

PERTUSSIS REPORT

November 2011

This report includes cases of pertussis reported in EpiSurv up to midnight 25 November 2011. Data were extracted from EpiSurv at 10.00 am 29 November 2011.

Summary

In the past two weeks, 238 new cases of pertussis (126 and 112 cases, respectively) were notified, including 94 confirmed cases, 93 probable cases, six suspect cases, and 45 cases still under investigation. Eleven hospitalisations were reported in the last two weeks.

There has been a total of 1410 pertussis notifications reported in EpiSurv since 1 January 2011 (compared to 776 for the same period in 2010), including 671 confirmed cases, 646 probable cases, 33 suspect cases, and 60 cases still under investigation. 102 hospitalisations and one death have been reported during this period.

The highest cumulative rate since 1 January 2011 was recorded in West Coast DHB (568.3 per 100 000 population, 186 cases), followed by Nelson Marlborough (140.5 per 100 000, 194 cases), Hutt Valley (88.3 per 100 000, 127 cases), Hawke's Bay (69.6 per 100 000, 108 cases), and Capital and Coast (60.4 per 100 000, 176 cases) DHBs. The highest number of notifications was reported from Canterbury DHB (205 cases), followed by Nelson Marlborough (194), West Coast (186), Capital and Coast (176), Hutt Valley (127), and Hawke's Bay (108) DHBs.

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 2009, 2010 and 2011 (to week ending 25 November). Notifications in 2011 continue to run above 2009 and 2010 levels since week 34 (ending 26 August 2011) and have been rising consistently. However the number of cases has decreased in the past week compared to the previous one. Note the total number of notifications may change as cases are investigated further and some are de-notified. 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).

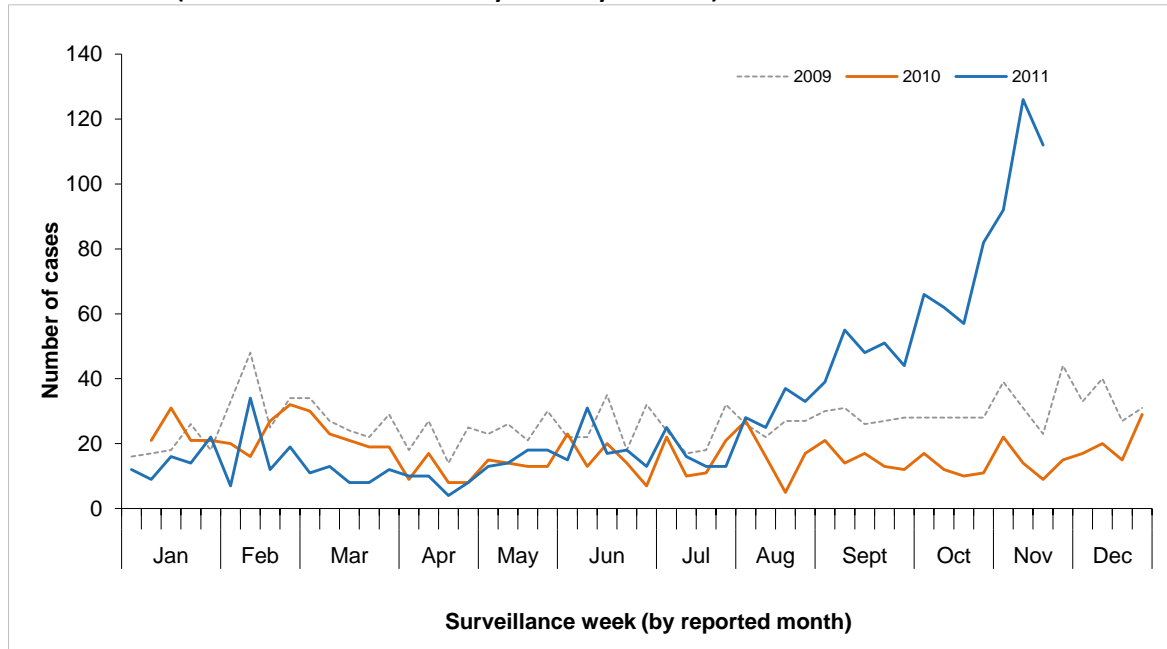
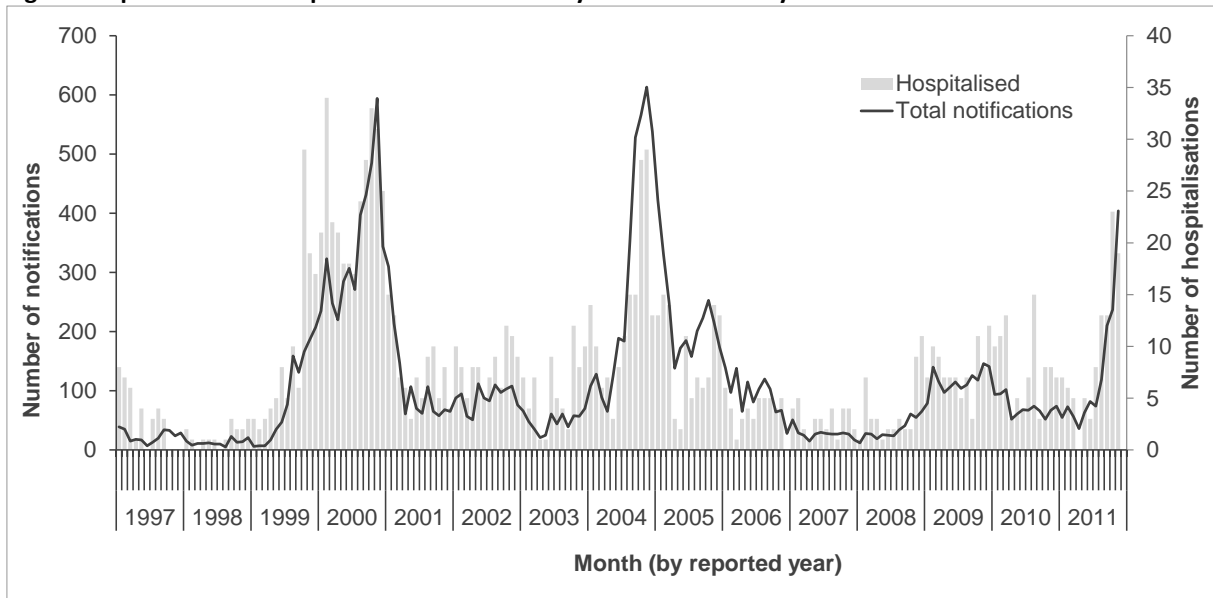


Figure 2 shows pertussis notifications and hospitalisations by calendar month between January 1997 and 25 November 2011. A four-year cycle can be seen with notifications peaking in years 2000 and 2004. While the number of cases has been declining since the end of 2009, notifications have been rising since May 2011 with higher hospitalisations during October.

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 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 (163.2 per 100 000 population, 104 cases), followed by the 1 to 4 years (79.4 per 100 000, 197 cases), and 5 to 9 years (70.8 per 100 000, 203 cases) age groups. Of the 1408 cumulative cases with known age, 15 (1.1%) were infants under 6 weeks of age.

Figure 3: Age-specific pertussis cases per 100 000 populations since January 2011

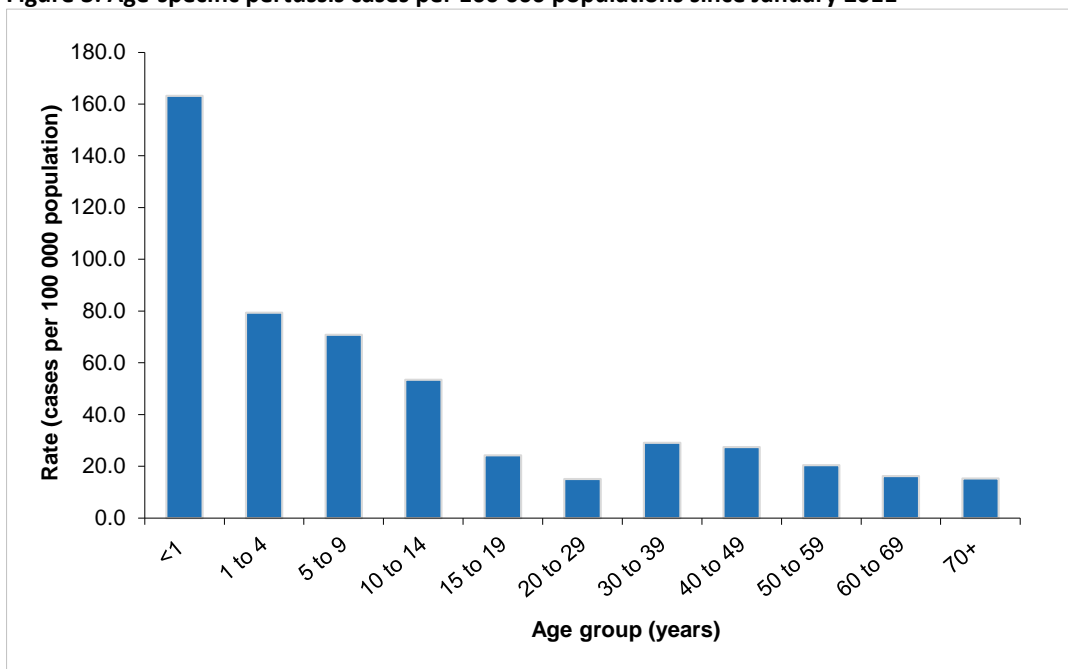


Table 1: Pertussis cases and rates by age group since 1 January 2011, including new cases in the last two weeks

Age group (Years)	Cumulative ² notifications			Last two weeks	
	Cases	Rates ¹	Hosp	New cases	Hosp
<1	104	163.2	64	18	9
1 to 4	197	79.4	9	41	0
5 to 9	203	70.8	4	47	0
10 to 14	158	53.4	4	30	0
15 to 19	78	24.2	1	9	1
20 to 29	91	15.1	2	14	0
30 to 39	166	29.1	4	22	0
40 to 49	174	27.4	2	22	0
50 to 59	111	20.4	6	20	1
60 to 69	66	16.2	3	6	0
70+	60	15.3	3	8	0
Unknown	2		0	1	0
Overall	1410	32.3	102	238	11

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 25 November 2011

Hosp: hospitalisation counts

Ethnicity

Pertussis notifications and rates by ethnicity are shown in Table 2. Of the pertussis cases with known ethnicity, Europeans had the highest numbers reported in the last two weeks (169 cases), followed by the Māori (36 cases) ethnic groups. Of the total notifications since 1 January 2011, the ethnic-specific rates were highest in European (38.6 per 100 000, 1039 cases), followed by Māori (35.4 per 100 000, 200 cases) and Pacific Peoples (21.2 per 100 000, 48 cases) ethnicities.

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
Māori	200	35.4	30	36	6
Pacific Peoples	48	21.2	17	6	1
Other	58	15.5	5	3	0
European	1039	38.6	49	169	4
Unknown	65		1	24	0
Overall	1410	35.0	102	238	11

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 1 January and 25 November 2011

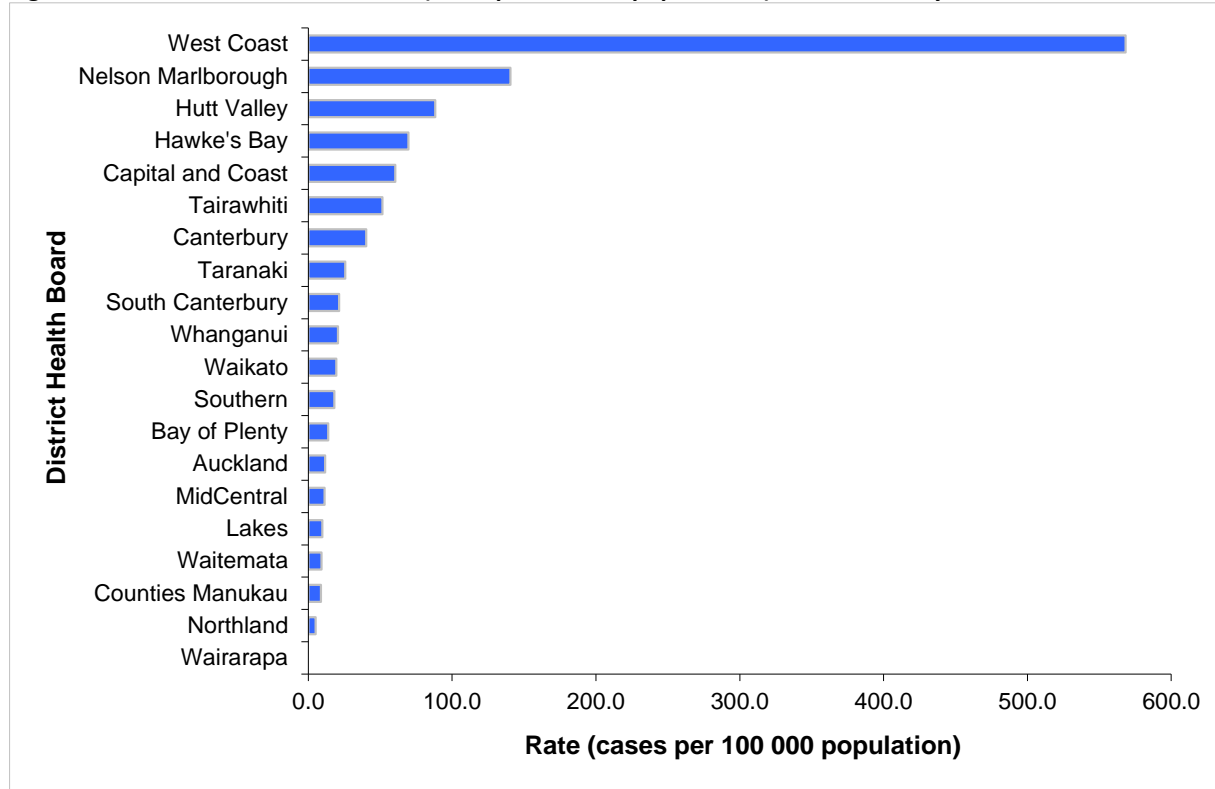
Hospitalisations

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, 11 hospitalisations were recorded in the following age groups: less than 1 year (9 cases), 15 to 19 years and 50 to 59 years (1 case each). There have been 102 hospitalisations reported in EpiSurv since 1 January 2011. Sixty-four (62.7%) of these were infants aged less than one year including 13 cases aged less than six weeks. Hawke's Bay DHB had the highest number of cumulative hospitalisations (18 cases) followed by Counties Manukau and Canterbury (17 cases each). Based on confirmed cases with known hospitalisation status reported since 1 January 2011, ethnic-specific proportion of hospitalisations was highest in Pacific Peoples (50.0%, 14/28), followed by those of Māori (23.3%, 24/103), Other (16.7%, 4/24), and European (8.0%, 35/437) ethnicities.

Geographic distribution

The rates of pertussis notifications by DHB can be seen in Figure 4 and Table 5 (appendix). In the last week, the highest number of notifications was reported in Hawke's Bay DHB (10 cases). The highest cumulative rate since 1 January 2011 was recorded in West Coast DHB (568.3 per 100 000 population, 186 cases), followed by Nelson Marlborough (140.5 per 100 000, 194 cases), Hutt Valley (88.3 per 100 000, 127 cases), Hawke's Bay (69.6 per 100 000, 108 cases), and Capital and Coast (60.4 per 100 000, 176 cases) DHBs. The highest number of notifications was reported from Canterbury DHB (205 cases), followed by Nelson Marlborough (194), West Coast (186), Capital and Coast (176), Hutt Valley (127), and Hawke's Bay (108) 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 43 confirmed cases reported in the last two weeks, 33 (76.7%) had a known vaccination status. Of these 33 cases, 12 were not vaccinated including one case aged less than 6 weeks and therefore not eligible for vaccination. One case had received one dose of vaccine, two cases had received two doses, three had received three doses, six had received four doses, and four cases reported having completed pertussis vaccination. Five 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	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	2	1	0	0	0	0	0	0	1
3-4 mths	4	0	2	0	0	0	0	2	0
5mths - 3yrs	6	0	0	2	1	0	0	2	1
4 - 10yrs	13	0	0	1	4	2	0	5	1
11+ yrs	17	0	0	0	1	2	5	2	7
Total	43	1	2	3	6	4	5	12	10

Of the 670 confirmed cases reported since 1 January 2011, 485 (72.4%) had a known vaccination status (Table 4). Of these 485 cases, 181 were not vaccinated including 12 cases aged less than six weeks and therefore not eligible for vaccination. Thirty-six cases had received one dose of vaccine, nine cases had received two doses, 49 cases had received three doses, 51 cases had received four doses, and 64 cases reported having completed pertussis vaccination. A further 95 cases reported being vaccinated but no dose information was available.

Table 4: Immunisation status of pertussis cases (confirmed) notified since 1 January 2011

Age Group	Total cases	One dose	Two doses	Three doses	Four doses	Five doses	Vaccinated (no dose info)	Not vaccinated	Unknown
<6wks	13	0	0	0	0	0	0	12	1
6wks - 2mths	35	16	0	0	0	0	0	15	4
3-4 mths	9	3	2	0	0	0	0	4	0
5mths - 3yrs	98	3	2	35	13	1	3	36	5
4 - 10yrs	168	5	2	8	28	42	23	48	12
11+ yrs	347	9	3	6	10	21	69	66	163
Total	670	36	9	49	51	64	95	181	185

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	1	0
Waitemata	49	9.1	7	5	1
Auckland	53	11.8	6	4	0
Counties Manukau	43	8.8	17	6	3
Waikato	71	19.5	6	7	2
Lakes	10	9.7	1	1	0
Bay of Plenty	29	13.8	4	4	0
Tairāwhiti	24	51.6	0	5	0
Taranaki	28	25.6	2	3	0
Hawke's Bay	108	69.6	18	8	0
Whanganui	13	20.6	1	2	0
MidCentral	19	11.4	2	1	0
Hutt Valley	127	88.3	4	35	1
Capital and Coast	176	60.4	3	33	0
Wairarapa	0	0.0	0	0	0
Nelson Marlborough	194	140.5	2	49	0
West Coast	186	568.3	2	25	0
Canterbury	205	40.3	17	43	4
South Canterbury	12	21.5	2	1	0
Southern	55	18.1	4	5	0
Total	1410	32.3	102	238	11

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 25 November 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 on the internet from www.surv.esr.cri.nz