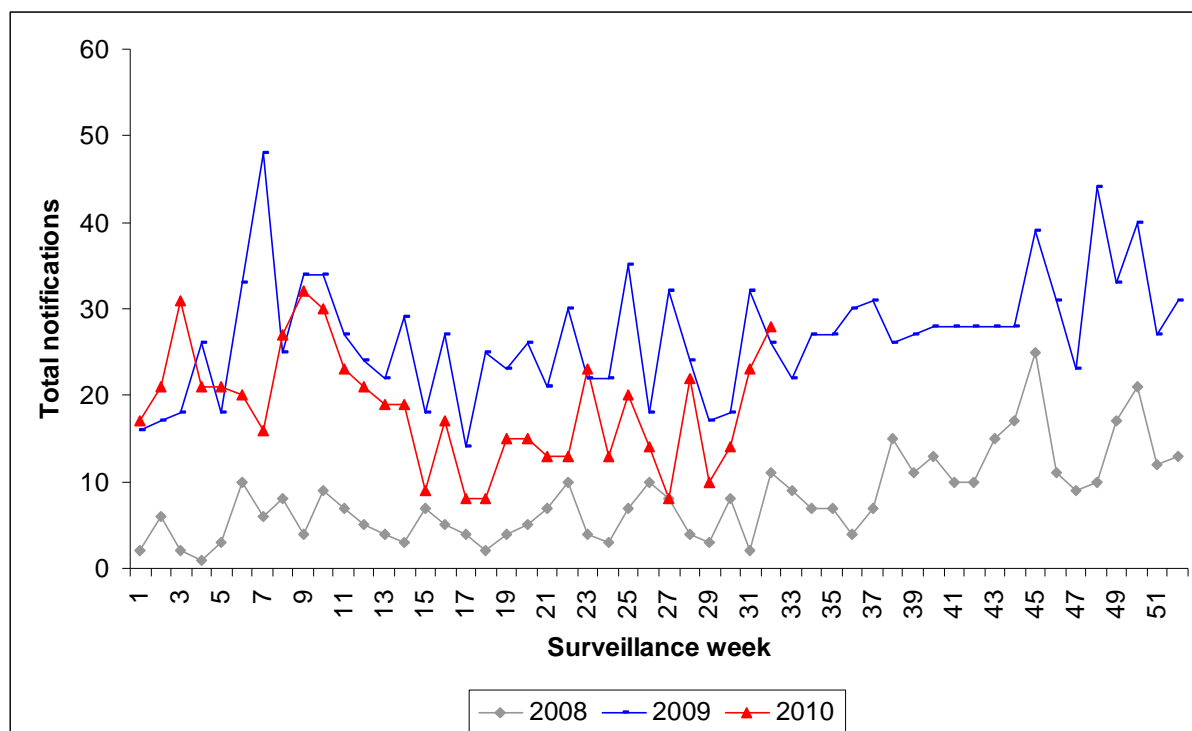


Figure 1: Comparative epidemic curves of total pertussis notifications by week reported during years 2008, 2009 and 2010 (surveillance week = Saturday to Friday inclusive).

Figure 2 shows pertussis notifications and hospitalisations by calendar month between January 1997 and July 2010. A four-year cycle can be seen with notifications peaking in years 2000 and 2004. While a slight reduction in the number of cases has been recorded since the end of 2009, monthly notifications have begun to increase in the last three months.

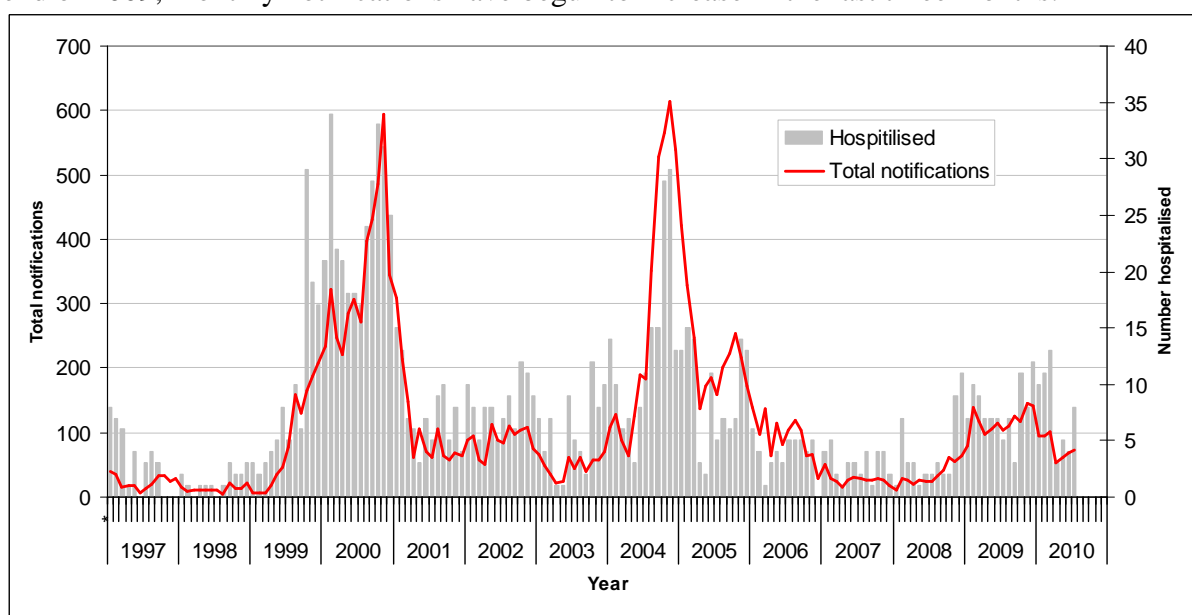


Figure 2: Epidemic curve of pertussis notifications by calendar month-year since 1997 in New Zealand

Age distribution of cases

Figure 3 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, (77.7 per 100 000 population, 49 cases), followed by the 1 to 4 (37.5 per 100 000, 91 cases) and 5 to 9 (20.8 per 100 000, 60 cases) year age groups.

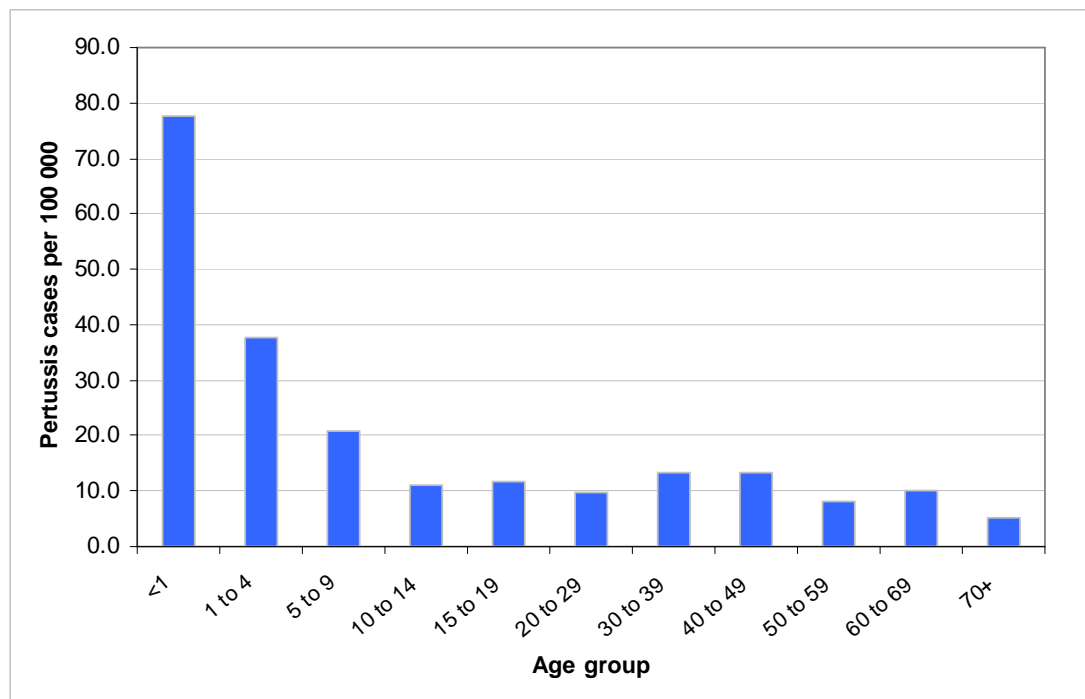


Figure 3: Age-specific pertussis cases per 100 000 populations since end of December 2009

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	49	77.7	36	5	4
1 to 4	91	37.5	6	8	1
5 to 9	60	20.8	0	4	0
10 to 14	33	11.1	3	4	0
15 to 19	38	11.8	2	2	0
20 to 29	57	9.7	3	7	0
30 to 39	76	13.2	2	5	0
40 to 49	84	13.2	1	9	0
50 to 59	44	8.3	2	3	0
60 to 69	39	9.9	2	1	0
70+	20	5.3	1	3	0
Overall	591	13.7	58	51	5

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 6 August 2010

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

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 (32 cases), followed by Maori (6 cases). Of the total notifications since 26 December 2009, the ethnic-specific rate was highest in Pacific Peoples (16.4 per 100 000, 37 cases) and Europeans (16.2 per 100 000, 436 cases), followed by Maori (113.6 per 100 000, 77 cases).

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	77	13.6	18	6	1
Pacific Peoples	37	16.4	16	3	3
Other	10	2.7	1	0	0
European	436	16.2	22	32	1
Unknown	31		1	10	0
Overall	591	14.7	58	51	5

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 6 August 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, five hospitalisations were recorded in children under 5 years of age (4 cases under 1 year and 1 case in the 1-4 year age group). There was one hospitalisation aged less than 6 weeks. There have been 58 hospitalisations reported in EpiSurv since 26 December 2009. Thirty-six (62.1%) 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 (14 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 (68.4%, 13/19) compared to Maori (35.7%, 15/42), Other (14.3%, 1/7) and Europeans (7.8%, 17/218).

Geographic distribution

The rates of pertussis notifications by DHB can be seen in Figure 4 and Table 5 (appendix). In the last two weeks, the highest number of notifications was reported in Nelson Marlborough DHB (9 cases), followed by Auckland (8 cases), and Canterbury (7 cases). The highest cumulative rate since 26 December 2009 was recorded in West Coast DHB (33.8 per 100 000 population, 11 cases), followed by Capital and Coast (28.1 per 100 000, 81 cases), Canterbury (25.7 per 100 000, 129 cases), South Canterbury (25.2 per 100 000, 14 cases) and Taranaki (24.0 per 100 000, 26 cases) DHBs. Canterbury DHB reported the highest number of notifications (129 cases) over this period followed by Capital and Coast DHB (81 cases).

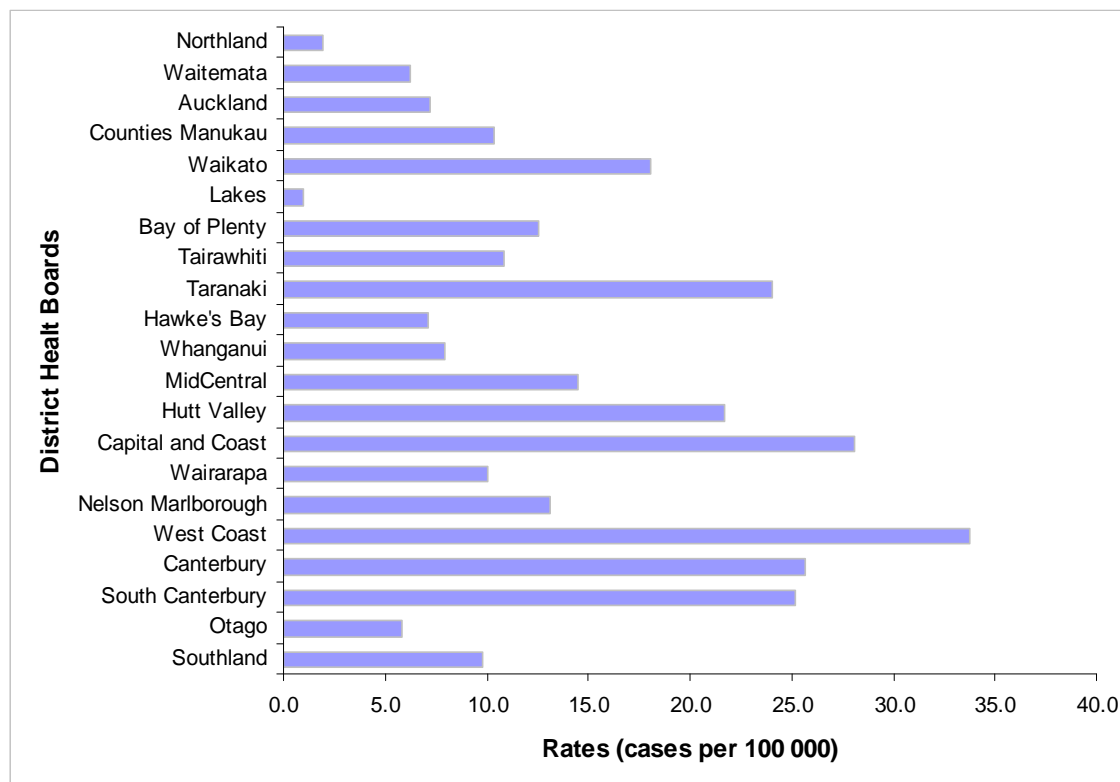


Figure 4: Geographic distribution of pertussis showing crude rates (cases per 100 000 populations) since 26 December 2009. Rates were calculated using 2009 mid-year population estimates. Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

Immunisation status

The immunisation status for confirmed pertussis cases is shown in Table 3 and Table 4 for the last two weeks and since the end of December, respectively. Of the 22 confirmed cases reported in the last two weeks, 13 (59.1%) had a known vaccination status. Of these 13 cases, eight were not vaccinated, while 3 other cases had received one, two, and three doses of vaccine (1 in each category). One case reported having completed pertussis vaccination while another 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	Vaccinated					Five doses	(no dose info)	Not vaccinated	Unknown
		One dose	Two doses	Three doses	Four doses					
<6wks	-	-	-	-	-	-	-	-	-	
6wks - 2mths	2	1	0	-	-	-	-	1	-	
3-4 mths	1	0	0	0	0	0	0	0	1	
5mths - 3yrs	4	0	0	1	0	0	0	2	1	
4 - 10yrs	2	0	0	0	0	0	0	1	1	
11+ yrs	13	0	1	0	0	1	1	4	6	
Total	22	1	1	1	0	1	1	8	9	

Of the 314 confirmed cases reported since 26 December 2009, 211 (67.2%) had a known vaccination status Table 4. Of these 211 cases, 109 were not vaccinated including six cases aged less than six weeks and therefore not eligible for vaccination. Twenty-five cases had received one dose of vaccine, seven cases had received two doses, 25 cases had received three doses, eight cases had received four doses, and 11 cases reported having completed pertussis vaccination. A further 26 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		
							(no dose info)	Not vaccinated	Unknown
<6wks	7	0	0	0	0	0	0	6	1
6wks - 2mths	17	7	0	0	0	0	0	10	0
3-4 mths	12	4	3	0	0	0	1	2	2
5mths - 3yrs	46	1	3	13	0	0	4	21	4
4 - 10yrs	56	6	0	3	6	4	1	30	6
11+ yrs	176	7	1	9	2	7	20	40	90
Total	314	25	7	25	8	11	26	109	103

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	3	1.9	0	1	0
Waitemata	33	6.2	7	4	0
Auckland	32	7.2	4	8	1
Counties Manukau	50	10.4	14	6	3
Waikato	65	18.1	2	5	0
Lakes	1	1.0	0	0	0
Bay of Plenty	26	12.5	6	3	1
Tairāwhiti	5	10.8	1	1	0
Taranaki	26	24.0	5	2	0
Hawke's Bay	11	7.1	3	0	-
Whanganui	5	7.9	0	0	-
MidCentral	24	14.5	3	1	0
Hutt Valley	31	21.7	1	0	-
Capital and Coast	81	28.1	2	1	0
Wairarapa	4	10.0	1	0	-
Nelson Marlborough	18	13.2	0	9	0
West Coast	11	33.8	1	1	0
Canterbury	129	25.7	6	7	0
South Canterbury	14	25.2	1	1	0
Otago	11	5.8	1	0	-
Southland	11	9.8	0	1	0
Total	591	13.7	58	51	5

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

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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