

PERTUSSIS REPORT

09 November–06 December 2024

This fortnightly report summarises pertussis notifications for the current four-week period, 09 November–06 December, and cumulative numbers since 01 January 2024. It includes the distribution of cases and hospitalisations by time, region, district, age group and prioritised ethnicity. Four-weekly rates are presented to enable comparisons between groups and over time. This report supplements the [Pertussis dashboard](#) which is updated weekly.

Data contained within this report is based on information recorded in EpiSurv as at 11am on 11 December 2024. Changes made to EpiSurv after this time will not be reflected here. Data presented may be further updated and should be regarded as provisional. Cases still under investigation are not included in this report. Because under investigation cases are still to be classified, case numbers may change in future reports.

Published 12 December 2024

Summary

- A pertussis epidemic was declared on 22 November 2024 following an increase in cases throughout New Zealand.
- There has been a significant increase in case numbers in the 4-week period 09 November–06 December 2024 compared to the prior 4-week period.
- The number of hospitalisations is similar to the prior 4-week period.

In the past four surveillance weeks (weeks 46–49, 09 November–06 December 2024):

- there were 487 cases (364 confirmed, 102 probable and 21 suspect) notified in EpiSurv, compared with 222 cases for the prior four weeks (weeks 42–45). This comprises 89, 80, 157 and 161 cases, respectively in weeks 46–49;
- 26 cases were hospitalised, compared with 23 cases in weeks 42–45; no deaths were reported;
- 25 cases (5.1%) were aged less than 1 year, of which 13 (52.0%) were hospitalised;
- notification rates were highest among infants aged less than 1 year (43.7 per 100,000, 25 cases), followed by children aged 1–4 (29.4 per 100,000, 72 cases);
- the ethnic group with the highest notification rate was Māori (16.9 per 100,000, 147 cases), followed by European or Other (8.9 per 100,000, 280 cases), and Pacific peoples (7.1 per 100,000, 25 cases);
- the region with the highest rate was Te Waipounamu (15.0 per 100,000, 184 cases) followed by Central (12.5 per 100,000, 123 cases), Te Manawa Taki (9.6 per 100,000, 100 cases), and Northern (4.1 per 100,000, 80 cases).

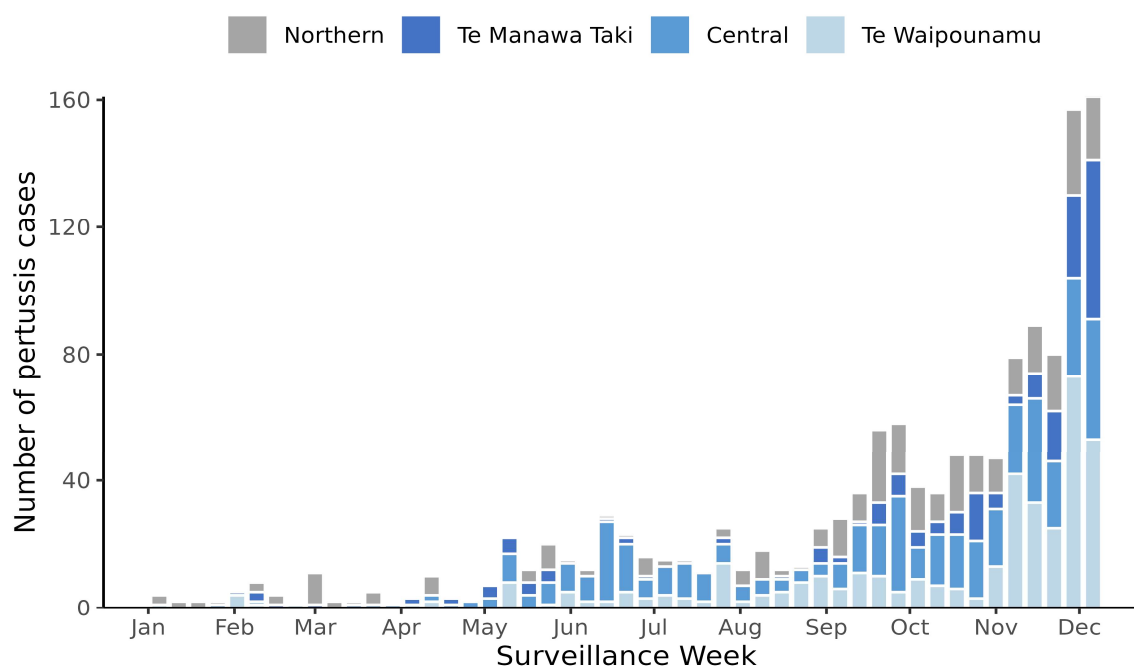
From 01 January–06 December 2024:

- a total of 1330 confirmed, probable and suspect cases of pertussis were notified;
- overall, 117 cases (8.8%) were hospitalised and there have been no deaths;
- of the 82 cases (6.2%) aged less than 1 year, 54 (65.9%) were hospitalised.

Trends in pertussis cases

Since returning to pre-COVID-19 levels in early May, weekly pertussis case numbers remained fairly stable until August and then began to increase again from September. Weekly case numbers in the last two weeks are nearly double compared to the three weeks prior; this increase likely reflects both increasing pertussis activity and increased case ascertainment following the declaration of a national epidemic on 22 November (Figure 1).

Figure 1. Pertussis cases by week and region, 01 January–06 December 2024



Note: includes confirmed, probable, and suspect cases only. Cases still under investigation are excluded.

Hospitalisations have increased since October, with between 4 and 11 hospitalised cases each week (Figure 2).

Figure 2. Hospitalised pertussis cases by week, 01 January–06 December 2024

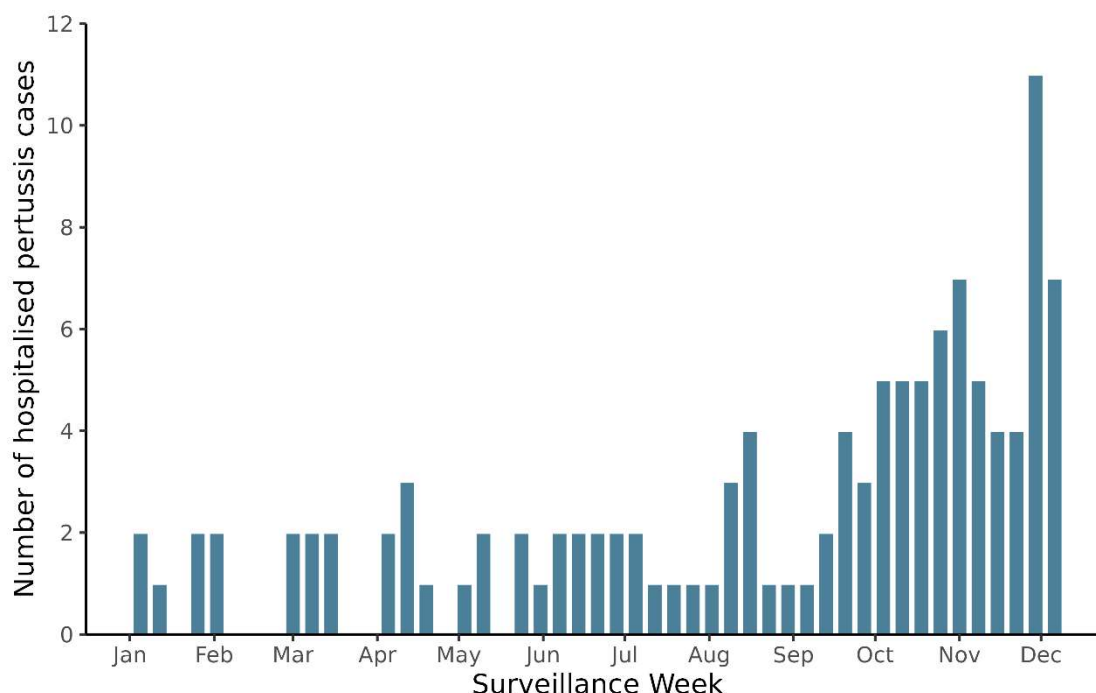
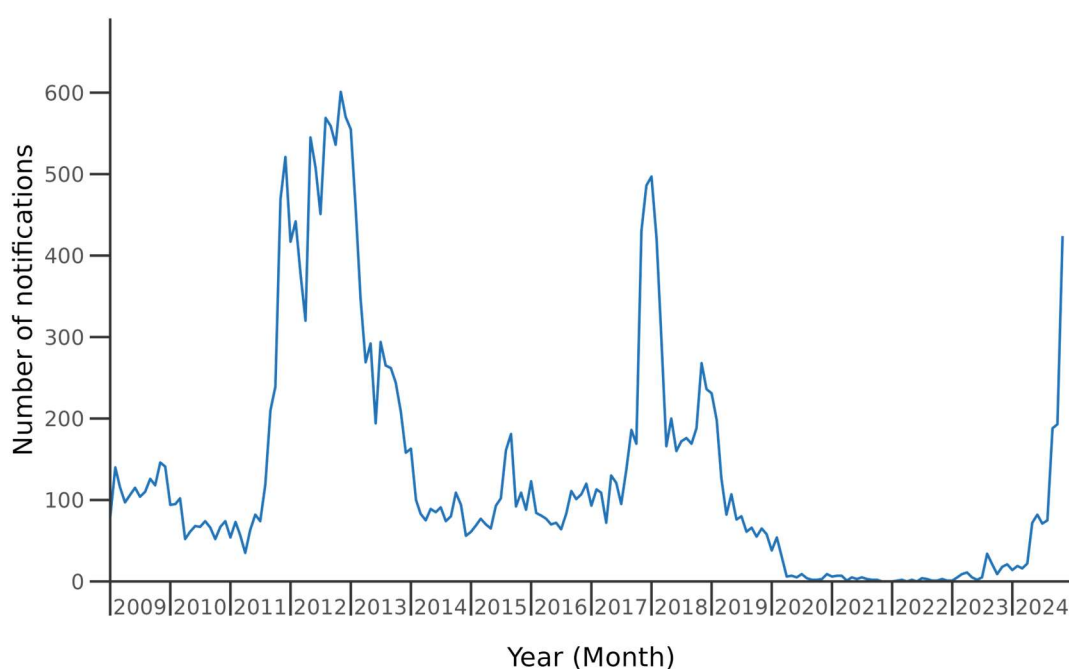


Figure 3 shows monthly pertussis cases since 2009. This shows two national epidemics occurring in 2011–2013, and 2017–2019. National epidemics have historically occurred every 3-5 years in New Zealand. Pertussis activity reduced as a result of COVID-19 response measures in 2020–2022 returning to pre-pandemic levels in early 2024. Epidemic level activity began in late 2024.

Figure 3. Pertussis cases by month, January 2009–November 2024



Note: Data for December are not yet presented as not yet complete.

Cases by age

In the past four weeks, rates were highest among infants aged less than 1 year followed by children aged 1–4 years and 10–14 years (Table 1). Infants aged less than 1 year are most vulnerable to severe disease, with a high proportion requiring hospitalisation. Among infants, those aged less than 2 months are at highest risk of severe disease and death. Further age breakdown of the cases aged less than 1 year is provided in Table 2.

Table 1: Number and rate of pertussis cases and hospitalisations by age group

Age Group (years)	09 November–06 December			01 January–06 December 2024	
	Cases ¹	Rate ²	Hospitalised	Cases ¹	Hospitalised
<1	25	43.7	13 (52.0%)	82	54 (65.9%)
1–4	72	29.4	5 (6.9%)	183	16 (8.7%)
5–9	87	26.9	2 (2.3%)	217	5 (2.3%)
10–14	98	28.6	1 (1.0%)	243	6 (2.5%)
15–19	45	13.8	1 (2.2%)	129	2 (1.6%)
20–64	140	4.6	3 (2.1%)	423	22 (5.2%)
65+	19	2.2	1 (5.3%)	52	12 (23.1%)
Unknown	1	–	0 (0.0%)	1	0 (0.0%)
Total	487	9.3	26 (5.3%)	1,330	117 (8.8%)

¹ Includes confirmed, probable and suspect cases only

² Four week rate of pertussis cases per 100,000 population calculated using 2023 mid-year population estimates from Statistics New Zealand. Rate suppressed if based on fewer than five cases.

Table 2: Number of pertussis cases and hospitalisations aged less than 1 year

Age Group	09 November–06 December		01 January–06 December 2024	
	Cases	Hospitalised	Cases	Hospitalised
<2 months	9	8 (88.9%)	19	17 (89.5%)
2–5 months	5	4 (80.0%)	28	24 (85.7%)
6–11 months	11	1 (9.1%)	35	13 (37.1%)

Cases by Ethnicity

In the past four weeks, the ethnic group with the highest notification rate was Māori (16.9 per 100,000, 147 cases), followed by European or Other (8.9 per 100,000, 280 cases), and Pacific peoples (7.1 per 100,000, 25 cases) (Table 3). In the year to date, the proportion of cases hospitalised by ethnic group is highest for Pacific peoples compared to all other ethnic groups. Most pertussis hospitalisations occur in young infants, and a high proportion of infants hospitalised to date in 2024 are Māori or Pacific peoples (Table 4). Further breakdowns of case numbers by age and ethnicity are available on the [ESR Pertussis dashboard](#).

Table 3: Number and rate of pertussis cases by ethnicity

Ethnicity	09 November–06 December		01 January–06 December 2024	
	Cases ¹	Rate ²	Cases ¹	Hospitalised
Māori	147	16.9	342	46 (13.5%)
Pacific peoples	25	7.1	97	23 (23.7%)
Asian	12	1.5	42	6 (14.3%)
Middle Eastern/Latin American/African	4	-	22	3 (13.6%)
European or Other	280	8.9	804	38 (4.7%)
Unknown	19	-	23	1 (4.3%)

Note: Ethnicity is prioritised.

¹ Includes confirmed, probable and suspect cases only

² Four week rate of pertussis cases per 100,000 population calculated using 2023 mid-year population estimates from Statistics New Zealand. Rate suppressed if based on fewer than five cases.

Table 4: Number of pertussis cases and hospitalisations aged less than 1 year

Ethnicity	09 November–06 December		01 January–06 December 2024	
	Cases	Hospitalised	Cases	Hospitalised
Māori	14	9	39	29 (74.4%)
Pacific peoples	3	1	16	12 (75.0%)
Asian	1	0	3	1 (33.3%)
Middle Eastern/Latin American/African	0	0	2	1 (50.0%)
European or Other	7	3	22	11 (50.0%)

Cases by district

Cases were notified from all districts in the past four weeks. West Coast District reported the highest rate (79.0 per 100,000), followed by Southern District (24.4 per 100,000). The highest number of hospitalisations since 1 January has been in Counties Manukau District, followed by Waikato.

Table 5: Number of pertussis cases, rate and hospitalisations by health district

District	09 November–06 December			01 January–06 December 2024	
	Cases ¹	Rates ²	Hospitalised	Cases ¹	Hospitalised
Northland	31	15.2	2	71	8
Waitemata	17	2.6	2	67	11
Auckland	12	2.4	2	76	8
Counties Manukau	20	3.2	2	91	18
Waikato	23	5.0	3	52	16
Lakes	11	9.2	1	19	1
Bay of Plenty	46	16.4	4	71	8
Tairāwhiti	6	11.4	0	10	1
Taranaki	14	10.9	0	43	2
Hawke's Bay	30	16.2	2	109	4
Whanganui	6	8.6	2	17	4
MidCentral	20	10.4	0	33	1
Hutt Valley	18	11.1	1	54	7
Capital and Coast	41	12.5	1	140	11
Wairarapa	8	15.6	1	93	4
Nelson Marlborough	14	8.4	0	25	1
West Coast	26	79.0	1	27	1
Canterbury	48	8.0	1	176	7
South Canterbury	8	12.7	1	14	2
Southern	88	24.4	0	142	2

¹ Includes confirmed, probable and suspect cases only

² Four week rate of pertussis cases per 100,000 population calculated using 2023 mid-year population estimates from Statistics New Zealand. Rate suppressed if based on fewer than five cases.

Vaccination status of cases aged <12 months

Pertussis vaccination is funded in New Zealand during every pregnancy and as part of the childhood immunisation schedule. The primary series is given at 6 weeks, 3 months and 5 months. This schedule aims to protect infants against pertussis infection, severe disease requiring hospitalisation, and death. Protection from the pertussis vaccine wanes over time, and booster doses are given at age 4 years and 11 years to provide increased protection in childhood. Further booster doses are funded for adults at age 45 years and 65 years.

Table 6 shows the vaccination status of infant pertussis cases aged >2 months in 2024 and whether they were hospitalised. Most hospitalised cases had not received all their age-appropriate pertussis vaccine doses.

Table 6: Vaccination status of cases aged 2 to 11 months, by age and whether hospitalised, 01 January–06 December 2024

Age Group	Hospitalised		Not Hospitalised	
	Not vaccinated for age ¹	Vaccinated for Age ¹	Not vaccinated for age ¹	Vaccinated for Age ¹
2 - 3mths	14	3	2	0
4 - 5mths	6	1	1	1
6 - 11mths	12	1	11	6

¹ A case is considered to have received age-appropriate vaccine doses if they have received at minimum: 1 dose for cases 2 to <4 months; 2 doses for cases 4 to <6 months and 3 doses for cases 6-<12 months. Note: Vaccine doses given <14 days prior to date of illness onset are excluded from this analysis as protection is expected to take 14 days to develop. Most pertussis cases in children aged 6 months to 10 years to date in 2024 have occurred in children who have received fewer than 3 doses of pertussis-containing vaccine.

Appendix – Case definition

An abbreviated version of the case definition in place at the time of preparing this report is provided below. The current case classification used in Aotearoa New Zealand can be found on the [Health New Zealand | Te Whatu Ora Communicable Disease Control Manual](#) site.

Clinical description

A clinically compatible case characterised by cough and one or more of: paroxysms of cough, cough ending in vomiting, cyanosis or apnoea, or inspiratory whoop.

Laboratory test for diagnosis

Laboratory definitive evidence for a confirmed case requires isolation of *Bordetella pertussis* or detection of *B. pertussis* nucleic acid, preferably from a nasopharyngeal swab.

Laboratory suggestive evidence for a probable case requires: *B. pertussis* toxin IgG test of >100 IU/ml or a significant increase in antibody levels between paired sera at the same laboratory. Serology should only be requested for public health purposes after consultation between the Medical Officer of Health and the local microbiologist.

Case classification

- **Under investigation:** a case that has been notified, but information is not yet available to classify it as suspect, probable or confirmed.
- **Suspect (in children under 5 years of age):** any paroxysmal cough with whoop, vomit or apnoea for which there is no other known cause.
- **Probable:** a clinically compatible illness where the cough is lasting longer than 2 weeks. However, in situations where serology has been requested after consultation between the Medical Officer of Health and the local microbiologist, a clinically compatible illness with laboratory suggestive evidence will also be considered as probable.
- **Confirmed:** a clinically compatible illness accompanied by laboratory definitive evidence, or is epidemiologically linked to a confirmed case.
- **Not a case:** a case that has been investigated and subsequently found not to meet the case definition.