

PERTUSSIS REPORT

February 2012

This report includes cases of pertussis reported in EpiSurv up to midnight 17 February 2012. Data were extracted from EpiSurv at 10.00 am 21 February 2012.

Summary

In the past two surveillance weeks (4 - 17 Feb 2012), 218 new cases of pertussis (99 and 119 cases, respectively) were notified, including 72 confirmed cases, 77 probable cases, three suspect cases, and 66 cases still under investigation. 11 hospitalisations were reported during this period (all in the last week).

There has been a total of 715 pertussis notifications reported in EpiSurv since first week of 2012 (compared to 114 the same time in 2011), including 298 confirmed cases, 318 probable cases, seven suspect cases, and 92 cases still under investigation. 34 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 (52 cases) and Canterbury (45 cases) DHBs. The highest cumulative rate in 2012 was recorded in Nelson Marlborough (125.3 per 100 000, 173 cases), followed by West Coast (85.5 per 100 000, 28 cases) and Tairāwhiti (68.8 per 100 000, 32 cases) DHBs. The highest number of notifications was also reported from Nelson Marlborough DHB (173 cases), followed by Canterbury (146 cases), Capital and Coast (80), Hutt Valley (51) and Tairāwhiti (32) 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 3 February 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 17 February). 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 remained almost level 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. 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).

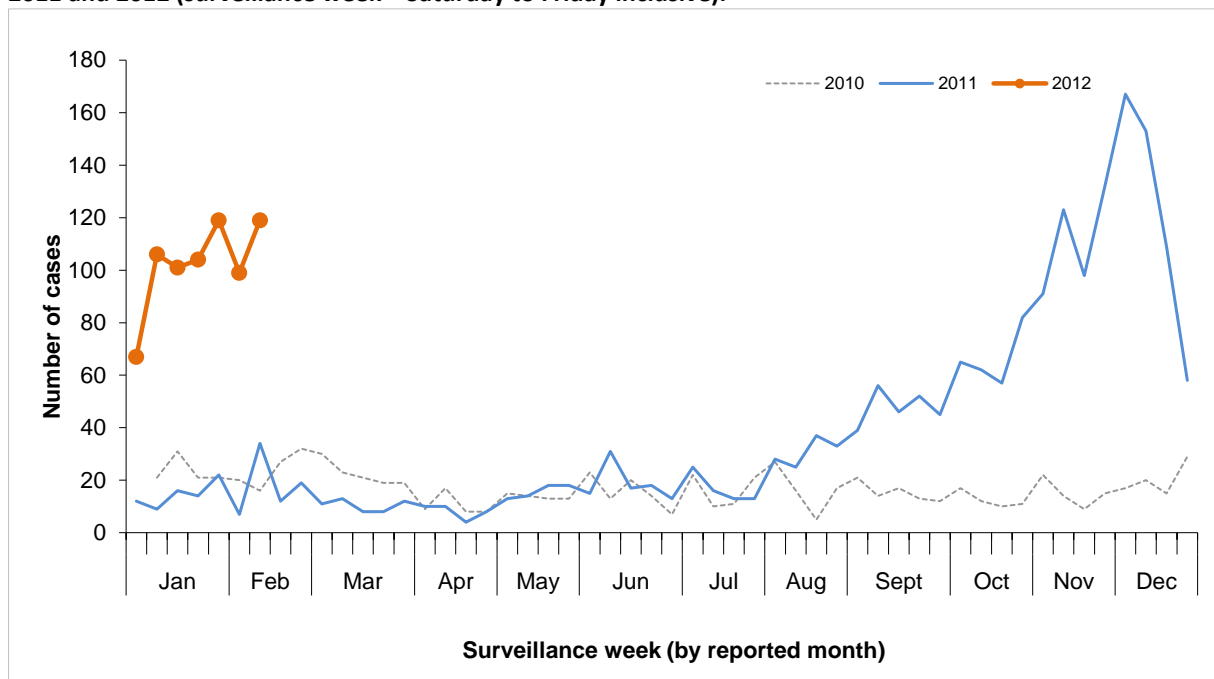
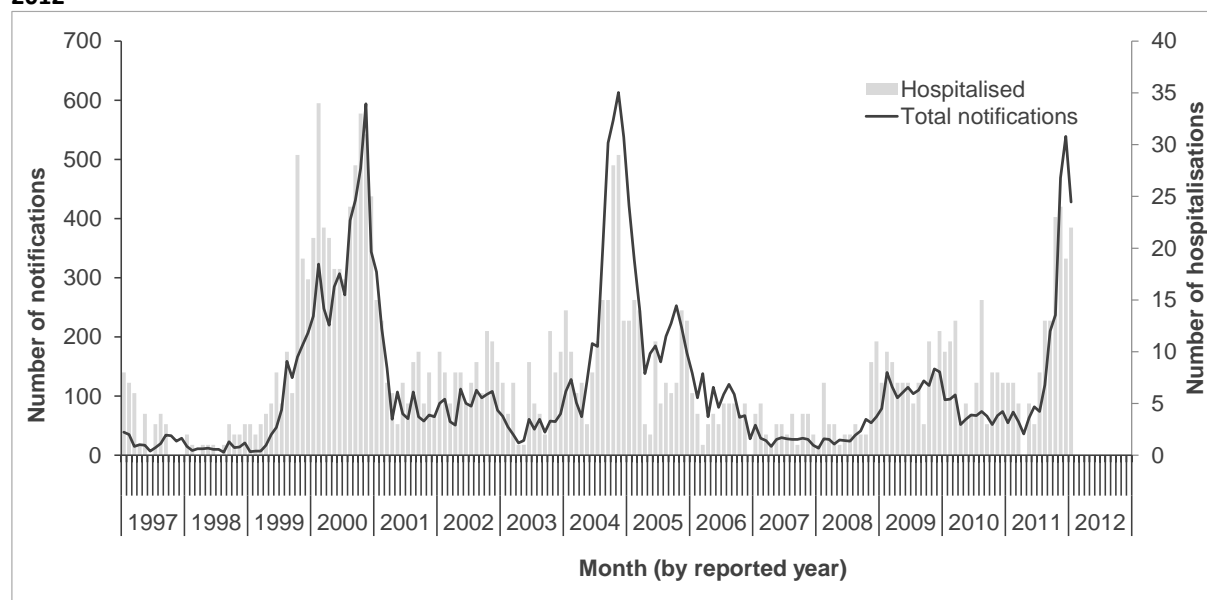


Figure 2 shows pertussis notifications and hospitalisations by calendar month between 1 January 1997 and 31 January 2012. A four to five-year cycle can be seen with large peaks in notifications in years 2000 and 2004 and a much smaller peak in 2009. However, notifications have been rising again since 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 January 2012

Age distribution of cases

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 (91.0 per 100 000 population, 58 cases), followed by the 1 to 4 years (47.6 per 100 000, 118 cases), and 5 to 9 years (29.6 per 100 000, 85 cases) age groups. Of the 713 cumulative cases with known age, four (0.6%) were infants under 6 weeks of age. Figure 3 shows the cumulative incidence of pertussis cases by age group and ethnicity in 2012. In the less than 1 year age group Māori had the highest rates, while in older age groups the European ethnic group had the highest rates.

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

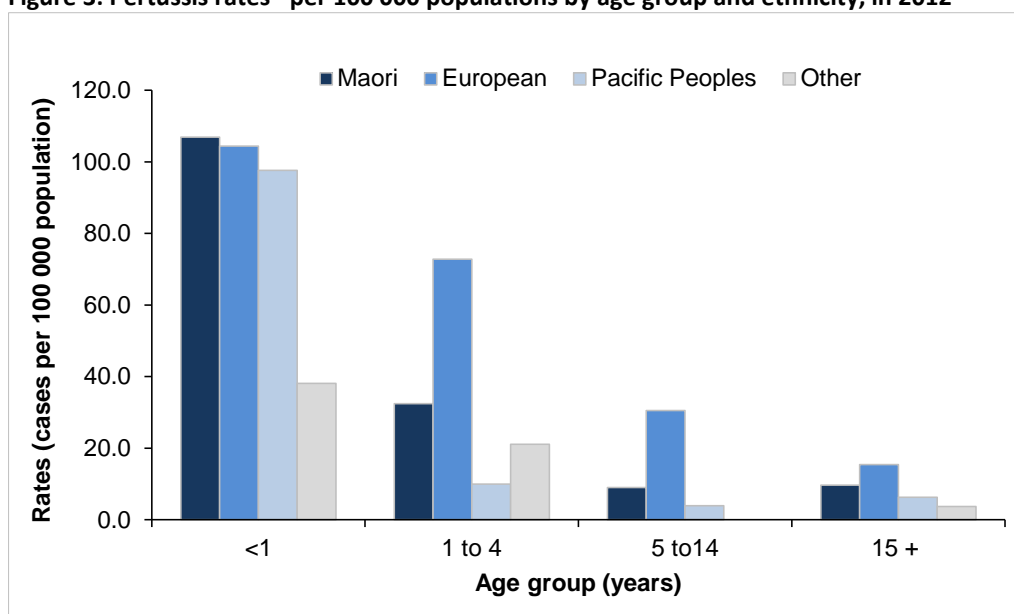
Age group (Years)	Cumulative ² notifications			Last two weeks ³	
	Cases	Rates ¹	Hosp	New cases	Hosp
<1	58	91.0	25	20	8
1 to 4	118	47.6	2	38	1
5 to 9	85	29.6	1	22	0
10 to 14	57	19.3	0	16	0
15 to 19	25	7.8	0	7	0
20 to 29	54	8.9	0	19	0
30 to 39	85	14.9	3	22	2
40 to 49	107	16.9	0	32	0
50 to 59	59	10.9	3	18	0
60 to 69	30	7.4	0	12	0
70+	35	8.9	0	11	0
Unknown	2		0	1	0
Overall	715	16.4	34	218	11

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

²Cumulative notifications since 31 December 2011

³Notifications between 4 and 17 February 2012 inclusive

Hosp: hospitalisation counts

Figure 3: Pertussis rates* per 100 000 populations by age group and ethnicity, in 2012

Rate of pertussis cases per 100 000 population calculated using census 2006 population
Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

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 (159 cases), followed by Māori (24 cases). Of the total notifications in 2012, the ethnic-specific cumulative rates were highest for the European ethnic group (19.9 per 100 000, 535 cases), followed by Māori (14.2 per 100 000, 80 cases) and Pacific Peoples (8.4 per 100 000, 19 cases). Figure 3 shows Māori had the highest rates in the under 1-year age group, while European ethnic group had the highest rates in older age groups.

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	80	14.2	11	24	4
Pacific Peoples	19	8.4	5	9	3
Other	18	4.8	1	4	0
European	535	19.9	16	159	4
Unknown	63		1	22	0
Overall	715	17.8	34	218	11

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

²Cumulative notifications since 31 December 2011

³Notifications between 4 and 17 February 2012 inclusive

Figure 5 (appendix) shows the trend of cumulative pertussis rates (per 100 000 population) by age group and ethnicity for years 2003 to 2012. Rates of pertussis have been highest among Pacific Peoples in the less than 1-year age group, while in other age groups rates have been highest in the European ethnic group.

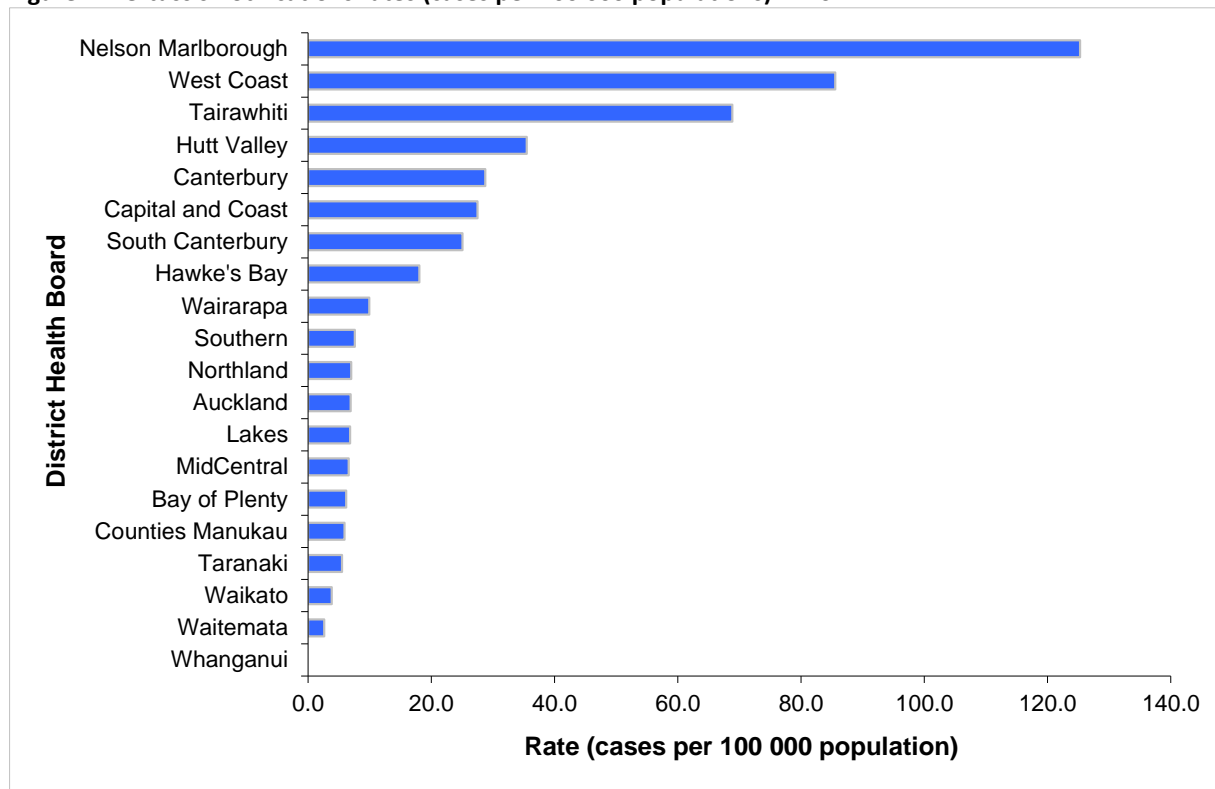
Hospitalisations

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, 11 hospitalisations were recorded in the following age groups: less than 1 year (8 cases), 1-4 (1 case) and 30-39 years (2 cases). There have been 34 hospitalisations reported in EpiSurv in 2012. Twenty-five (70.6%) of these were infants aged less than one year including four cases aged less than six weeks. Counties Manukau DHB had the highest number of cumulative hospitalisations (8) followed by Auckland and Southern (4 each). Of the cases with known ethnicity and hospitalisation status, ethnic-specific proportion of hospitalisations was as followed: Māori (16.7%, 11/66), Pacific Peoples (26.3%, 5/19), Other (8.3%, 1/12), and European (3.3%, 16/481).

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 (52 cases) and Canterbury (45 cases) DHBs. The highest cumulative rate in 2012 was recorded in Nelson Marlborough (125.3 per 100 000, 173 cases), followed by West Coast (85.5 per 100 000, 28 cases) and Tairāwhiti (68.8 per 100 000, 32 cases) DHBs. The highest number of notifications was also reported from Nelson Marlborough DHB (173 cases), followed by Canterbury (146 cases), Capital and Coast (80), Hutt Valley (51) and Tairāwhiti (32) DHBs.

Figure 4: Pertussis notifications rates (cases per 100 000 populations) 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 72 confirmed cases reported in the last two weeks, 42 (58.3%) had a known vaccination status. Of these 42 cases, 17 were not vaccinated. Three cases had received one dose of vaccine, two had received two doses, 11 had received three doses, three had received four doses, and two cases reported having completed pertussis vaccination. Four cases reported being vaccinated but no dose information was available.

Table 3: Immunisation status¹ of pertussis cases (confirmed) notified in the last two weeks (ending 17 Feb.)

Age Group	Total cases	One dose	Two doses	Three doses	Four doses	Five doses	Vaccinated		Unknown
							(no dose info)	Not vaccinated	
<6wks									
6wks - 2mths	5	1	0	0	0	0	0	1	3
3-4 mths	1	0	1	0	0	0	0	0	0
5mths - 3yrs	18	0	1	9	0	0	0	6	2
4 - 10yrs	10	0	0	2	2	1	0	3	2
11+ yrs	38	2	0	0	1	1	4	7	23
Total	72	3	2	11	3	2	4	17	30

¹Immunisation status has been extracted from Episurv notifications and is based on parental recall only.

Of the 297 confirmed cases with known age reported during 2012, 205 (69.0%) had a known vaccination status (Table 4). Of these 205 cases, 73 were not vaccinated. Twenty-four cases had received one dose of vaccine, four cases had received two doses, 24 cases had received three doses, 28 cases had received four doses, and 18 cases reported having completed pertussis vaccination. A further 34 cases reported being vaccinated but no dose information was available.

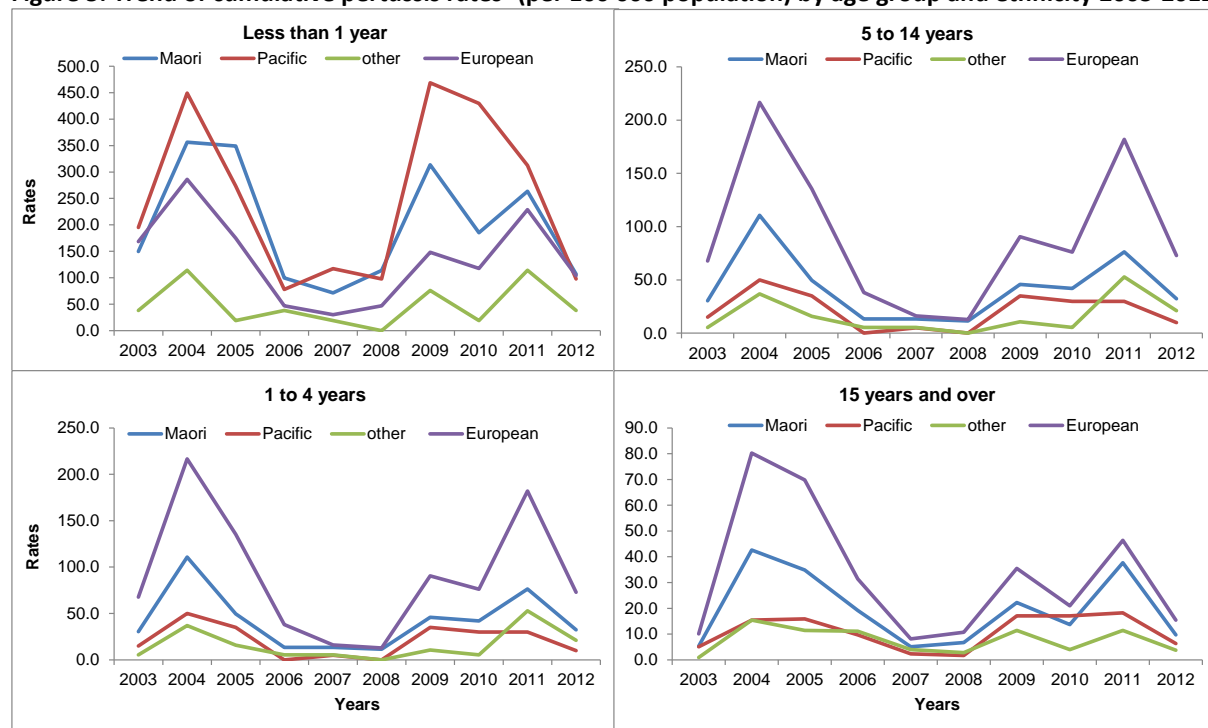
Table 4: Immunisation status¹ of pertussis cases (confirmed) notified in 2012 (since 31 December 2011)

Age Group	Total cases	One dose	Two doses	Three doses	Four doses	Five doses	Vaccinated		Unknown
							(no dose info)	Not vaccinated	
<6wks	1	0	0	0	0	0	0	0	1
6wks - 2mths	7	3	0	0	0	0	0	1	3
3-4 mths	5	1	1	0	0	0	0	3	0
5mths - 3yrs	61	0	3	18	7	0	5	20	8
4 - 10yrs	66	5	0	6	16	12	1	22	4
11+ yrs	157	15	0	0	5	6	28	27	76
Total	297	24	4	24	28	18	34	73	92

¹Immunisation status has been extracted from Episurv notifications and is based on parental recall only.

Appendix

Figure 5: Trend of cumulative pertussis rates¹ (per 100 000 population) by age group and ethnicity 2003-2012



¹Rate of pertussis cases per 100 000 population calculated using census 2006 population

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	11	7.0	0	1	0
Waitemata	14	2.6	1	3	0
Auckland	31	6.9	4	8	0
Counties Manukau	29	5.9	8	12	4
Waikato	14	3.8	2	4	0
Lakes	7	6.8	0	5	0
Bay of Plenty	13	6.2	1	5	1
Tairāwhiti	32	68.8	1	4	0
Taranaki	6	5.5	0	3	0
Hawke's Bay	28	18.0	2	6	2
Whanganui	0	0.0	0	0	0
MidCentral	11	6.6	1	4	0
Hutt Valley	51	35.5	3	24	2
Capital and Coast	80	27.5	1	22	0
Wairarapa	4	9.9	1	2	0
Nelson Marlborough	173	125.3	1	52	0
West Coast	28	85.5	1	8	0
Canterbury	146	28.7	2	45	1
South Canterbury	14	25.1	1	2	0
Southern	23	7.6	4	8	1
Total	715	16.4	34	218	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 since 31 December 2011

³Notifications between 4 and 17 February 2012 inclusive

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>.