

PERTUSSIS REPORT

September 2010 (Weeks 35-36)

This report includes cases of pertussis reported in EpiSurv up to midnight 3 September 2010. Data was extracted from EpiSurv at 10.00 am 7 September 2010.

Summary

In the past two weeks ending 3 September 2010, 42 (17 and 25 consecutively) new cases of pertussis were notified, a substantial increase from 25 cases in the previous two weeks, including 15 confirmed cases, 15 probable cases, three suspect cases, and nine cases still under investigation.

Seven hospitalisations were reported in the last two weeks.

There has been a total of 653 pertussis notifications reported in EpiSurv since 26 December 2009 (the beginning of surveillance week 1 for 2010), including 345 confirmed cases, 273 probable cases, 20 suspect cases, and 15 cases still under investigation.

Sixty-nine hospitalisations and no deaths have been reported during this period.

The highest cumulative rate since 26 December 2009 was recorded in West Coast DHB (36.8 per 100 000 population, 12 cases), followed by Capital and Coast (31.2 per 100 000, 90 cases), Canterbury (27.3 per 100 000, 137 cases), Taranaki (24.9 per 100 000, 27 cases) and South Canterbury (23.4 per 100 000, 13 cases) DHBs. Canterbury DHB reported the highest number of notifications (137 cases) over this period followed by Capital and Coast DHB (90 cases).

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 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. After a drop during the previous fortnight, the number of cases has increased in the past two weeks. However, the total number of notifications may change as cases are investigated.

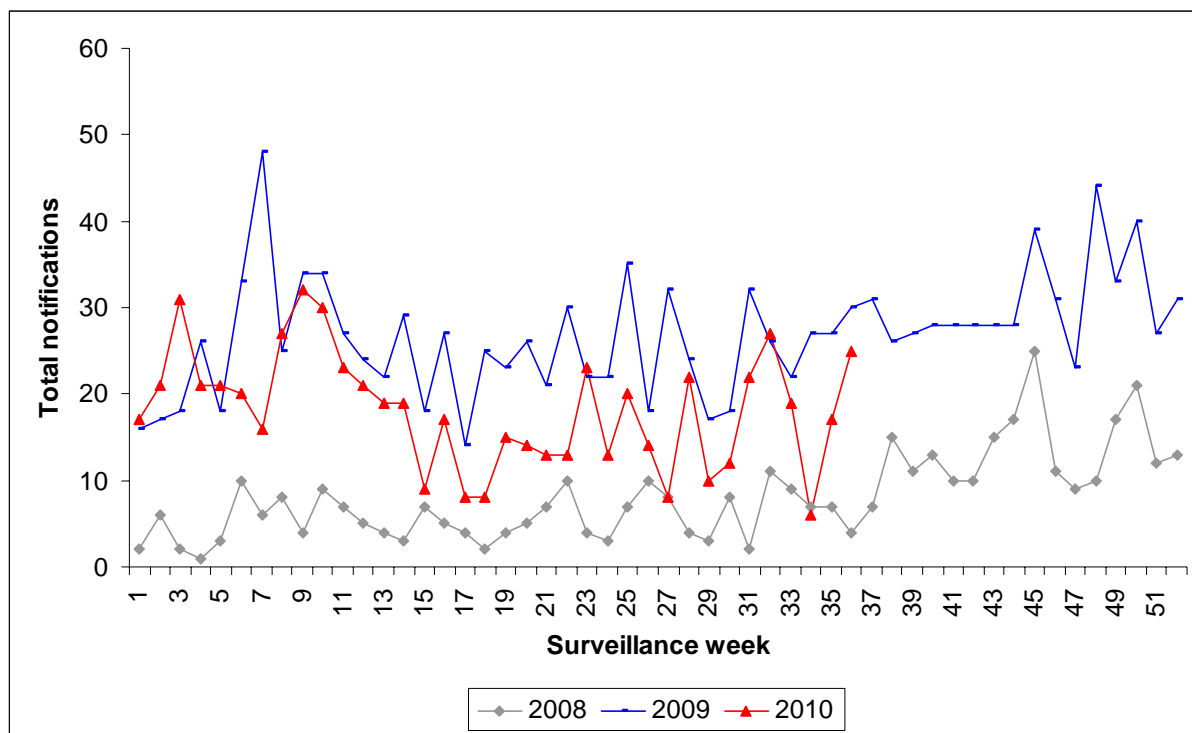


Figure 1: Comparative epidemic curves of total pertussis notifications by week reported during years 2008, 2009 and 2010 (surveillance week = Saturday to Friday inclusive).

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

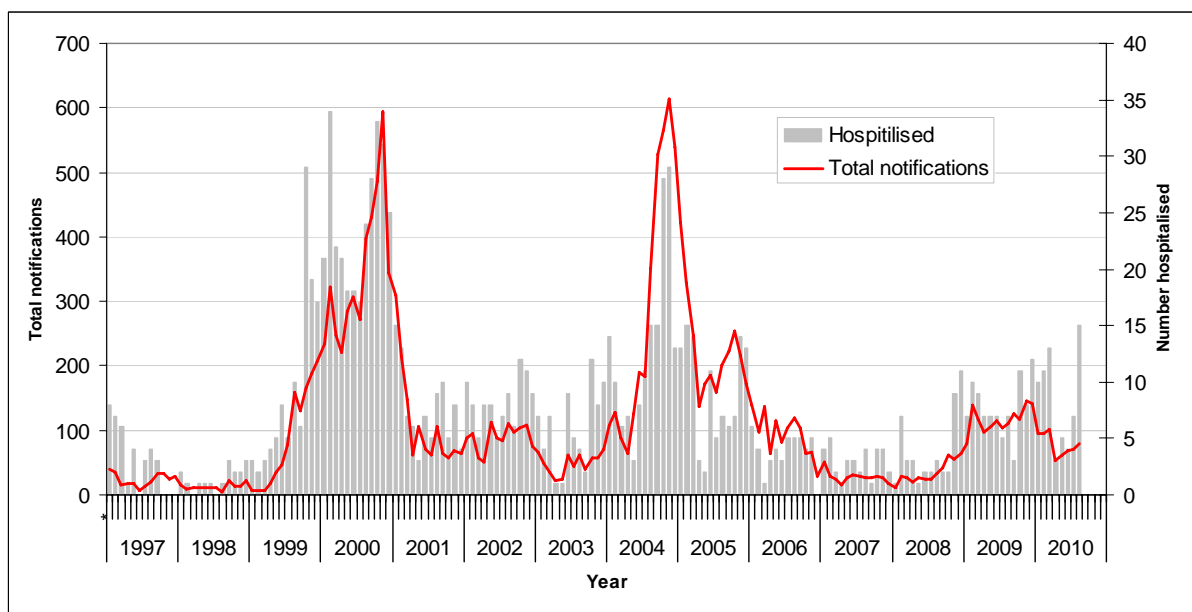


Figure 2: Epidemic curve of pertussis notifications by calendar month-year since 1997 in New Zealand

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. Pertussis rates continue to increase across age groups. Of the cases reported since 26 December 2009, infants aged less than one year had the highest cumulative incidence of pertussis cases (93.5 per 100 000 population, 59 cases), followed by the 1 to 4 years (43.3 per 100 000, 105 cases) and 5 to 9 years (21.5 per 100 000, 62 cases) age groups. Of the 653 cumulative cases, eight (1.2%) were infants under 6 weeks of age.

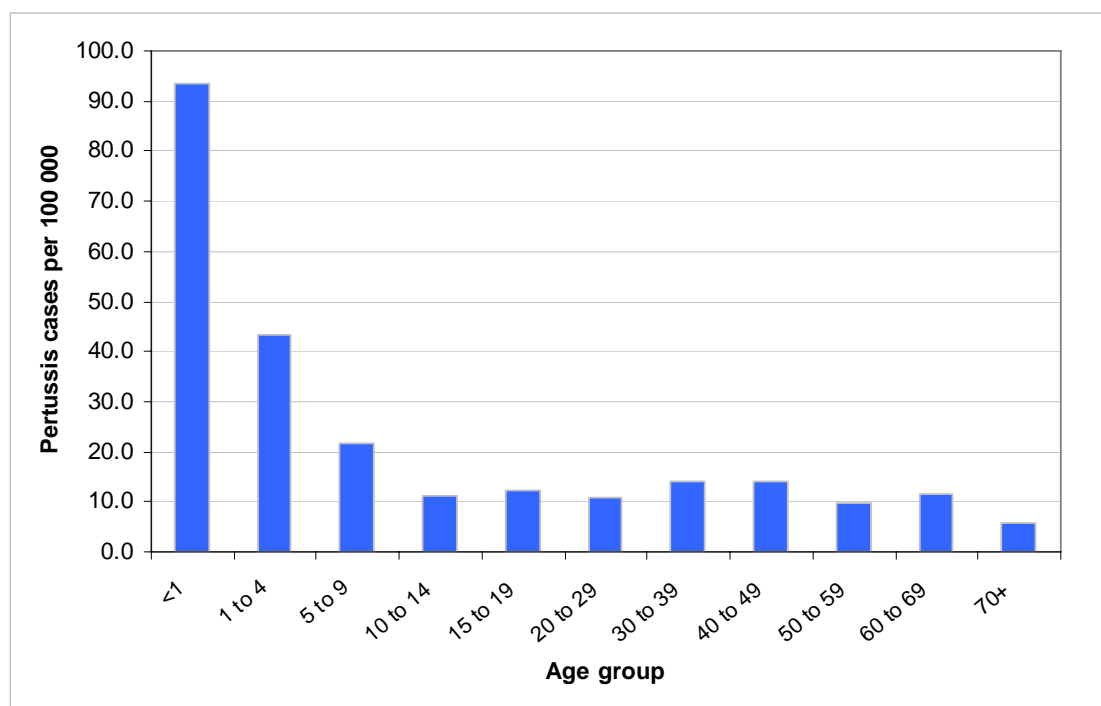


Figure 3: Age-specific pertussis cases per 100 000 populations since end of December 2009

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	59	93.5	41	7	5
1 to 4	105	43.3	7	11	1
5 to 9	62	21.5	0	2	0
10 to 14	33	11.1	3	0	-
15 to 19	40	12.4	2	2	0
20 to 29	64	10.9	4	6	0
30 to 39	82	14.2	3	5	1
40 to 49	90	14.2	1	0	-
50 to 59	51	9.6	4	3	0
60 to 69	45	11.5	2	6	0
70+	22	5.8	2	0	-
Unknown	0	-	-	0	-
Overall	653	15.1	69	42	7

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 3 September 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 reported in the past two weeks, Europeans had the highest numbers of cases (27 cases), followed by Maori and Pacific Peoples (3 cases each). Of the total notifications since 26 December 2009, the ethnic-specific rates were highest in Pacific Peoples (19.0 per 100 000, 43 cases), followed by those of European (18.1 per 100 000, 488 cases), and Maori (15.4 per 100 000, 87 cases) ethnicities.

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	87	15.4	20	3	3
Pacific Peoples	43	19.0	19	3	2
Other	12	3.2	1	2	0
European	488	18.1	28	27	2
Unknown	23		1	7	0
Overall	653	16.2	69	42	7

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 3 September 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, seven hospitalisations were recorded in the following age groups: less than 1 year (5 cases), 1 to 4 years and 30 to 39 years (1 case each). There have been 69 hospitalisations reported in EpiSurv since 26 December 2009. Forty-one (59.4%) of these were infants aged less than one year including six cases aged less than six weeks. Counties Manukau DHB had the highest number of cumulative hospitalisations (18 cases). The distribution of hospitalisations by age group, ethnicity, and DHB is described in Table 1, Table 2 and Table 3 respectively. Based on confirmed cases with known hospitalisation status reported since 26 December 2009, the proportion of hospitalisations was highest in Pacific Peoples (72.7%, 16/22), followed by those of Maori (34.7%, 17/49), Other (14.3%, 1/7) and European (9.4%, 23/244) ethnicities.

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 Capital and Coast DHB (8 cases). The highest cumulative rate since 26 December 2009 was recorded in West Coast DHB (36.8 per 100 000 population, 12 cases), followed by Capital and Coast (31.2 per 100 000, 90 cases), Canterbury (27.3 per 100 000, 137 cases), Taranaki (24.9 per 100 000, 27 cases) and South Canterbury (23.4 per 100 000, 13 cases) DHBs. Canterbury DHB reported the highest number of notifications (137 cases) over this period followed by Capital and Coast DHB (90 cases).

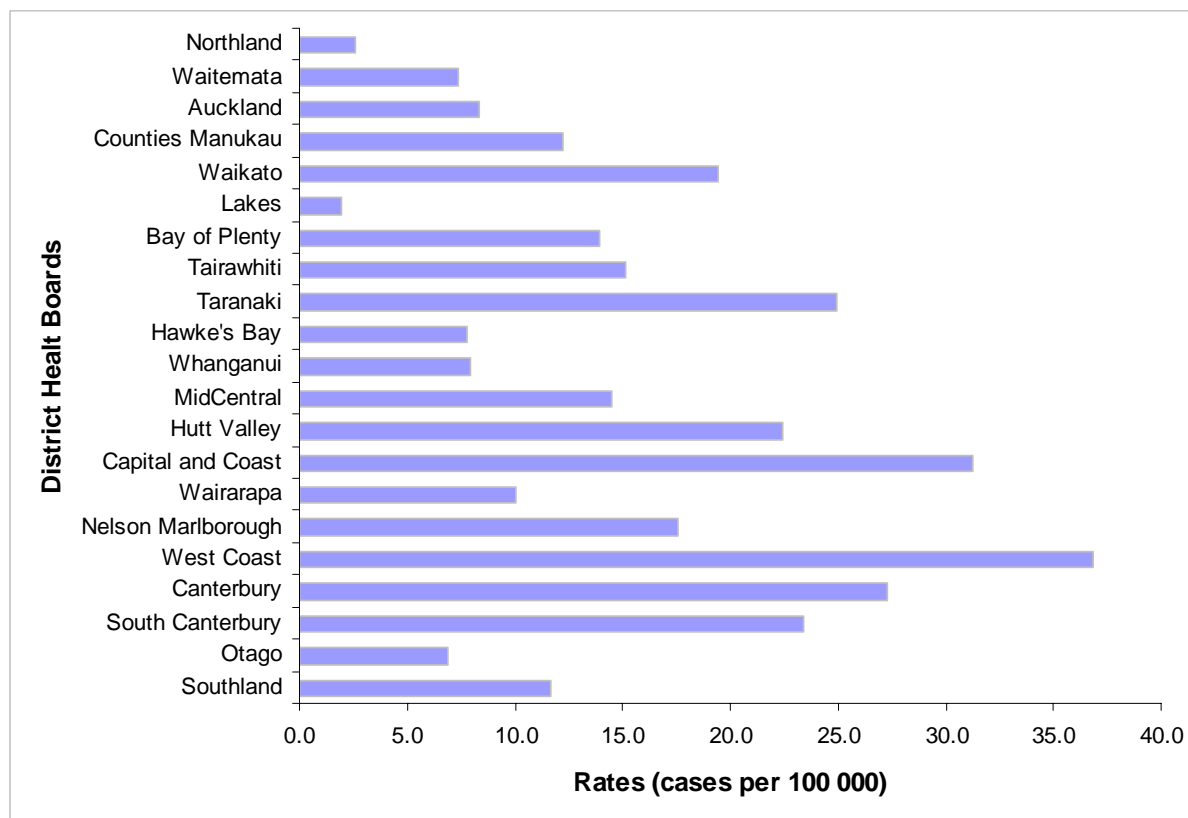


Figure 4: Geographic distribution of pertussis showing crude rates (cases per 100 000 populations) since 26 December 2009. Rates were calculated using 2009 mid-year population estimates. Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

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 15 confirmed cases reported in the last two weeks, 12 (80.0%) had a known vaccination status. Of these 12 cases, seven were not vaccinated, one case had received two doses of vaccine, and two cases had received three doses. Two cases 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					Vaccinated (no dose info)	Not vaccinated	Unknown
		One dose	Two doses	Three doses	Four doses	Five doses			
<6wks	0	-	-	-	-	-	-	-	-
6wks - 2mths	2	0	0	-	-	-	-	2	-
3-4 mths	2	0	1	0	0	0	0	1	0
5mths - 3yrs	4	0	0	2	0	0	0	2	0
4 - 10yrs	2	0	0	0	0	0	0	2	0
11+ yrs	5	0	0	0	0	0	2	0	3
Total	15	0	1	2	0	0	2	7	3

Of the 345 confirmed cases reported since 26 December 2009, 232 (67.2 %) had a known vaccination status (Table 4). Of these 232 cases, 124 were not vaccinated including seven cases aged less than six weeks and therefore not eligible for vaccination. Of the 225 cases eligible for immunisation 117 (52.0%) were not immunised. Twenty-six cases had received one dose of vaccine, eight cases had received two doses, 27 cases had received three doses, eight cases had received four doses, and 11 cases reported having completed pertussis

vaccination. A further 28 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	8	0	0	0	0	0	0	7	1
6wks - 2mths	19	7	0	0	0	0	0	12	0
3-4 mths	15	5	4	0	0	0	1	4	1
5mths - 3yrs	53	1	3	15	0	0	4	26	4
4 - 10yrs	60	6	0	3	6	4	1	33	7
11+ yrs	190	7	1	9	2	7	22	42	100
Total	345	26	8	27	8	11	28	124	113

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	4	2.6	0	0	0
Waitemata	39	7.4	9	4	1
Auckland	37	8.3	4	5	1
Counties Manukau	59	12.2	18	5	2
Waikato	70	19.4	4	1	0
Lakes	2	2.0	0	1	0
Bay of Plenty	29	14.0	8	3	2
Tairāwhiti	7	15.2	1	0	0
Taranaki	27	24.9	5	1	0
Hawke's Bay	12	7.8	4	1	1
Whanganui	5	7.9	0	0	0
MidCentral	24	14.5	3	0	0
Hutt Valley	32	22.4	1	0	0
Capital and Coast	90	31.2	2	8	0
Wairarapa	4	10.0	1	0	0
Nelson Marlborough	24	17.5	0	4	0
West Coast	12	36.8	1	0	0
Canterbury	137	27.3	6	5	0
South Canterbury	13	23.4	1	0	0
Otago	13	6.9	1	2	0
Southland	13	11.6	0	2	0
Total	653	15.1	69	42	7

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