

PERTUSSIS REPORT

September 2011 (Week 35)

This report includes cases of pertussis reported in EpiSurv up to midnight 2 September 2011. Data was extracted from EpiSurv at 10.00 am 6 September 2011.

Summary

A noticeable increase of pertussis notifications have been recorded in the past four months, with 117 cases in August 2011 alone, compared to 74 the same time last year. In the past week ending 2 September 2011, 37 new cases of pertussis were notified (a slight increase from 35 cases in the previous week), including 15 confirmed cases, five probable cases, two suspect cases, and 15 cases still under investigation.

Three hospitalisations were reported in the last week.

There has been a total of 578 pertussis notifications reported in EpiSurv since 1 January 2011 (604 the same period in 2010), including 291 confirmed cases, 235 probable cases, 19 suspect cases, and 33 cases still under investigation.

Forty-three hospitalisations and one death have been reported during this period.

The highest cumulative rate since 1 January 2011 was recorded in West Coast DHB (140.5 per 100 000 population, 46 cases), Hawke's Bay (41.9 per 100 000, 65 cases), Capital and Coast (27.1 per 100 000, 79 cases) and Nelson Marlborough (26.8 per 100 000, 37 cases) DHBs. Capital and Coast DHB reported the highest number of notifications (79 cases) over this period followed by Canterbury DHB (66 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 2009, 2010 and 2011 (to date). Notifications in 2011 have generally been running below 2009 levels. After a drop during week 31, the number of cases has increased in the past four weeks and exceeded previous years' levels over the last three weeks. However, the total number of notifications may change as cases are investigated further and some are de-notified.

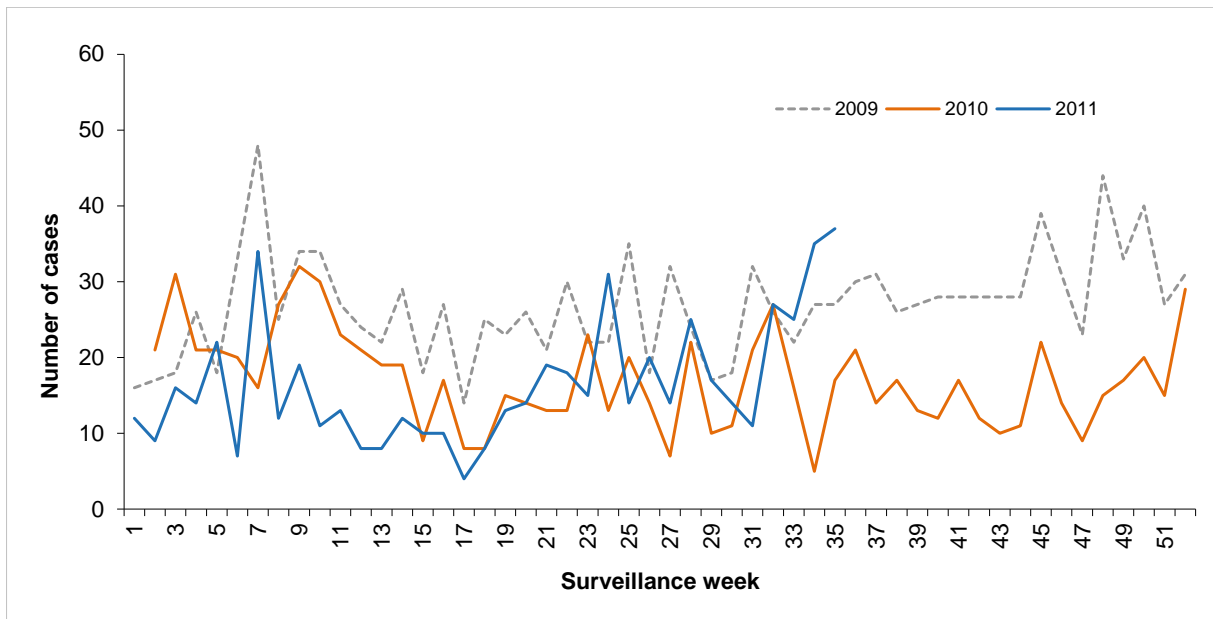
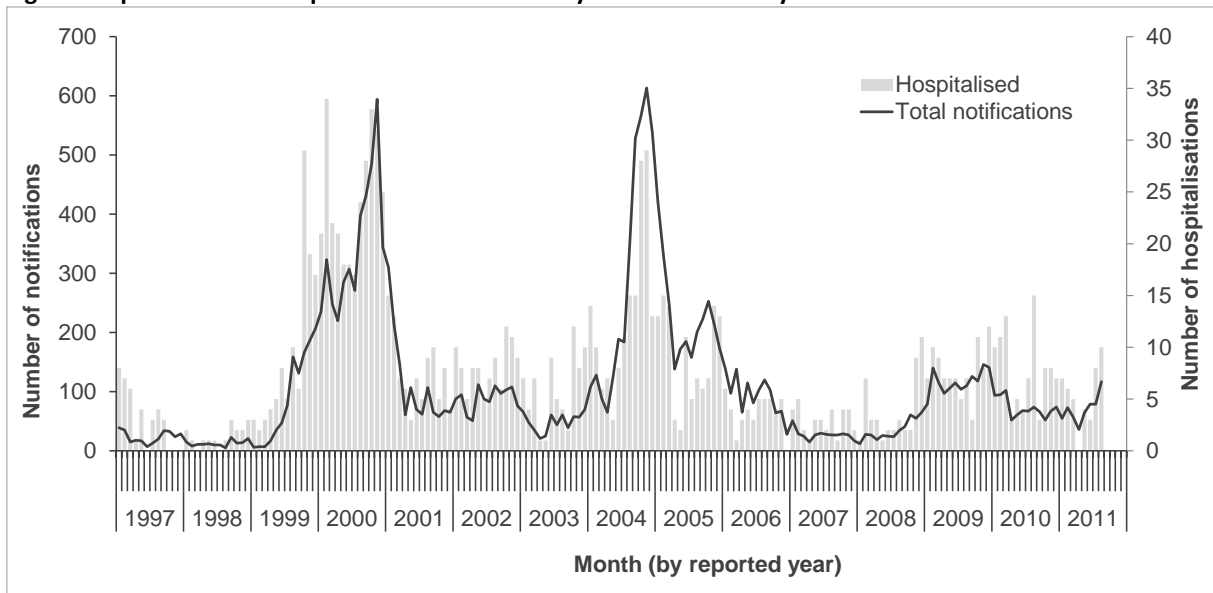


Figure 1: Comparative epidemic curves of total pertussis notifications by week reported during years 2009, 2010 and 2011 (surveillance week = Saturday to Friday inclusive).

Figure 2 shows pertussis notifications and hospitalisations by calendar month between January 1997 and August 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 begun to increase in the last four months with higher hospitalisations during August. There was one death under 6 weeks of age reported since the beginning of 2011.

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 week. 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 (62.8 per 100 000 population, 40 cases), followed by the 1 to 4 years (26.6 per 100 000, 66 cases) and 5 to 9 years (22.7 per 100 000, 65 cases) age groups. Of the 578 cumulative cases, five (0.9%) were infants under 6 weeks of age.

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

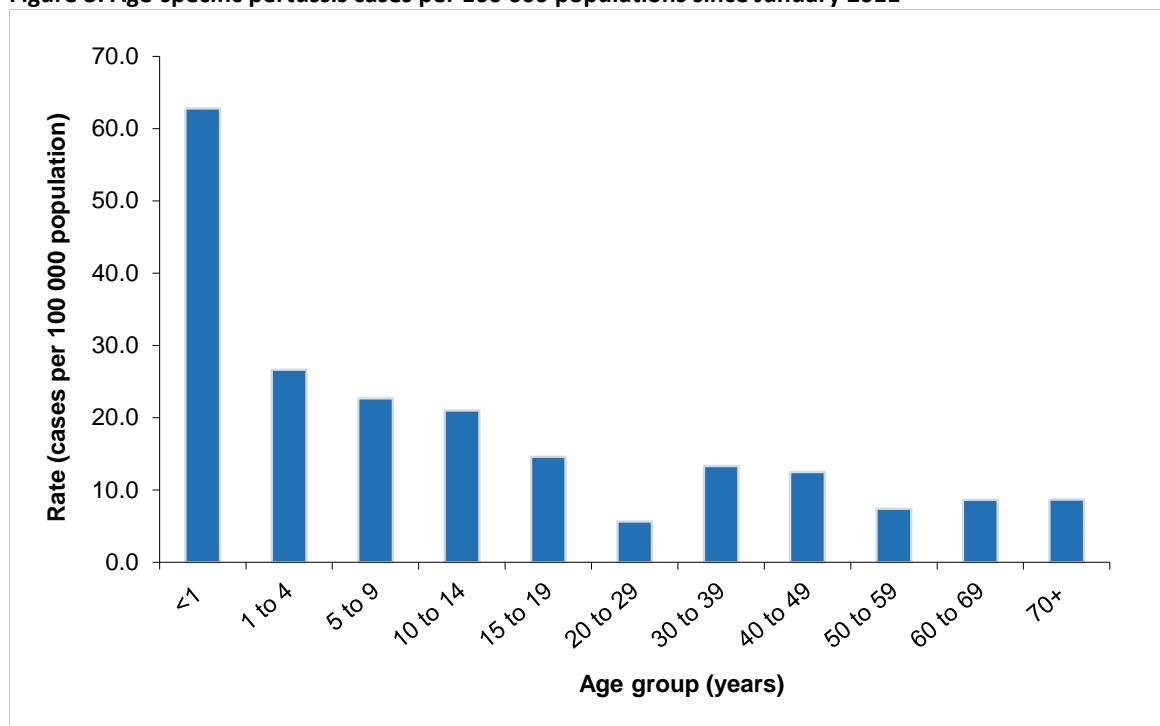


Table 1: Pertussis cases and rates by age group since 1 January 2011, including new cases in the last week

Age group (Years)	Cumulative ² notifications			Last week ³	
	Cases	Rates ¹	Hosp	New cases	Hosp
<1	40	62.8	25	2	2
1 to 4	66	26.6	6	3	0
5 to 9	65	22.7	1	7	0
10 to 14	62	21.0	4	6	0
15 to 19	47	14.6	0	3	0
20 to 29	34	5.6	2	2	0
30 to 39	76	13.3	1	2	0
40 to 49	79	12.5	0	5	0
50 to 59	40	7.4	2	2	1
60 to 69	35	8.6	1	2	0
70+	34	8.7	1	3	0
Unknown	0	-	0	0	0
Overall	578	13.2	43	37	3

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 2 September 2011

³Rates for the last week were not calculated because of small numbers (<5 cases) in majority of the categories

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 week (10 cases), followed by the Maori (5 cases) ethnic groups. Of the total notifications since 1 January 2011, the ethnic-specific rates were highest in European (15.7 per 100 000, 422 cases), followed by Maori (13.4 per 100 000, 76 cases) and Pacific Peoples (12.4 per 100 000, 28 cases) ethnicities.

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

Ethnicity	Cumulative ² notifications			Last week ³	
	Cases	Rates ¹	Hosp	New cases	Hosp
Maori	76	13.4	14	5	0
Pacific Peoples	28	12.4	9	1	1
Other	28	7.5	1	1	2
European	422	15.7	19	27	0
Unknown	24		0	3	0
Overall	578	14.3	43	37	3

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 2 September 2011

³Rates for the last two weeks were not calculated because of small numbers (<5 cases) in majority of the categories

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 week, three hospitalisations were recorded in the following age groups: less than 1 year (2 cases) and 50 to 59 years (1 case). There have been 43 hospitalisations reported in EpiSurv since 1 January 2011. Twenty-five (58.1%) of these were infants aged less than one year including five cases aged less than six weeks. Hawke's Bay DHB had the highest number of cumulative hospitalisations (14 cases of 43). Based on confirmed cases reported since 1 January 2011, ethnic-specific proportion of hospitalisations was highest in Pacific Peoples (42.1%, 8/19), followed by those of Maori (32.4%, 12/37), European (8.1%, 17/210), and the "Other" (7.1%, 1/14) 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 (140.5 per 100 000 population, 46 cases), followed by Hawke's Bay (41.9 per 100 000, 65 cases), Capital and Coast (27.1 per 100 000, 79 cases) and Nelson Marlborough (26.8 per 100 000, 37 cases) DHBs. Capital and Coast DHB reported the highest number of notifications (79 cases) over this period followed by Canterbury DHB (66 cases).

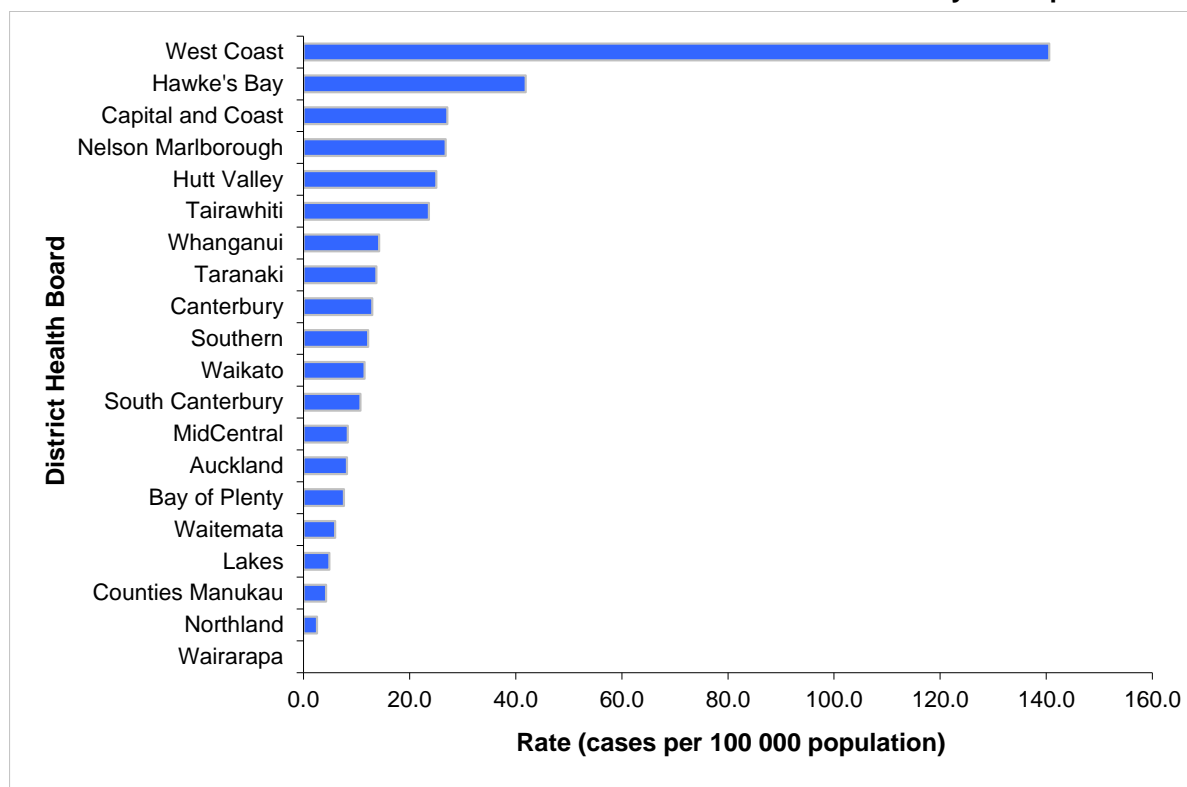


Figure 4: Geographic distribution of pertussis showing crude rates (cases per 100 000 populations) since 1 January 2011. Rates were calculated using 2010 mid-year population estimates. Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

Immunisation status

The immunisation status for confirmed pertussis cases is shown in Table 3 and Table 4 for the last two weeks and since 1 January 2011, respectively. Of the 15 confirmed cases reported in the last two weeks, eight (53.3%) had a known vaccination status. Of these eight cases, three were not vaccinated, one case had received one dose of vaccine and one case reported having completed pertussis vaccination. Three cases reported being vaccinated but no dose information was available.

Table 3: Immunisation status of pertussis cases (confirmed) notified in the last week

Age Group	Total cases	One dose	Two doses	Three doses	Four doses	Five doses	Vaccinated		
							(no dose info)	Not vaccinated	Unknown
<6wks									
6wks -									
2mths	1	1	0	-	-	-	-	-	-
3-4 mths	0	-	-	-	-	-	-	-	-
5mths - 3yrs	0	-	-	-	-	-	-	-	-
4 - 10yrs	5	0	0	0	0	1	2	1	1
11+ yrs	9	0	0	0	0	0	1	2	6
Total	15	1	0	0	0	1	3	3	7

Of the 291 confirmed cases reported since 1 January 2011, 191 (65.6%) had a known vaccination status (Table 4). Of these 191 cases, 90 were not vaccinated including four cases aged less than six weeks and therefore not eligible for vaccination. Nineteen cases had received one dose of vaccine, two cases had received two doses, 22 cases had received three doses, 13 cases had received four doses, and 12 cases reported having completed pertussis vaccination. A further 33 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		Unknown
							(no dose info)	Not vaccinated	
<6wks	4	0	0	0	0	0	0	4	0
6wks - 2mths	17	11	0	0	0	0	0	5	1
3-4 mths	3	0	0	0	0	0	0	2	1
5mths - 3yrs	43	3	1	14	4	0	1	18	2
4 - 10yrs	52	2	0	4	7	8	8	17	6
11+ yrs	172	3	1	4	2	4	24	44	90
Total	291	19	2	22	13	12	33	90	100

Appendix

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

DHB	Cumulative notifications			Last week ³	
	Cases	Rates ¹	Hosp	Cases	Hosp
Northland	4	2.5	2	1	1
Waitemata	32	6.0	2	1	0
Auckland	37	8.2	4	0	0
Counties Manukau	21	4.3	6	1	0
Waikato	42	11.5	2	4	0
Lakes	5	4.9	0	0	0
Bay of Plenty	16	7.6	1	0	0
Tairāwhiti	11	23.7	0	0	0
Taranaki	15	13.7	0	0	0
Hawke's Bay	65	41.9	14	10	0
Whanganui	9	14.2	0	0	0
MidCentral	14	8.4	2	0	0
Hutt Valley	36	25.0	2	1	0
Capital and Coast	79	27.1	1	2	0
Wairarapa	0	0.0	0	0	0
Nelson Marlborough	37	26.8	0	8	0
West Coast	46	140.5	0	4	0
Canterbury	66	13.0	5	5	2
South Canterbury	6	10.7	0	0	0
Southern	37	12.2	2	0	0
Total	578	13.2	43	37	3

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

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²Cumulative notifications between 1 January and 2 September 2011

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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