

PERTUSSIS REPORT

January 2012

This report includes cases of pertussis reported in EpiSurv up to midnight 06 January 2012. Data were extracted from EpiSurv at 10.00 am 24 January 2012.

Summary

In the past two surveillance weeks (7 - 20 Jan 2012), 212 new cases of pertussis (109 and 103 cases, respectively) were notified, including 66 confirmed cases, 62 probable cases, three suspect cases, and 81 cases still under investigation. Seven hospitalisations were reported during this period (4 and 3, respectively).

There has been a total of 284 pertussis notifications reported in EpiSurv since first week of 2012 (compared to 37 the same time in 2011), including 103 confirmed cases, 89 probable cases, four suspect cases, and 88 cases still under investigation. 14 hospitalisations and no deaths have been reported during this period.

In the last two weeks, the highest number of notifications was reported in Nelson Marlborough DHB (59 cases). The highest cumulative rate was recorded in Nelson Marlborough (57.2 per 100 000, 79 cases), followed by West Coast (36.7 per 100 000, 12 cases) and Tairāwhiti (36.6 per 100 000, 17 cases) DHBs. The highest number of cumulative notifications was reported from Nelson Marlborough DHB (79 cases), followed by Canterbury (41 cases), Capital and Coast (35), Hutt Valley (17) and Tairāwhiti (17) DHBs.

This report summarises pertussis notifications for 2012 (first surveillance week starts on 31 December 2011) and new cases in the last two weeks (ending 20 January 2012), and incorporates the temporal distribution of cases, 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 2010, 2011 and 2012 (to week ending 20 January). Notifications for the past two weeks of 2012 remain well above 2011 and 2010, though in 2011 they have been running above 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 ones. Note the total number of notifications may change as cases are investigated further and some are found not to meet the case definition. No deaths have been reported since the beginning of this year.

Figure 1: Comparative epidemic curves of total pertussis notifications by week reported during years 2010, 2011 and 2012 (surveillance week = Saturday to Friday inclusive).

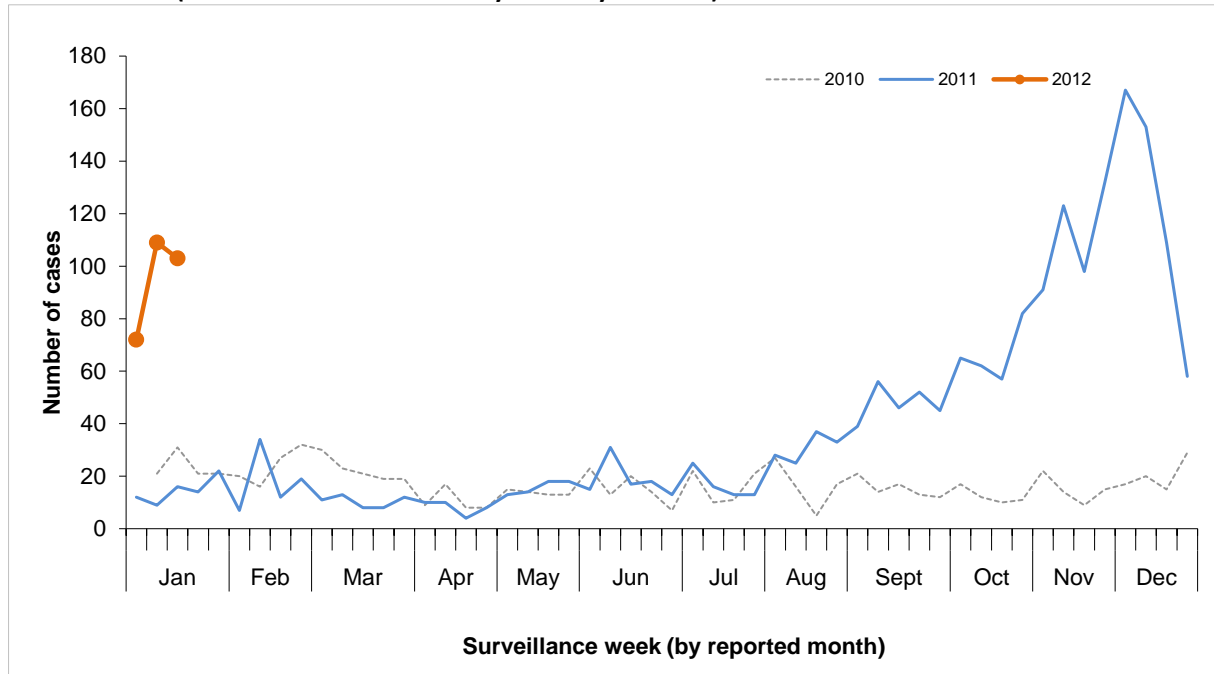
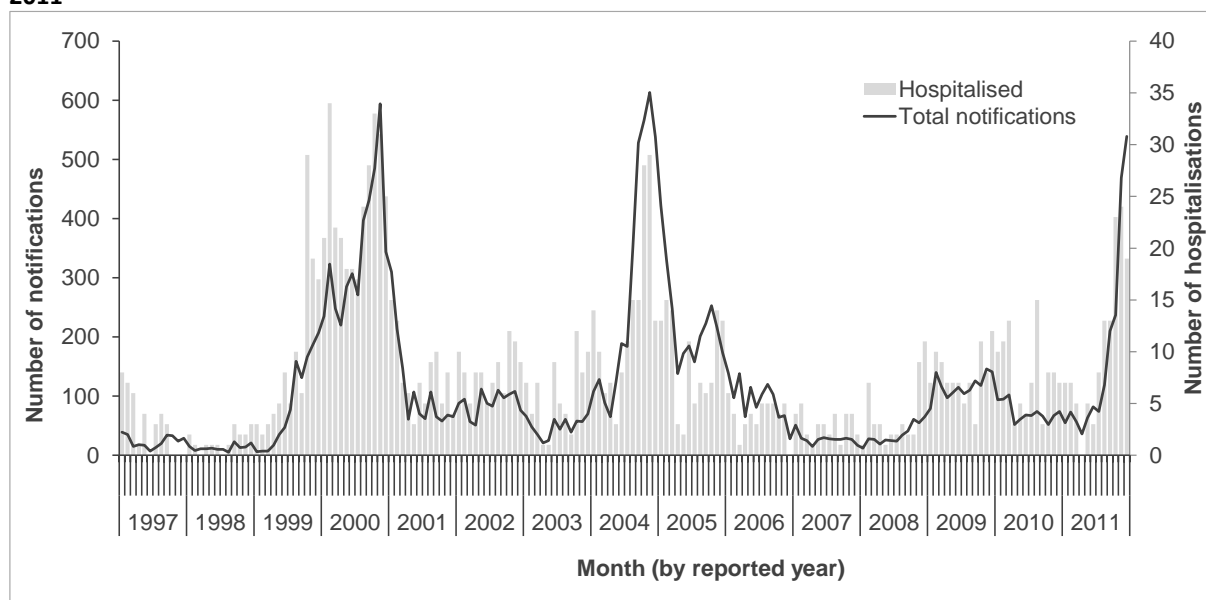


Figure 2 shows pertussis notifications and hospitalisations by calendar month between 1 January 1997 and 31 December 2011. A four to five-year cycle can be seen with large peaks in notifications in years 2000 and 2004 and a much smaller peak in 2009. However, notifications have been rising again since May 2011. Increases in hospitalisations show a similar cycle, although peaks in hospitalisations do not always coincide with peaks in notifications.

Figure 2: Pertussis notifications and hospitalisations by calendar month-year since 1997 up to 31 December 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 in 2012, infants had the highest cumulative incidence of pertussis cases (43.9 per 100 000 population, 28 cases), followed by the 5 to 9 years (16.7 per 100 000, 48 cases), and 1 to 4 years (16.1 per 100 000, 40 cases), and age groups. Of the cumulative cases with known age, three (1.1%) were infants under 6 weeks of age.

Figure 3: Age-specific pertussis cases per 100 000 populations in 2012

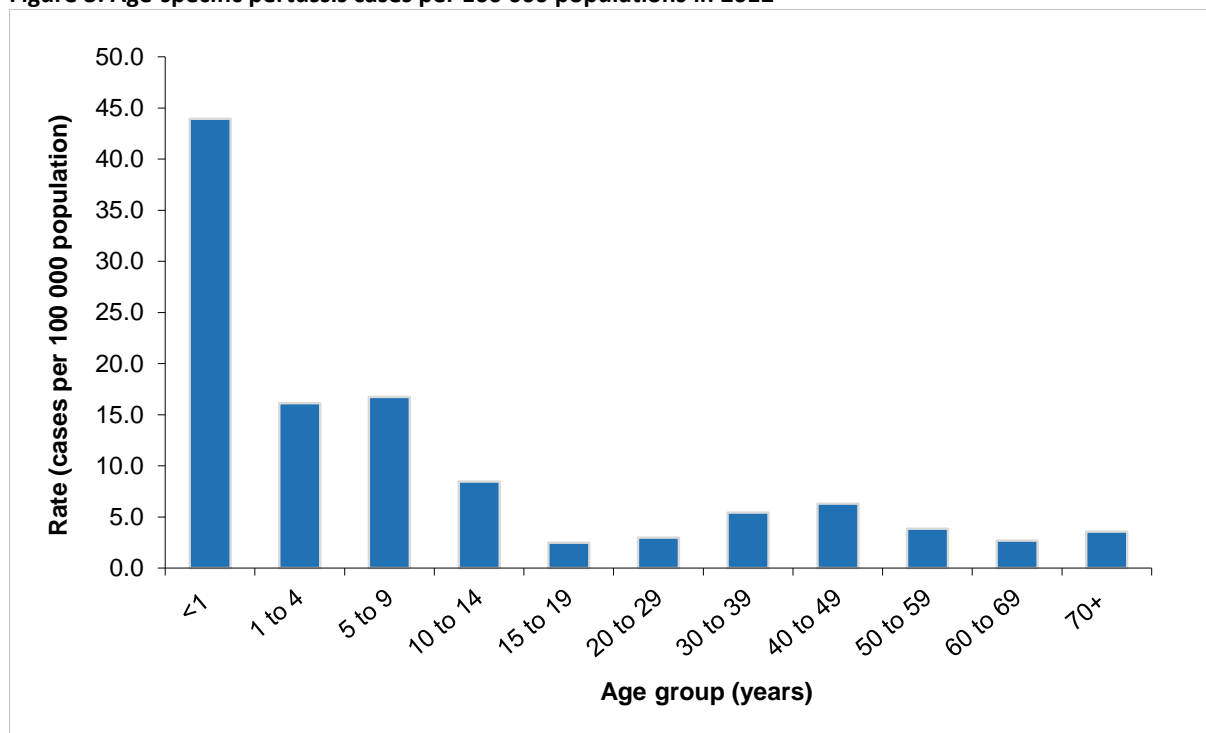


Table 1: Pertussis cases and rates by age group in 2012, and new cases in the last two weeks

Age group (Years)	Cumulative ² notifications			Last two weeks ³	
	Cases	Rates ¹	Hosp	New cases	Hosp
<1	28	43.9	11	16	5
1 to 4	40	16.1	0	28	0
5 to 9	48	16.7	0	41	0
10 to 14	25	8.5	0	20	0
15 to 19	8	2.5	0	7	0
20 to 29	18	3.0	0	15	0
30 to 39	31	5.4	1	21	1
40 to 49	40	6.3	0	30	0
50 to 59	21	3.9	2	17	1
60 to 69	11	2.7	0	6	0
70+	14	3.6	0	11	0
Unknown	-	-	-	-	-
Overall	284	6.5	14	212	7

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

²Cumulative notifications since 31 December 2011

³Notifications between 7 and 20 January 2012

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 (146 cases), followed by Māori (25 cases). Of the total notifications in 2012, the ethnic-specific rates were highest for the European ethnic group (7.3 per 100 000, 196 cases), followed by Māori (6.9 per 100 000, 39 cases) and Pacific Peoples (3.1 per 100 000, 7 cases).

Table 2: Pertussis cases and rates by ethnicity (prioritised) in 2012, and new cases in the last two weeks

Ethnicity	Cumulative ² notifications			Last two weeks ³	
	Cases	Rates ¹	Hosp	New cases	Hosp
Maori	39	6.9	5	25	2
Pacific Peoples	7	3.1	1	4	0
Other	10	2.7	1	7	0
European	196	7.3	6	146	4
Unknown	32		1	30	1
Overall	284	7.1	14	212	7

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

²Cumulative notifications since 31 December 2011

³Notifications between 7 and 20 January 2012

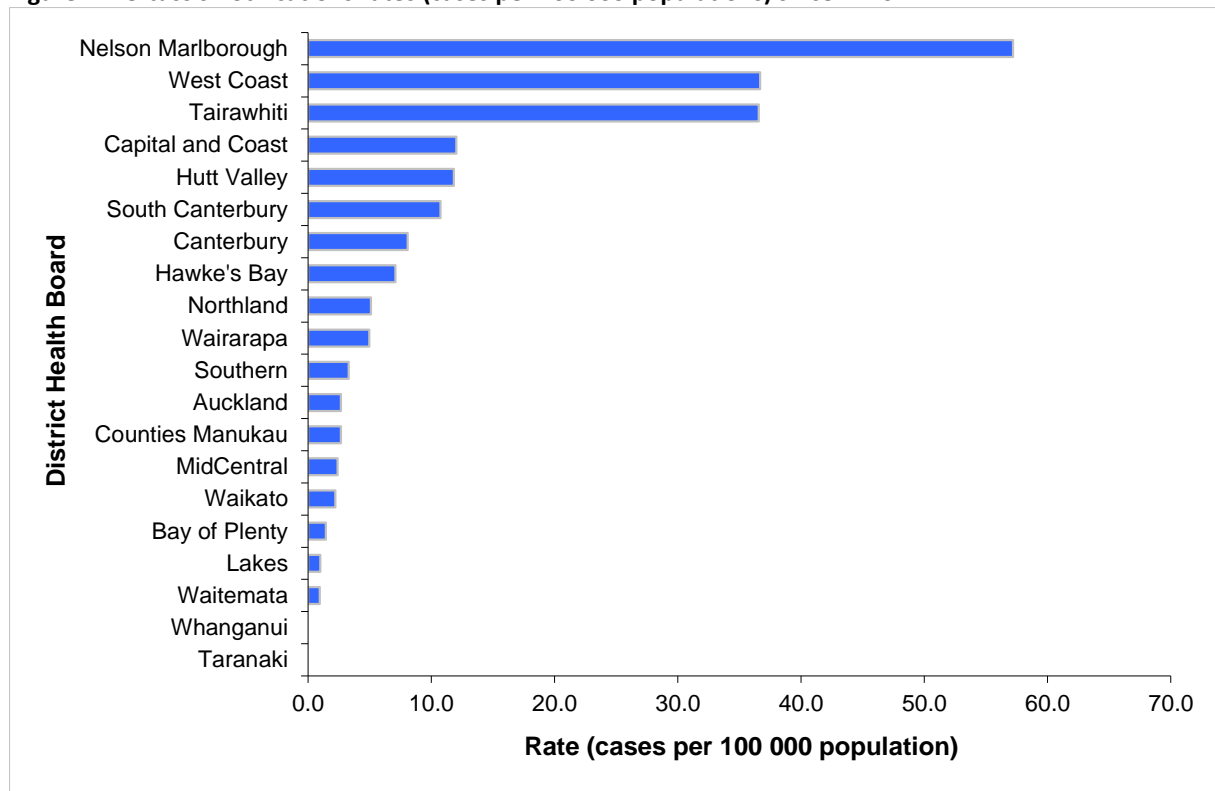
Hospitalisations

The distribution of hospitalisations by age group, ethnicity, and DHB is described in Table 1, Table 2 and Table 3 respectively. In the last three weeks, seven hospitalisations were recorded in the following age groups: less than 1 year (5 cases), 30-39 years and 50-59 years (1 case each). There have been 14 hospitalisations reported in EpiSurv in 2012. Eleven (78.6%) of these were infants aged less than one year including three cases aged less than six weeks. Auckland and Counties Manukau DHBs had the highest number of cumulative hospitalisations (4 and 3 cases respectively).

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 (59 cases). The highest cumulative rate was recorded also in Nelson Marlborough (57.2 per 100 000, 79 cases), followed by West Coast (36.7 per 100 000, 12 cases) and Tairāwhiti (36.6 per 100 000, 17 cases) DHBs. The highest number of notifications was reported from Nelson Marlborough DHB (79 cases), followed by Canterbury (41 cases), Capital and Coast (35), Hutt Valley (17) and Tairāwhiti (17) DHBs.

Figure 4: Pertussis notifications rates (cases per 100 000 populations) since in 2012.



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 for 2012, respectively. Of the 66 confirmed cases reported in the last two weeks, 45 (68.2%) had a known vaccination status. Of these 45 cases, 10 were not vaccinated. 10 cases had received one dose of vaccine, three had received three doses, 11 had received four doses, and six 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 (7 to 20 January 2012)

Age Group	Total cases	One dose	Two doses	Three doses	Four doses	Five doses	Vaccinated (no dose info)	Not vaccinated	Unknown
<6wks	0	0	0	0	0	0	0	0	0
6wks - 2mths	0	0	0	0	0	0	0	0	0
3-4 mths	1	0	0	0	0	0	0	0	1
5mths - 3yrs	7	0	0	2	3	0	1	1	0
4 - 10yrs	21	1	0	1	7	5	0	5	2
11+ yrs	37	9	0	0	1	1	4	4	18
Total	66	10	0	3	11	6	5	10	21

Of the 103 confirmed cases with known age reported during 2012, 70 (68.0%) had a known vaccination status (Table 4). Of these 70 cases, 19 were not vaccinated. Sixteen cases had received one dose of vaccine, two cases had received two doses, three cases had received three doses, 14 cases had received four doses, and six cases reported having completed pertussis vaccination. A further 10 cases reported being vaccinated but no dose information was available.

Table 4: Immunisation status of pertussis cases (confirmed) notified in 2012 (since 31 December 2011)

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	0	1
6wks - 2mths	1	1	0	0	0	0	0	0	0
3-4 mths	2	1	0	0	0	0	0	0	1
5mths - 3yrs	15	0	2	2	3	0	4	2	2
4 - 10yrs	31	4	0	1	10	5	0	9	2
11+ yrs	53	10	0	0	1	1	6	8	27
Total	103	16	2	3	14	6	10	19	33

Appendix

Table 5: Pertussis cases and rates by DHB in 2012, and new cases in the last two weeks

DHB	Cumulative ² notifications			Last two weeks ³	
	Cases	Rates ¹	Hosp	Cases	Hosp
Northland	8	5.1	0	7	0
Waitemata	5	0.9	0	5	0
Auckland	12	2.7	4	10	3
Counties Manukau	13	2.6	3	9	2
Waikato	8	2.2	2	5	0
Lakes	1	1.0	0	1	0
Bay of Plenty	3	1.4	0	3	0
Tairāwhiti	17	36.6	1	11	0
Taranaki	0	-	-	0	-
Hawke's Bay	11	7.1	0	9	0
Whanganui	0	-	0	0	-
MidCentral	4	2.4	0	4	0
Hutt Valley	17	11.8	0	15	0
Capital and Coast	35	12.0	1	26	1
Wairarapa	2	5.0	0	1	0
Nelson Marlborough	79	57.2	0	59	0
West Coast	12	36.7	0	8	0
Canterbury	41	8.1	1	30	1
South Canterbury	6	10.7	0	5	0
Southern	10	3.3	2	4	0
Total	284	6.5	14	212	7

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 since 31 December 2011

³Notifications between 7 and 20 January 2012

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