

PERTUSSIS REPORT

June 2010 (Weeks 23-24)

This report includes cases of pertussis reported in EpiSurv up to midnight 11 June 2010. Data was extracted from EpiSurv at 10.00 am 15 June 2010.

In the past two weeks, 35 (24 and 11 consecutively) new cases of pertussis were notified, including 10 confirmed cases, 12 probable cases, six suspect cases, and seven cases under investigation. Two hospitalisations were reported in the last two weeks. There have been a total of 454 pertussis notifications reported in EpiSurv since 26 December 2009 (the beginning of surveillance week 1 for 2010), including 254 confirmed cases, 170 probable cases, 16 suspect cases, and 14 cases under investigation. Forty-four cases were hospitalised and there have been no deaths reported during this period.

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. The case classification used in this report is specified in the appendix.

Temporal distribution of cases

Figure 1 shows the epidemic curve of total pertussis notifications for 2008, 2009 and 2010 (to date). After an initial peak in week 3, notifications have generally followed the 2009 trend but at slightly lower levels. However, the total number of notifications may change as cases are investigated. Substantial increase in notifications, with weekly fluctuations, can be clearly seen in 2009 compared to 2008.

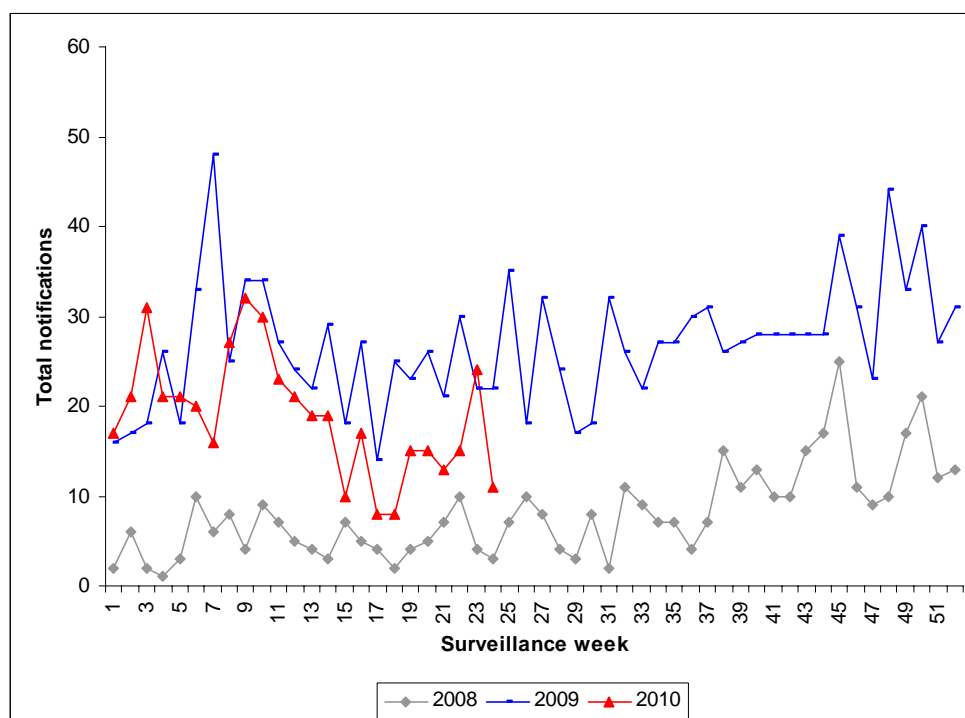


Figure 1: Comparative epidemic curves of total pertussis notifications by week reported during years 2008, 2009 and 2010 (surveillance week = Saturday to Friday inclusive).

Age distribution of cases

Pertussis notifications and associated age-specific rates, including new cases for the past two weeks, are shown in Table 1. For the last two weeks, children aged 1 to 4 years had the highest age-specific rate (2.5 per 100 000 population, 6 cases). Of the total cases since 26 December 2009, the age-specific rate was highest in the less than one year age group (58.7 per 100 000 population, 37 cases), followed by the 1 to 4 (30.5 per 100 000, 74 cases) and 5 to 9 (15.6 per 100 000, 45 cases) year age groups.

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 | | |
|-------------------|---------------------------------------|--------------------|------|----------------|--------------------|------|
| | Cases | Rates ¹ | Hosp | New cases | Rates ¹ | Hosp |
| <1 | 37 | 58.7 | 28 | 1 | 1.6 | 1 |
| 1 to 4 | 74 | 30.5 | 4 | 6 | 2.5 | 0 |
| 5 to 9 | 45 | 15.6 | 0 | 3 | 1.0 | 0 |
| 10 to 14 | 24 | 8.1 | 3 | 0 | 0.0 | 0 |
| 15 to 19 | 32 | 9.9 | 2 | 2 | 0.6 | 0 |
| 20 to 29 | 38 | 6.5 | 2 | 4 | 0.7 | 1 |
| 30 to 39 | 61 | 10.6 | 1 | 8 | 1.4 | 0 |
| 40 to 49 | 62 | 9.8 | 1 | 5 | 0.8 | 0 |
| 50 to 59 | 38 | 7.2 | 1 | 2 | 0.4 | 0 |
| 60 to 69 | 31 | 7.9 | 2 | 1 | 0.3 | 0 |
| 70+ | 12 | 3.2 | 0 | 3 | 0.8 | 0 |
| Unknown | - | - | - | - | - | - |
| Overall | 454 | 10.5 | 44 | 35 | 0.8 | 2 |

¹Age specific rate per 100 000 population, calculated using 2009 mid-year population estimates

² Cumulative notifications between 26 December 2009 and 11 June 2010

Hosp: hospitalisation counts

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. In the last two weeks, Europeans had the highest rate and numbers of cases (1.1 per 100 000, 29 cases). Europeans had the highest ethnic-specific cumulative rate and number of cases (12.8 per 100 000 population, 345 cases), followed by Maori (11.7 per 100 000, 66 cases), since 26 December 2009.

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 | | |
|-----------------|---------------------------------------|--------------------|------|----------------|--------------------|------|
| | Cases | Rates ¹ | Hosp | New cases | Rates ¹ | Hosp |
| Maori | 66 | 11.7 | 16 | 0 | 0.0 | 0 |
| Pacific Peoples | 24 | 10.6 | 11 | 0 | 0.0 | 0 |
| Other | 8 | 2.1 | 0 | 1 | 0.3 | 0 |
| European | 345 | 12.8 | 17 | 29 | 1.1 | 2 |
| Unknown | 11 | - | - | 5 | - | - |
| Overall | 454 | 11.3 | 44 | 35 | 0.9 | 2 |

¹Ethnic specific rates computed using the 2006 usually resident census population

² Cumulative notifications between 26 December 2009 and 11 June 2010

Hosp: hospitalisation counts

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

Hospitalisations

There have been 44 hospitalisations reported in EpiSurv since 26 December 2009, and two hospitalisations were recorded in the last two weeks. Twenty-eight (63.6%) of the 44 hospitalisations were children aged less than one year. Counties Manukau and Waitemata DHBs had the highest number of cumulative hospitalisations (9 and 7, respectively). The distributions of hospitalisations by age group, ethnicity, and DHB are described in Table 1, Table 2 and Table 3 respectively. Of the total notifications with known hospitalisation status since end-December 2009, the proportion of hospitalisations was highest in Pacific Peoples (52.4%, 11/21) compared to Maori (25.4%, 16/63) and Europeans (5.4%, 17/314).

Geographical distribution

The rates of pertussis notifications by DHB can be seen in Figure 2 and Table 3. In the last two weeks, the highest number of notifications was reported in Capital and Coast (12 cases), followed by Canterbury DHBs (9 cases). The highest cumulative rate since 26 December 2009 was recorded in Capital and Coast DHB (24.3 per 100 000 population, 70 cases), followed by Taranaki (21.2 per 100 000, 23 cases), Hutt Valley (21.0 per 100 000, 30 cases) and Canterbury (20.5 per 100 000, 103 cases) DHBs. Canterbury DHB reported the highest number of notifications (103 cases) over this period followed by Capital and Coast DHB (70 cases).

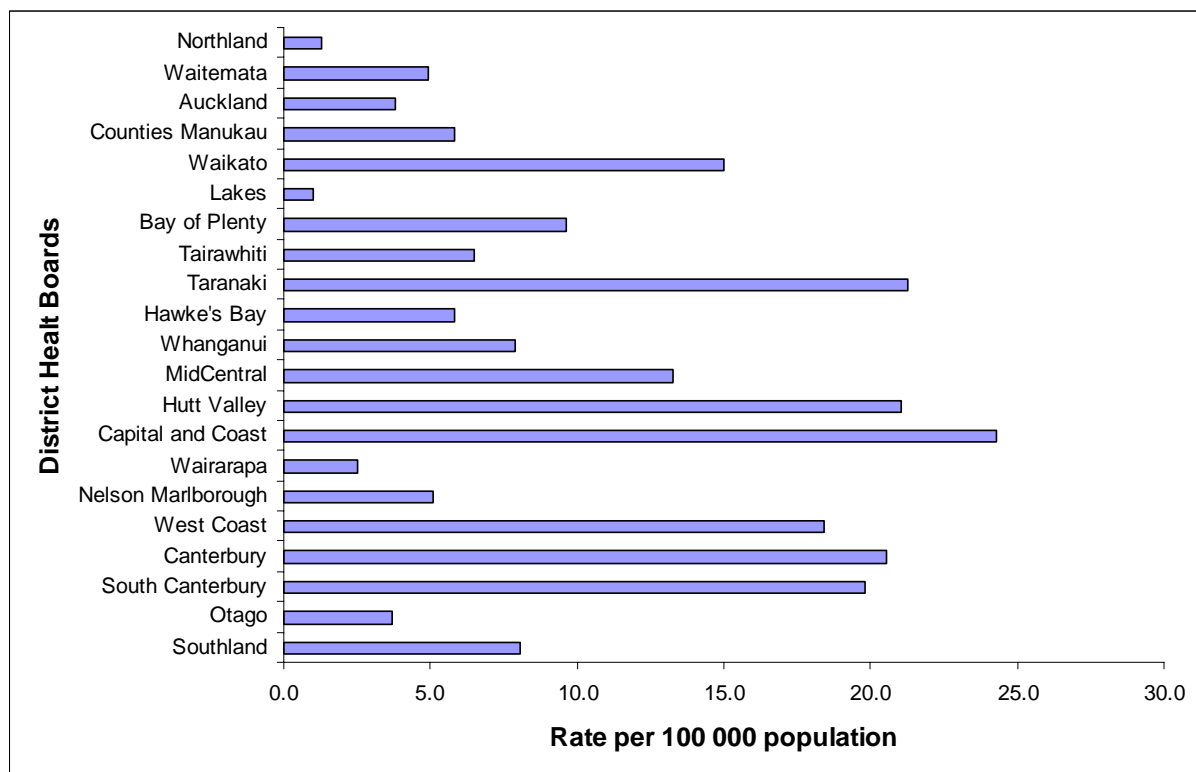


Figure 2: Geographical distribution of pertussis crude rates (cases per 100 000 population) since 26 December 2009.

Rates were calculated using 2009 mid-year population estimates. Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

Table 3 Pertussis cases and rates by DHB since 26 December 2009, including new cases in the last two weeks

| DHB | Cumulative notifications | | | Last two weeks | | |
|-------------------|--------------------------|--------------------|-----------|----------------|--------------------|----------|
| | Cases | Rates ¹ | Hosp | Cases | Rates ¹ | Hosp |
| Northland | 2 | 1.3 | 0 | 0 | 0.0 | 0 |
| Waitemata | 26 | 4.9 | 7 | 3 | 0.6 | 0 |
| Auckland | 17 | 3.8 | 2 | 1 | 0.2 | 0 |
| Counties Manukau | 28 | 5.8 | 9 | 1 | 0.2 | 1 |
| Waikato | 54 | 15.0 | 2 | 3 | 0.8 | 0 |
| Lakes | 1 | 1.0 | 0 | 0 | 0.0 | 0 |
| Bay of Plenty | 20 | 9.6 | 5 | 1 | 0.5 | 1 |
| Tairāwhiti | 3 | 6.5 | 1 | 0 | 0.0 | 0 |
| Taranaki | 23 | 21.2 | 4 | 0 | 0.0 | 0 |
| Hawke's Bay | 9 | 5.8 | 2 | 0 | 0.0 | 0 |
| Whanganui | 5 | 7.9 | 0 | 0 | 0.0 | 0 |
| MidCentral | 22 | 13.3 | 3 | 0 | 0.0 | 0 |
| Hutt Valley | 30 | 21.0 | 1 | 2 | 1.4 | 0 |
| Capital and Coast | 70 | 24.3 | 2 | 12 | 4.2 | 0 |
| Wairarapa | 1 | 2.5 | 1 | 0 | 0.0 | 0 |
| Nelson | | | | | | |
| Marlborough | 7 | 5.1 | 0 | 0 | 0.0 | 0 |
| West Coast | 6 | 18.4 | 0 | 2 | 6.1 | 0 |
| Canterbury | 103 | 20.5 | 3 | 9 | 1.8 | 0 |
| South Canterbury | 11 | 19.8 | 1 | 0 | 0.0 | 0 |
| Otago | 7 | 3.7 | 1 | 0 | 0.0 | 0 |
| Southland | 9 | 8.0 | 0 | 1 | 0.9 | 0 |
| Total | 454 | 10.5 | 44 | 35 | 0.8 | 2 |

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

²Cumulative notifications between 26 December 2009 and 11 June 2010

Hosp: hospitalisation counts

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

Immunisation status

The immunisation status as reported to Public Health Service staff for confirmed pertussis cases is shown in Table 4 and Table 5. Of the 10 confirmed cases reported in the last two weeks, five (50.0%) had a known vaccination status. Of these five cases, two were not vaccinated, one case had received one dose of vaccine, one case had received three doses of vaccine, and one case reported being vaccinated but no dose information was available.

Table 4: 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6wks - 2mths | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3-4 mths | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5mths - 3yrs | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 4 - 10yrs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11+ yrs | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 5 |
| Total | 10 | 1 | 0 | 1 | 0 | 0 | 1 | 2 | 5 |

Of the 254 confirmed cases reported since 26 December 2009, 172 (67.7%) had a known vaccination status. Of these 172 cases, 85 were not vaccinated including five cases aged less than six weeks and therefore not eligible for vaccination. Nineteen cases had received one dose of vaccine, five cases had received two doses of vaccine, 24 cases had received three doses of vaccine, eight cases had received four doses and eight cases reported having completed pertussis vaccination. A further 23 cases reported being vaccinated but no dose information was available.

Table 5: 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 | | Unknown |
|--------------|-------------|----------|-----------|-------------|------------|------------|----------------|----------------|---------|
| | | | | | | | (no dose info) | Not vaccinated | |
| <6wks | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 |
| 6wks - 2mths | 14 | 5 | 0 | 0 | 0 | 0 | 0 | 9 | 0 |
| 3-4 mths | 9 | 4 | 2 | 0 | 0 | 0 | 1 | 1 | 1 |
| 5mths - 3yrs | 41 | 1 | 3 | 12 | 0 | 0 | 4 | 18 | 3 |
| 4 - 10yrs | 44 | 4 | 0 | 3 | 5 | 2 | 1 | 24 | 5 |
| 11+ yrs | 140 | 5 | 0 | 9 | 3 | 6 | 17 | 28 | 72 |
| Total | 254 | 19 | 5 | 24 | 8 | 8 | 23 | 85 | 82 |

Appendix

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