

PERTUSSIS REPORT

November 2011

This report includes cases of pertussis reported in EpiSurv up to midnight 09 December 2011. Data were extracted from EpiSurv at 10.00 am 13 December 2011.

Summary

In the past two weeks, 325 new cases of pertussis (140 and 185 cases, respectively) were notified, including 96 confirmed cases, 133 probable cases, eight suspect cases, and 88 cases still under investigation. Ten hospitalisations were reported in the last two weeks (4 and 6, respectively).

There has been a total of 1719 pertussis notifications reported in EpiSurv since 1 January 2011 (compared to 808 for the same period in 2010), including 763 confirmed cases, 810 probable cases, 40 suspect cases, and 106 cases still under investigation. 115 hospitalisations and one death have been reported during this period.

The highest cumulative rate since 1 January 2011 was recorded in West Coast District Health Board (DHB) (644.7 per 100 000 population, 211 cases), followed by Nelson Marlborough (246.9 per 100 000, 341 cases), Hutt Valley (101.5 per 100 000, 146 cases), Hawke's Bay (73.4 per 100 000, 114 cases), and Capital and Coast (69.7 per 100 000, 203 cases) DHBs. The highest number of notifications was reported from Nelson Marlborough DHB (341 cases), followed by Canterbury (255 cases), West Coast (211), Capital and Coast (203), Hutt Valley (146), and Hawke's Bay (114) DHBs.

This report incorporates the temporal distribution of cases, and the distribution of cases by age, ethnicity (prioritised), and 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 2009, 2010 and 2011 (to week ending 9 December). Notifications in 2011 continue to run above 2009 and 2010 levels since week 34 (ending 26 August 2011) and have been rising more or less consistently. Weekly notifications have increased in the past two weeks compared to the previous fortnight. Note the total number of notifications may change as cases are investigated further and some are found not to meet the case definition. There was one death reported since the beginning of 2011 and this was in the less than 6 weeks age group.

Figure 1: Comparative epidemic curves of total pertussis notifications by week reported during years 2009, 2010 and 2011 (surveillance week = Saturday to Friday inclusive).

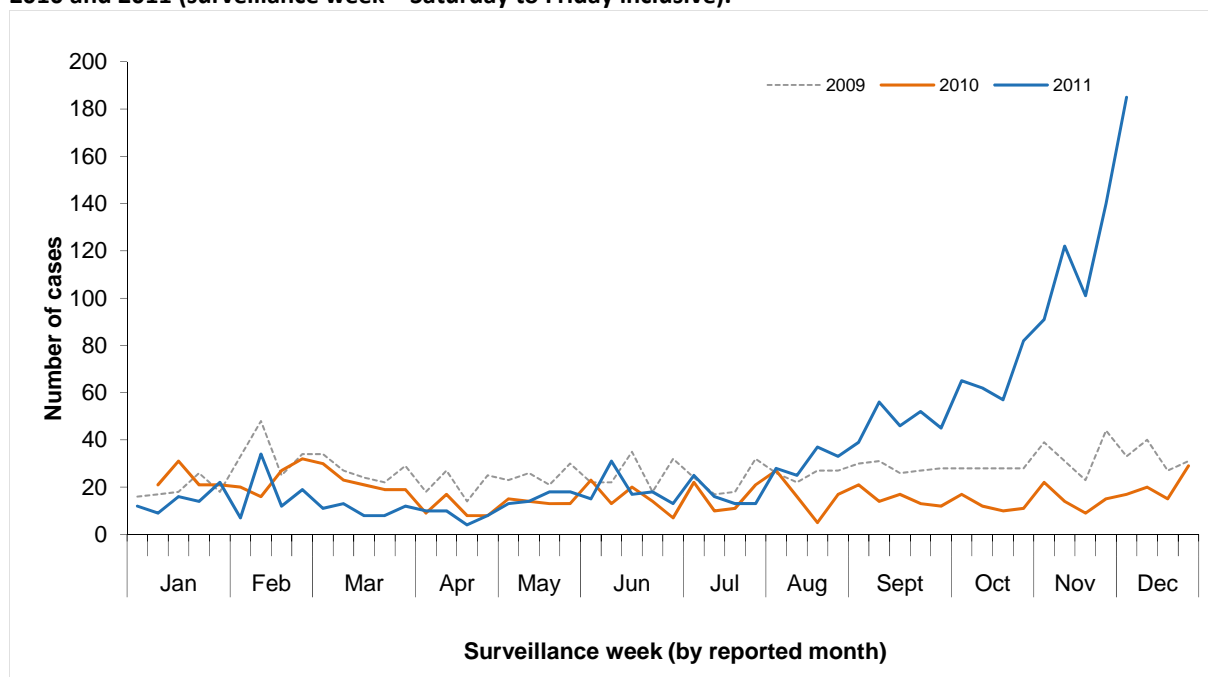
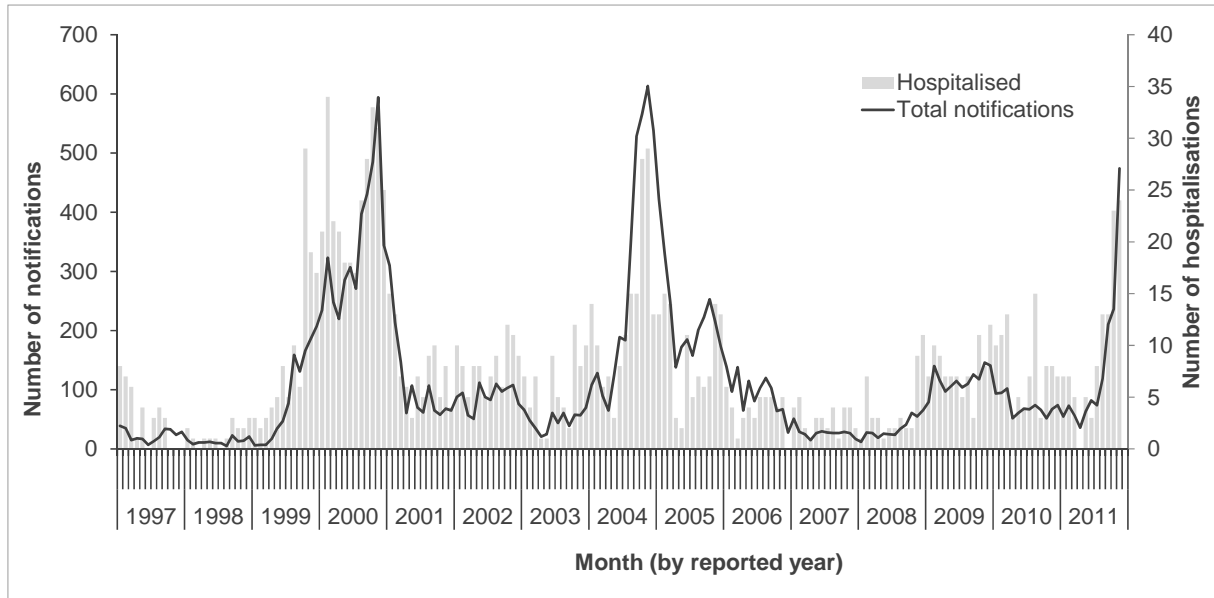


Figure 2 shows pertussis notifications and hospitalisations by calendar month between 1 January 1997 and 30 November 2011. A four to five-year cycle can be seen with large peaks in notifications in years 2000 and 2004 and a much smaller peak in 2009. However, notifications have been rising again since May 2011. Increases in hospitalisations show a similar cycle, although peaks in hospitalisations do not always coincide with peaks in notifications. There have been 239 cases and seven hospitalisations reported since 1 December 2011.

Figure 2: Pertussis notifications and hospitalisations by calendar month-year since 1997 up to 30 November 2011



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 last two weeks. Pertussis rates varied across age groups. Of the cases reported since January 2011, infants aged less than one year had the highest cumulative incidence of pertussis cases (188.3 per 100 000 population, 120 cases), followed by the 1 to 4 years (94.7 per 100 000, 235 cases), and 5 to 9 years (89.3 per 100 000, 256 cases) age groups. Of the 1716 cumulative cases with known age, 20 (1.2%) were infants under 6 weeks of age.

Figure 3: Age-specific pertussis cases per 100 000 populations, 1 January 2011 to 9 December 2011

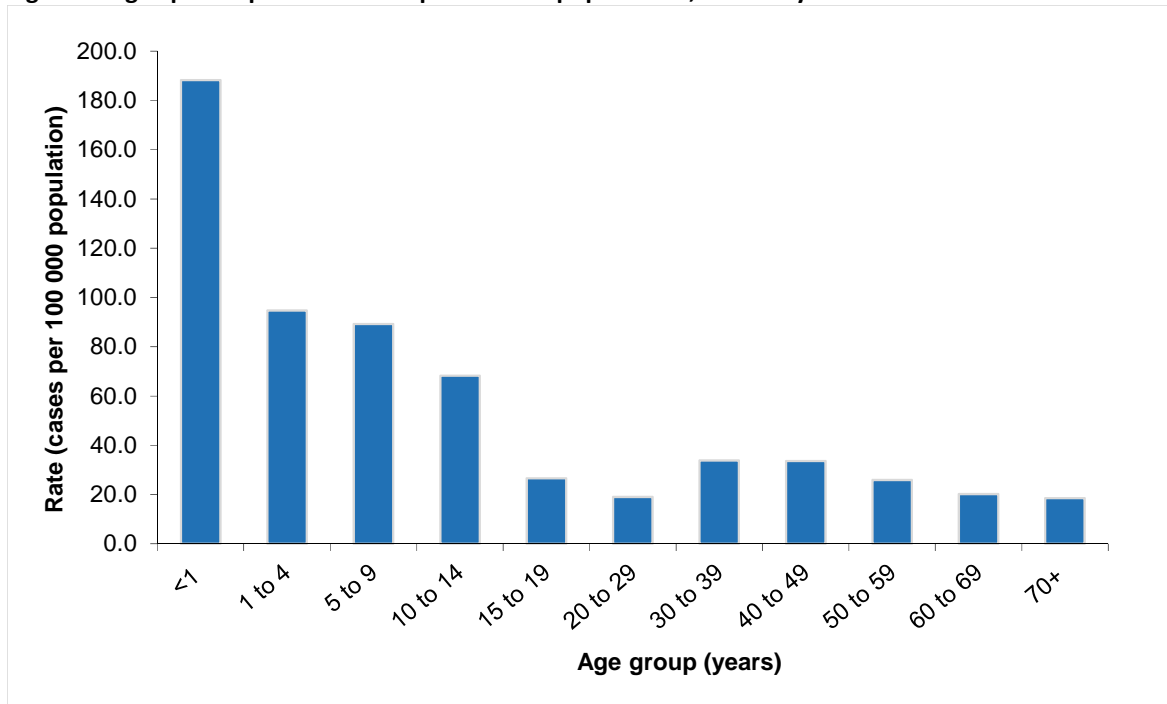


Table 1: Pertussis cases and rates by age group since 1 January 2011, including new cases in the last two weeks

Age group (Years)	Cumulative ² notifications			Last two weeks	
	Cases	Rates ¹	Hosp	New cases	Hosp p
<1	120	188.3	73	18	8
1 to 4	235	94.7	12	42	2
5 to 9	256	89.3	4	57	0
10 to 14	202	68.3	4	45	0
15 to 19	86	26.7	1	8	0
20 to 29	115	19.1	2	25	0
30 to 39	193	33.8	4	29	0
40 to 49	213	33.6	2	39	0
50 to 59	141	26.0	6	31	0
60 to 69	82	20.2	3	17	0
70+	73	18.6	4	13	0
Unknown	3	-	0	1	0
Overall	1719	39.4	115	325	10

¹Rate of pertussis cases per 100 000 population calculated using 2010 mid-year population estimates.

²Cumulative notifications between 1 January and 9 December 2011

Hosp: hospitalisation counts

Ethnicity

Pertussis notifications and rates by ethnicity are shown in Table 2. Of the pertussis cases with known ethnicity, the European ethnic group had the highest numbers reported in the last two weeks (254 cases), followed by Māori (32 cases). Of the total notifications since 1 January 2011, the ethnic-specific rates were highest for the European ethnic group (47.8 per 100 000, 1288 cases), followed by Māori (41.2 per 100 000, 233 cases) and Pacific Peoples (24.7 per 100 000, 56 cases).

Table 2: Pertussis cases and rates by ethnicity (prioritised) since 1 January 2011, including new cases in the last two weeks

Ethnicity	Cumulative ² notifications			Last two weeks	
	Cases	Rates ¹	Hosp	New cases	Hosp p
Māori	233	41.2	33	32	2
Pacific Peoples	56	24.7	17	8	0
Other	63	16.8	5	6	0
European	1288	47.8	55	254	5
Unknown	79		5	25	3
Overall	1719	42.7	115	325	10

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

²Cumulative notifications between 1 January and 9 December 2011

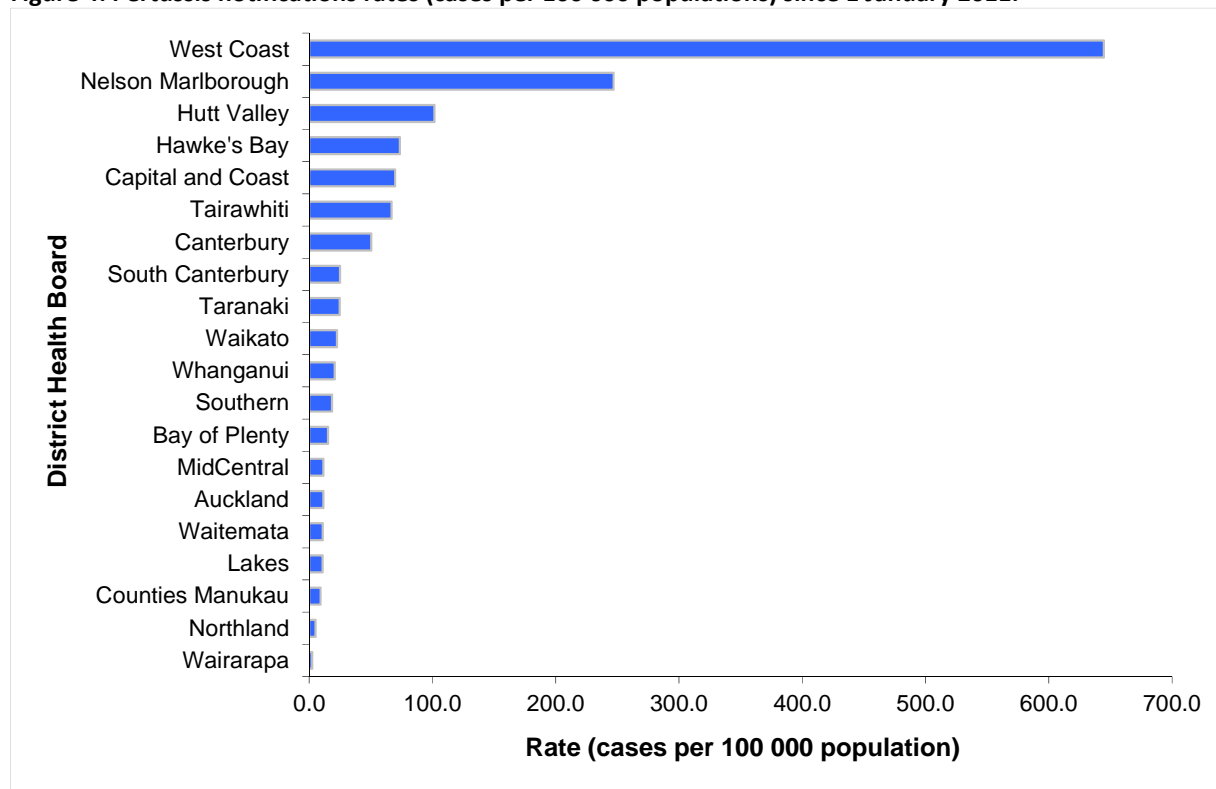
Hospitalisations

The distribution of hospitalisations by age group, ethnicity, and DHB is described in Table 1, Table 2 and Table 3 respectively. In the last two weeks, 10 hospitalisations were recorded in the following age groups: less than 1 year (8 cases) and 1 to 4 years (2 cases). There have been 115 hospitalisations reported in EpiSurv since 1 January 2011. Seventy-three (63.5%) of these were infants aged less than one year including 17 cases aged less than six weeks. Canterbury DHB had the highest number of cumulative hospitalisations (20 cases), followed by Hawke's Bay (19 cases) and Counties Manukau (18 cases) DHBs. Based on confirmed cases with known hospitalisation status reported since 1 January 2011, the ethnic-specific proportion of hospitalisations was highest in Pacific Peoples (48.3%, 14/29), followed by those of Māori (22.6%, 26/115), Other (15.4%, 4/26), and European (7.3%, 37/504) 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 Nelson Marlborough DHB (152 cases). The highest cumulative rate since 1 January 2011 was recorded in West Coast DHB (644.7 per 100 000 population, 211 cases), followed by Nelson Marlborough (246.9 per 100 000, 341 cases), Hutt Valley (101.5 per 100 000, 146 cases), Hawke's Bay (73.4 per 100 000, 114 cases), and Capital and Coast (69.7 per 100 000, 203 cases) DHBs. The highest number of notifications was reported from Nelson Marlborough DHB (341 cases), followed by Canterbury (255 cases), West Coast (211), Capital and Coast (203), Hutt Valley (146), and Hawke's Bay (114) DHBs.

Figure 4: Pertussis notifications rates (cases per 100 000 populations) since 1 January 2011.



Rates were calculated using 2010 mid-year population estimates. Rates calculated on fewer than five cases are unstable and should be interpreted with caution (see Appendix for table).

Immunisation status

The immunisation status for confirmed pertussis cases with known age is shown in Table 3 and Table 4 for the last two weeks and since 1 January 2011, respectively. Of the 96 confirmed cases reported in the last two weeks, 56 (58.3%) had a known vaccination status. Of these 56 cases, 17 were not vaccinated including four cases aged less than 6 weeks and therefore not eligible for vaccination. Four cases had received one dose of vaccine, six had received three doses, eight had received four doses, and 13 cases reported having completed pertussis vaccination. Eight cases reported being vaccinated but no dose information was available.

Table 3: Immunisation status of pertussis cases (confirmed) notified in the last two weeks (26 November to 9 December 2011)

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	0	0	0	0	0	0	0	0	0
3-4 mths	1	1	0	0	0	0	0	0	0
5mths - 3yrs	14	1	0	5	0	0	3	4	1
4 - 10yrs	29	1	0	1	8	8	2	6	3
11+ yrs	48	1	0	0	0	5	3	3	36
Total	96	4	0	6	8	13	8	17	40

Of the 670 confirmed cases reported since 1 January 2011, 542 (71.1%) had a known vaccination status (Table 4). Of these 542 cases, 197 were not vaccinated including 16 cases aged less than six weeks and therefore not eligible for vaccination. Forty cases had received one dose of vaccine, nine cases had received two doses, 55 cases had received three doses, 58 cases had received four doses, and 79 cases reported having completed pertussis vaccination. A further 104 cases reported being vaccinated but no dose information was available.

Table 4: Immunisation status of pertussis cases (confirmed) notified from 1 January to 9 December 2011

Age Group	Total cases	One dose	Two doses	Three doses	Four doses	Five doses	Vaccinated (no dose info)	Not vaccinated	Unknown
<6wks	17	0	0	0	0	0	0	16	1
6wks - 2mths	35	16	0	0	0	0	0	15	4
3-4 mths	10	4	2	0	0	0	0	4	0
5mths - 3yrs	110	4	2	40	11	1	6	40	6
4 - 10yrs	197	6	2	9	37	50	25	54	14
11+ yrs	393	10	3	6	10	28	73	68	195
Total	762	40	9	55	58	79	104	197	220

Appendix

Table 5: Pertussis cases and rates by DHB since 1 January 2011, including new cases in the last two weeks

DHB	Cumulative notifications			Last two weeks	
	Cases	Rates ¹	Hosp	Cases	Hosp
Northland	8	5.1	4	0	0
Waitemata	59	11.0	10	10	2
Auckland	51	11.3	6	0	0
Counties Manukau	45	9.2	18	2	1
Waikato	82	22.5	7	11	1
Lakes	11	10.7	2	1	1
Bay of Plenty	32	15.2	4	3	0
Tairāwhiti	31	66.7	0	7	0
Taranaki	27	24.7	2	0	0
Hawke's Bay	114	73.4	19	6	1
Whanganui	13	20.6	1	0	0
MidCentral	19	11.4	2	0	0
Hutt Valley	146	101.5	5	19	0
Capital and Coast	203	69.7	3	27	0
Wairarapa	1	2.5	0	1	0
Nelson Marlborough	341	246.9	4	152	2
West Coast	211	644.7	2	32	0
Canterbury	255	50.2	20	50	2
South Canterbury	14	25.1	2	2	0
Southern	56	18.5	4	2	0
Total	1719	39.4	115	325	10

¹Rate of pertussis cases per 100 000 population calculated using 2010 mid-year population estimates. Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

²Cumulative notifications between 1 January and 9 December 2011

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 at: <http://www.surv.esr.cri.nz/surveillance/PertussisRpt.php>.