

PERTUSSIS REPORT

October 2010 (Weeks 43-44)

This report includes cases of pertussis reported in EpiSurv up to midnight 29 October 2010. Data was extracted from EpiSurv at 10.00 am 2 November 2010.

Summary

In the past two weeks ending 29 October 2010, 22 (11 and 11, consecutively) new cases of pertussis were notified, including 12 confirmed cases, five probable cases, one suspect case, and four cases still under investigation. This is a decrease from 31 cases in the previous two weeks,

Three hospitalisations were reported in the last two weeks.

There have been a total of 752 cases of pertussis notified in EpiSurv since 26 December 2009 (the beginning of surveillance week 1 for 2010), including 387 confirmed cases, 328 probable cases, 19 suspect cases, and 18 cases still under investigation.

Eighty-one hospitalisations and no deaths have been reported during this period.

The highest cumulative rates of cases reported since 26 December 2009 was recorded in West Coast DHB (36.8 per 100 000 population, 12 cases), followed by Capital and Coast (33.7 per 100 000, 97 cases), Canterbury (30.3 per 100 000, 152 cases), and Taranaki (25.9 per 100 000, 28 cases) DHBs. During this period, Canterbury DHB had the highest number of notifications (152 cases), followed by Capital and Coast DHB (97 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 hospitalisation and immunisation status. The case classification used in this report is specified in the appendix.

Temporal distribution

Figure 1 shows number of pertussis cases notified by surveillance week for 2008, 2009 and 2010 (to date). After an initial peak in week 3, the 2010 trend has generally followed the 2009 trend but at slightly lower levels. As in previous years, a typical saw-tooth pattern is apparent from week 23 to date. Compared with the previous fortnight, the number of cases has decreased in the past two weeks. However, the total number of cases may change as cases are investigated further.

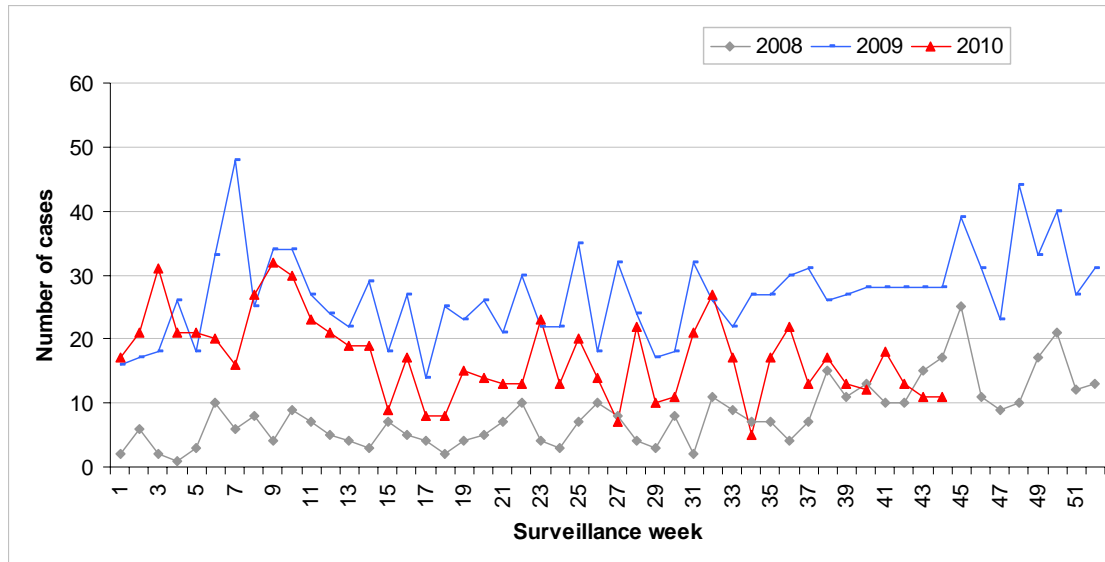


Figure 1: Comparative epidemic curves of total pertussis cases by week reported during years 2008, 2009 and 2010 (surveillance week = Saturday to Friday inclusive).

Figure 2 shows number of pertussis cases notified and hospitalisations by calendar month between January 1997 and August 2010. A four-year cycle can be seen with number of cases peaking in years 2000 and 2004. This cycle has not been seen since 2004 with peaks being absent in 2008, 2009 or now 2010. Monthly notifications remain low this year compared with the previous year. While notifications increased between April (62 cases) and August (75 cases), the last two months show a downward trend with 66 and 55 cases, respectively. In addition, nine hospitalisations were reported during October 2010 (vs. 11 in Oct. 2009).

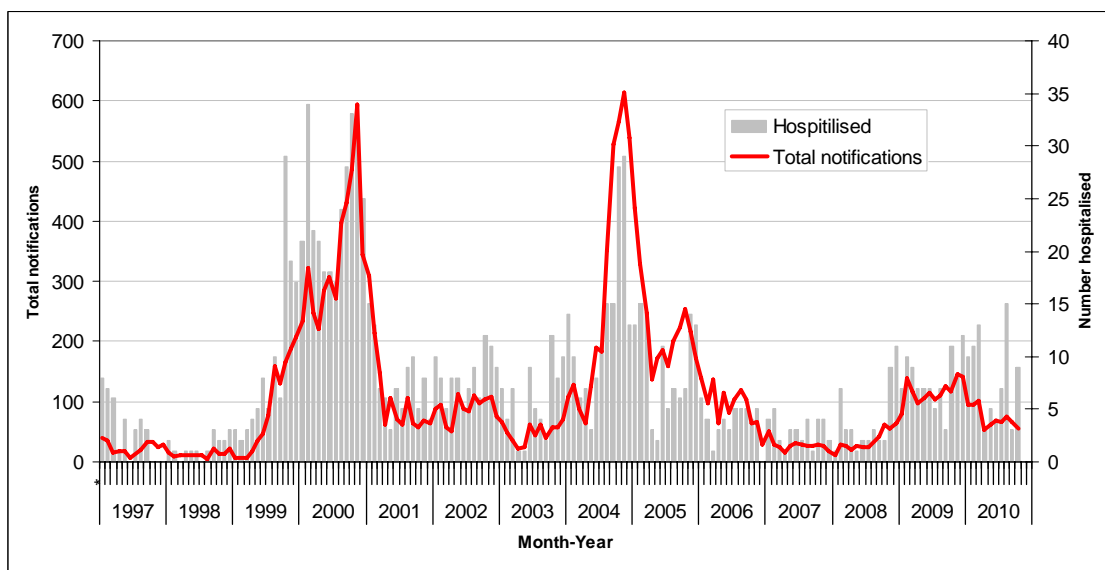


Figure 2: Epidemic curve of pertussis cases by calendar month-year since 1997 in New Zealand

Age distribution

Figure 3 displays the age-specific cumulative rate of pertussis cases and Table 1 shows notifications and associated rates by age, including new cases for the past two weeks. Of the cases reported since 26 December 2009, infants aged less than one year had the highest cumulative rate (114.2 per 100 000 population, 72 cases), followed by the 1 to 4 years (44.1 per 100 000, 107 cases) and 5 to 9 years (24.6 per 100 000, 71 cases) age groups. There have been 10 (1.3%) notifications among infants aged less than 6 weeks, since 26 December 2009.

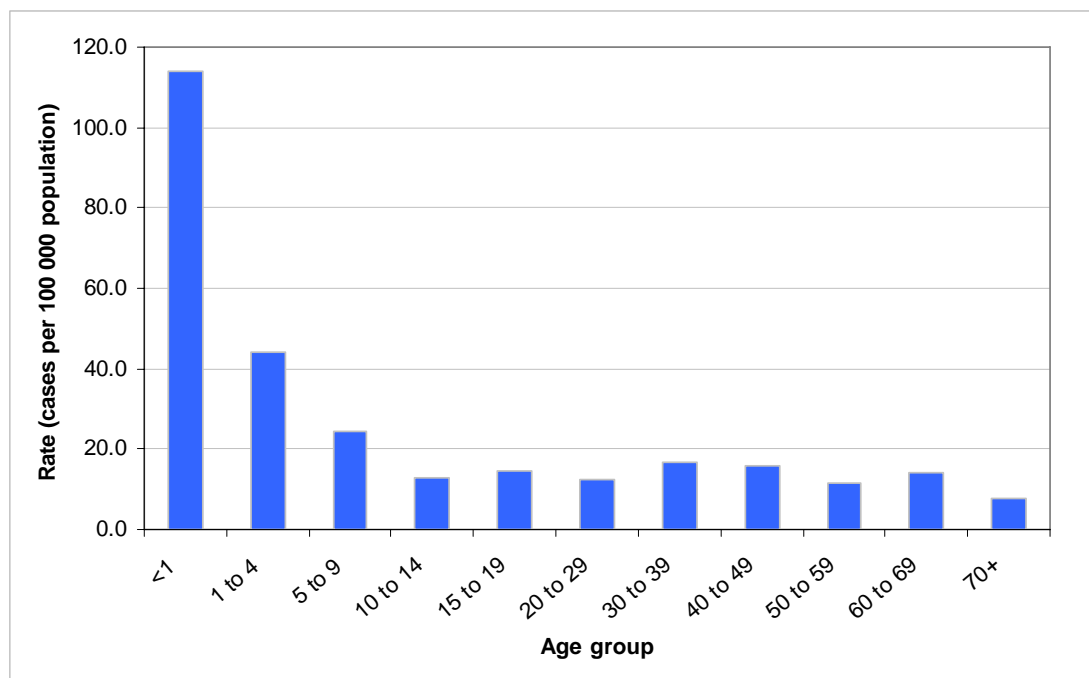


Figure 3: Age-specific rates (cases per 100 000 population) of cases reported since 26 December 2009

Table 1: Pertussis cases and rates by age group since 26 December 2009, including 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 | 72 | 114.2 | 47 | 2 | 1 |
| 1 to 4 | 107 | 44.1 | 9 | 3 | 1 |
| 5 to 9 | 71 | 24.6 | 1 | 2 | 1 |
| 10 to 14 | 38 | 12.8 | 5 | 1 | 0 |
| 15 to 19 | 47 | 14.5 | 2 | 2 | 0 |
| 20 to 29 | 72 | 12.3 | 4 | 3 | 0 |
| 30 to 39 | 96 | 16.7 | 3 | 4 | 0 |
| 40 to 49 | 102 | 16.1 | 1 | 1 | 0 |
| 50 to 59 | 62 | 11.7 | 5 | 3 | 0 |
| 60 to 69 | 56 | 14.3 | 2 | 1 | 0 |
| 70+ | 29 | 7.6 | 2 | 0 | 0 |
| Unknown | 0 | | 0 | 0 | 0 |
| Overall | 752 | 17.4 | 81 | 22 | 3 |

¹Rate of pertussis cases per 100 000 population calculated using 2009 mid-year population estimates. Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

²Cumulative notifications between 26 December 2009 and 29 October 2010

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

Ethnicity

Rates and number of cases notified by ethnicity are shown in Table 2. Of the 12 pertussis cases with known ethnicity reported in the past two weeks, the European ethnic group reported the highest number of cases (9 cases). Of the cases reported since 26 December 2009, the ethnic-specific rates were highest in Pacific Peoples (21.7 per 100 000 population, 49 cases), followed by those of European (20.6 per 100 000, 556 cases), and Maori (17.5 per 100 000, 99 cases) ethnicities.

Table 2: Pertussis cases and rates by ethnicity (prioritised) since 26 December 2009, including new cases in the last two weeks

| Ethnicity | Cumulative ² notifications | | | Last two weeks ³ | |
|-----------------|---------------------------------------|--------------------|-----------|-----------------------------|----------|
| | Cases | Rates ¹ | Hosp | New cases | Hosp |
| Maori | 99 | 17.5 | 23 | 2 | 0 |
| Pacific Peoples | 49 | 21.7 | 23 | 1 | 1 |
| Other | 15 | 4.0 | 2 | 0 | 0 |
| European | 556 | 20.6 | 32 | 9 | 2 |
| Unknown | 33 | | 1 | 10 | 0 |
| Overall | 752 | 18.7 | 81 | 22 | 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 26 December 2009 and 29 October 2010

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

Hosp: hospitalisation counts

Hospitalisations

The distribution of hospitalisations by age group, ethnicity, and DHB is described in Table 1, Table 2 and Table 5 respectively. In the last two weeks, three hospitalisations were reported; all aged less than 10 years. Two were Europeans and one was of Pacific Peoples ethnic group. There have been 81 hospitalisations reported in EpiSurv since 26 December 2009. Of the 81 hospitalisations, 47 (58.0%) were infants aged less than one year including eight cases aged less than six weeks. Counties Manukau DHB had the highest number of cumulative hospitalisations (20 cases). Of the confirmed cases with known hospitalisation status reported since 26 December 2009, the proportion of hospitalisations was highest in Pacific Peoples (74.1%, 20/27), followed by those of Maori (34.5%, 19/55), Other (14.3%, 1/7), and European (9.4%, 25/266) ethnicities.

Geographic distribution

The cumulative rates of pertussis cases notified since 26 December 2009 by DHB can be seen in Figure 4 and Table 5 (appendix). In the last two weeks, the highest number of cases was reported in Waitemata and Auckland (5 cases each) DHBs. Of the cases reported since 26 December 2009, the highest cumulative rate was recorded in West Coast DHB (36.8 per 100 000 population, 12 cases), followed by Capital and Coast (33.7 per 100 000, 97 cases), Canterbury (30.3 per 100 000, 152 cases), and Taranaki (25.9 per 100 000, 28 cases) DHBs. During this period, Canterbury DHB had the highest number of notifications (152 cases), followed by Capital and Coast DHB (97 cases).

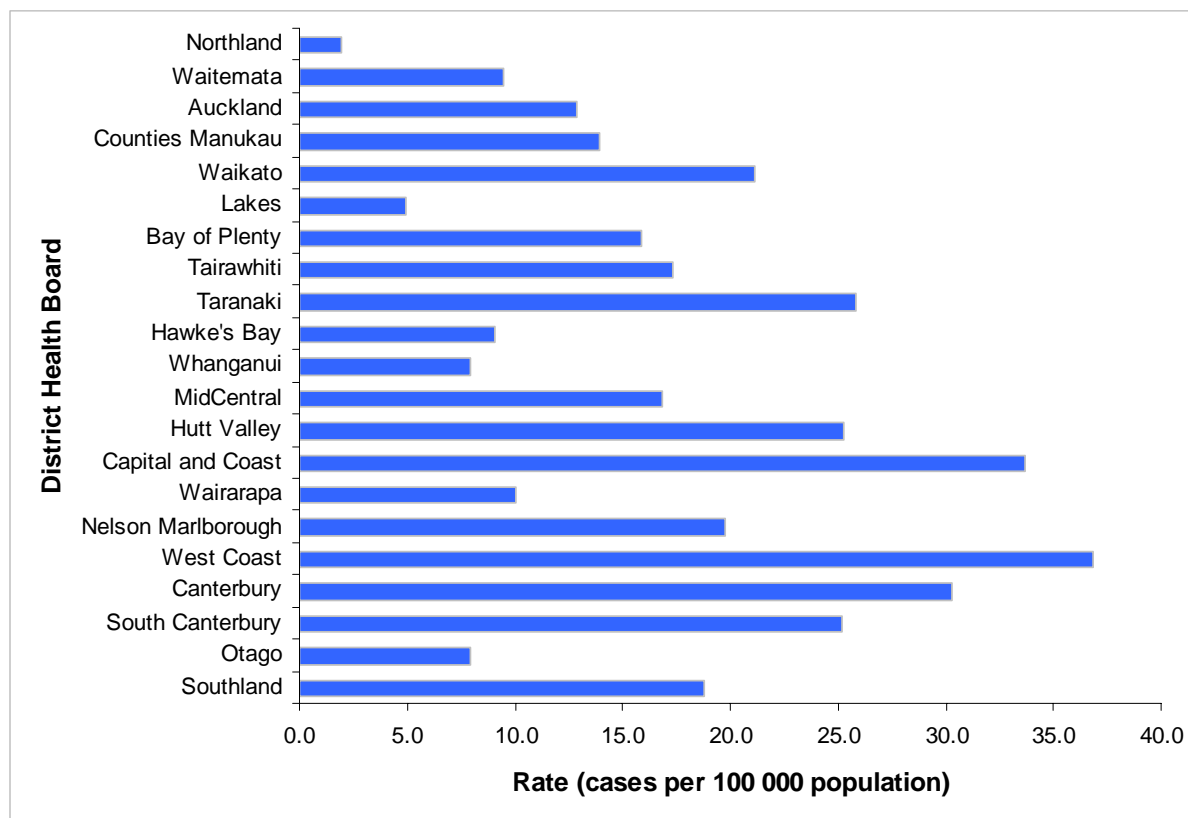


Figure 4: Geographic distribution of pertussis showing crude rates (cases per 100 000 population) of cases reported since 26 December 2009. Rates were calculated using 2009 mid-year population estimates. Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

Immunisation status

The immunisation status for confirmed pertussis cases is shown in case reported being vaccinated but no dose information was available.

Table 3 and Table 4 for cases reported in the last two weeks and since the 26 December 2009, respectively. Of the 12 confirmed cases reported in the last two weeks, six (50.0%) had a known vaccination status. Of these six cases, five were not vaccinated, and one case 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 | Vaccinated | | | | | | | Not vaccinated | Unknown |
|--------------|-------------|------------|-----------|-------------|------------|------------|----------------|---|----------------|---------|
| | | One dose | Two doses | Three doses | Four doses | Five doses | (no dose info) | | | |
| <6wks | | | | | | | | | | |
| 6wks - 2mths | 1 | - | - | - | - | - | - | 1 | - | |
| 3-4 mths | | | | | | | | | | |
| 5mths - 3yrs | 1 | - | - | - | - | - | - | 1 | - | |
| 4 - 10yrs | 3 | - | - | - | - | - | - | 3 | - | |
| 11+ yrs | 7 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | |
| Total | 12 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 6 | |

Of the 387 confirmed cases reported since 26 December 2009, 258 (66.7%) had a known vaccination status (Table 4). Of these 258 cases, 140 were not vaccinated including nine cases aged less than six weeks and therefore not eligible for vaccination. Twenty-nine cases had received one dose of vaccine, eight cases had received two doses, 27 cases had received three doses, 10 cases had received four doses, and 13 cases reported having completed their

pertussis vaccination. A further 31 cases reported being vaccinated but no dose information was available.

Table 4: Immunisation status of pertussis cases (confirmed) notified since 26 December 2009

| Age Group | Total cases | One dose | Two doses | Three doses | Four doses | Five doses | Vaccinated | | |
|--------------|-------------|-----------|-----------|-------------|------------|------------|----------------|----------------|------------|
| | | | | | | | (no dose info) | Not vaccinated | Unknown |
| <6wks | 10 | 0 | - | - | - | - | - | 9 | 1 |
| 6wks - 2mths | 24 | 9 | 0 | 0 | 0 | 0 | 0 | 14 | 1 |
| 3-4 mths | 16 | 6 | 4 | 0 | 0 | 0 | 1 | 4 | 1 |
| 5mths - 3yrs | 57 | 1 | 3 | 15 | 0 | 0 | 5 | 29 | 4 |
| 4 - 10yrs | 67 | 6 | 0 | 3 | 6 | 5 | 1 | 38 | 8 |
| 11+ yrs | 213 | 7 | 1 | 9 | 4 | 8 | 24 | 46 | 114 |
| Total | 387 | 29 | 8 | 27 | 10 | 13 | 31 | 140 | 129 |

Appendix

Table 5: Pertussis cases and rates by DHB since 26 December 2009, including new cases in the last two weeks

| DHB | Cumulative notifications | | | Last two weeks ³ | |
|--------------------|--------------------------|--------------------|-----------|-----------------------------|----------|
| | Cases | Rates ¹ | Hosp | Cases | Hosp |
| Northland | 3 | 1.9 | 0 | 0 | 0 |
| Waitemata | 50 | 9.5 | 11 | 5 | 1 |
| Auckland | 57 | 12.8 | 8 | 5 | 1 |
| Counties Manukau | 67 | 13.9 | 20 | 2 | 0 |
| Waikato | 76 | 21.1 | 4 | 1 | 0 |
| Lakes | 5 | 4.9 | 0 | 0 | 0 |
| Bay of Plenty | 33 | 15.9 | 8 | 0 | 0 |
| Tairāwhiti | 8 | 17.3 | 1 | 0 | 0 |
| Taranaki | 28 | 25.9 | 6 | 1 | 1 |
| Hawke's Bay | 14 | 9.1 | 5 | 0 | 0 |
| Whanganui | 5 | 7.9 | 0 | 0 | 0 |
| MidCentral | 28 | 16.9 | 4 | 1 | 0 |
| Hutt Valley | 36 | 25.2 | 1 | 1 | 0 |
| Capital and Coast | 97 | 33.7 | 2 | 3 | 0 |
| Wairarapa | 4 | 10.0 | 1 | 0 | 0 |
| Nelson Marlborough | 27 | 19.7 | 0 | 0 | 0 |
| West Coast | 12 | 36.8 | 1 | 0 | 0 |
| Canterbury | 152 | 30.3 | 6 | 2 | 0 |
| South Canterbury | 14 | 25.2 | 1 | 0 | 0 |
| Otago | 15 | 8.0 | 1 | 0 | 0 |
| Southland | 21 | 18.8 | 1 | 1 | 0 |
| Total | 752 | 17.4 | 81 | 22 | 3 |

¹Rate of pertussis cases per 100 000 population calculated using 2009 mid-year population estimates.

Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

²Cumulative notifications between 26 December 2009 and 29 October 2010

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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