PERTUSSIS REPORT

26 October–22 November 2024

This fortnightly report summarises pertussis notifications for the current four-week period, 26 October–22 November, and cumulative numbers since 1 January 2024. It includes the distribution of cases 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 27 November 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 28 November 2024.

Summary

A pertussis epidemic was declared on 22 November 2024 following an increase in cases throughout New Zealand, ,. Pertussis epidemics historically occur every 3–5 years in New Zealand, with the last epidemic ending in 2019. Pertussis activity has been increasing since mid-2024 after four years with very low pertussis activity due to the COVID-19 response..

In the past four surveillance weeks (weeks 44–47, 26 October–22 November 2024):

- there were 292 cases (224 confirmed, 63 probable and 5 suspect) notified in EpiSurv, compared with 170 cases for the prior four weeks (weeks 40–43). This comprises 47, 79, 89 and 77 cases, respectively in weeks 44–47;
- 20 cases were hospitalised, compared with 21 cases in weeks 40–43; no deaths were reported;
- 14 cases (4.8%) were aged less than 1 year, of which 10 (71.4%) were hospitalised;
- notification rates were highest among infants aged less than 1 year (24.5 per 100,000), followed by children aged 10–14 (19.5 per 100,000, 67 cases);
- the ethnic group with the highest notification rate was Māori (9.4 per 100,000, 82 cases), followed by Middle Eastern/Latin American/African (6.6 per 100,000, 5 cases), and European or Other (5.8 per 100,000, 181 cases);
- the Central region had the highest rate (9.5 per 100,000, 94 cases) followed by Te Waipounamu (9.2 per 100,000, 113 cases), Te Manawa Taki (3.1 per 100,000, 32 cases), and Northern (2.7 per 100,000, 53 cases).

From 01 January to 22 November 2024:

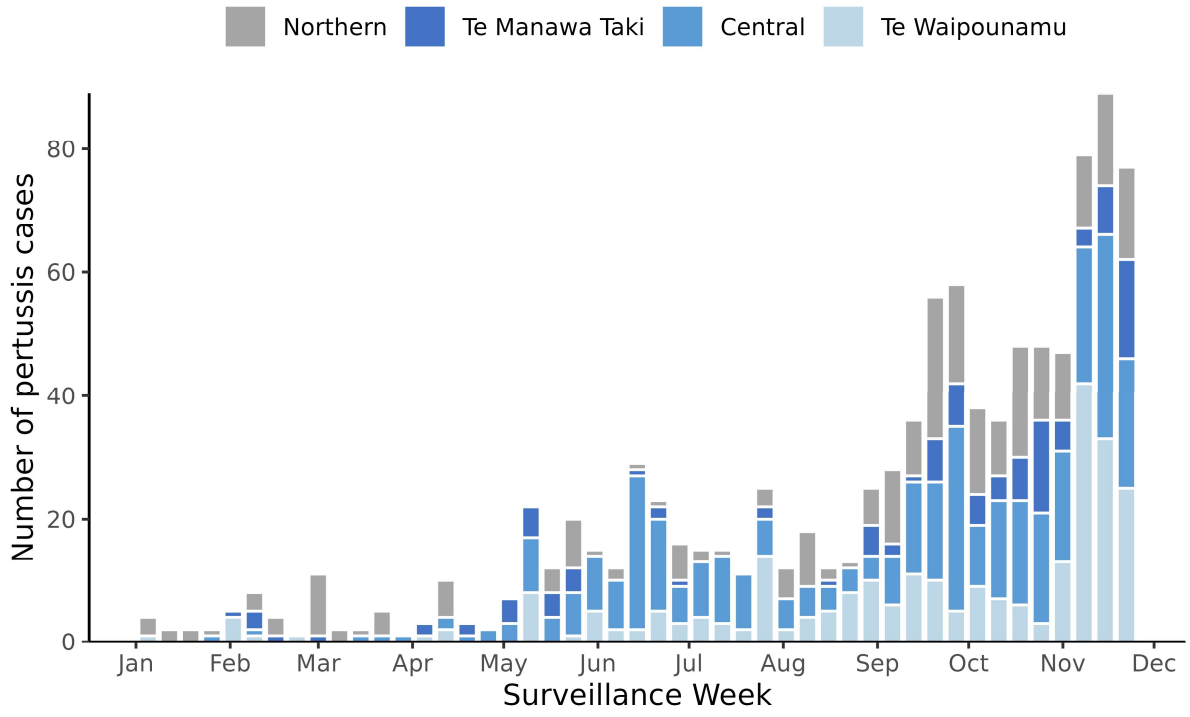
- a total of 1009 confirmed, probable and suspect cases of pertussis were notified;

- overall, 99 cases (9.8%) were hospitalised and there have been no deaths;
- of the 63 cases (6.2%) aged less than 1 year, 46 (73.0%) 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 in October (Figure 1).

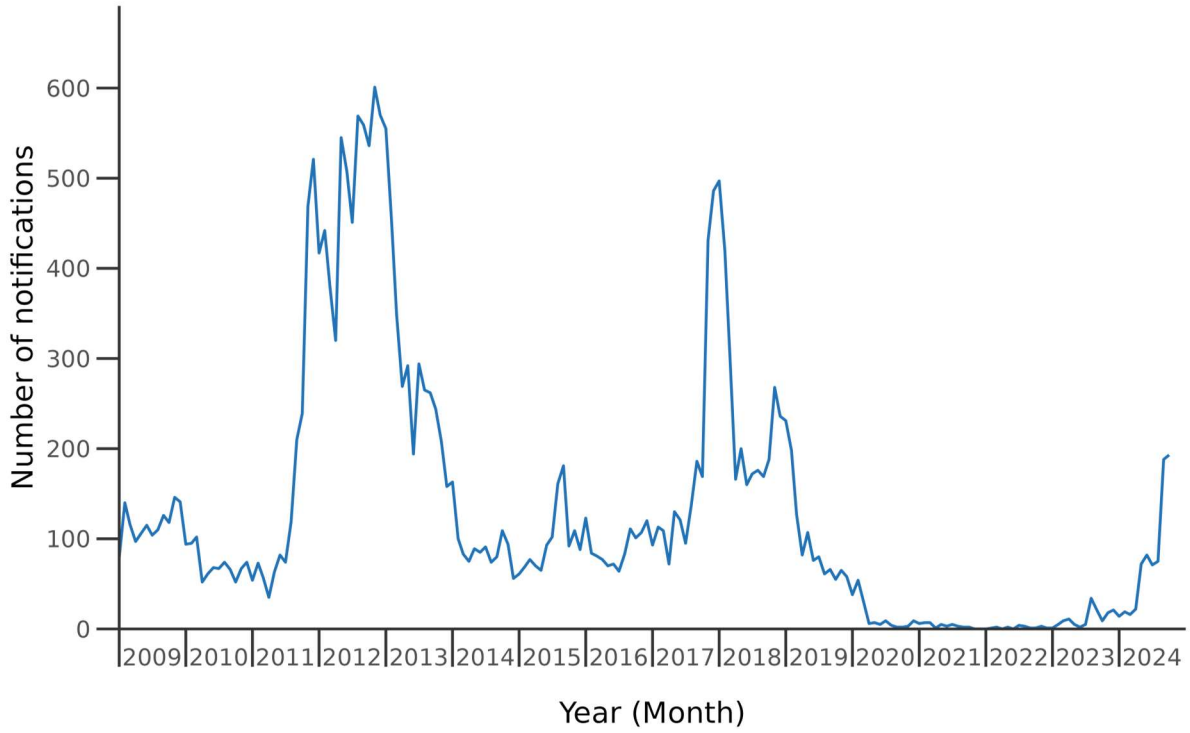
Figure 1. Pertussis cases by week and region, 01 January–22 November 2024



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

Figure 2 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 2024.

Figure 2. Pertussis cases by month, January 2009–October 2024



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

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Cases by age

In the past four weeks, rates were highest among infants aged less than 1 year followed by children aged 10–14 years and 5–9 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)	26 October–22 November			01 January–22 November 2024	
	Cases[1]	Rate[2]	Hospitalised	Cases[1]	Hospitalised
<1	14	24.5	10 (71.4%)	63	46 (73.0%)
1–4	35	14.3	3 (8.6%)	133	13 (9.8%)
5–9	55	17.0	1 (1.8%)	161	4 (2.5%)
10–14	67	19.5	0 (0.0%)	184	5 (2.7%)
15–19	27	8.3	0 (0.0%)	100	1 (1.0%)
20–64	83	2.7	4 (4.8%)	329	19 (5.8%)
65+	10	1.2	2 (20.0%)	38	11 (28.9%)
Unknown	1	–	0 (0.0%)	1	0 (0.0%)
Total	292	5.6	20 (6.8%)	1,009	99 (9.8%)

[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	26 October–22 November		01 January–22 November 2024	
	Cases	Hospitalised	Cases	Hospitalised
<2 months	4	4 (100.0%)	13	12 (92.3%)
2–5 months	5	5 (100.0%)	25	22 (88.0%)
6–11 months	5	1 (20.0%)	25	12 (48.0%)

Cases by Ethnicity

In the past four weeks, the ethnic group with the highest notification rate was Māori (9.4 per 100,000, 82 cases), followed by Middle Eastern/Latin American/African (6.6 per 100,000, 5 cases), and European or Other (5.8 per 100,000, 181 cases). 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	26 October–22 November		01 January–22 November 2024	
	Cases[1]	Rate[2]	Cases[1]	Hospitalised
Māori	82	9.4	249	39 (15.7%)
Pacific peoples	14	4.0	78	21 (26.9%)
Asian	7	0.9	34	6 (17.6%)
Middle Eastern/Latin American/African	5	6.6	20	3 (15.0%)
European or Other	181	5.8	618	30 (4.9%)
Unknown	3	–	10	0 (0.0%)

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 by ethnicity

Ethnicity	26 October–22 November		01 January–22 November 2024	
	Cases	Hospitalised	Cases	Hospitalised
Māori	8	6 (75.0%)	29	24 (82.8%)
Pacific peoples	3	2 (66.7%)	14	11 (78.6%)
Asian	1	0 (0.0%)	3	1 (33.3%)
Middle Eastern/Latin American/African	0	–	2	1 (50.0%)
European or Other	2	2 (100.0%)	15	9 (60.0%)
Unknown	0	–	1	0 (0.0%)

Cases by district

Cases were notified from all districts in the past four weeks. West Coast District reported the highest rate (33.4 per 100,000), followed by Wairarapa District (27.3 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	26 October–22 November			01 January–22 November 2024	
	Cases[1]	Rates[2]	Hospitalised	Cases[1]	Hospitalised
Northland	21	10.3	0	53	6
Waitemata	20	3.1	5	59	10
Auckland	6	1.2	0	67	6
Counties Manukau	6	1.0	0	76	16
Waikato	9	2.0	1	36	13
Lakes	6	5.0	1	14	1
Bay of Plenty	10	3.6	3	30	5
Tairawhiti	4	–	0	8	1
Taranaki	3	–	0	31	2
Hawke's Bay	21	11.4	1	94	3
Whanganui	6	8.6	2	13	2
MidCentral	9	4.7	0	20	1
Hutt Valley	8	4.9	1	42	7
Capital and Coast	36	11.0	1	117	10
Wairarapa	14	27.3	2	91	4
Nelson Marlborough	3	–	0	13	1
West Coast	11	33.4	1	12	1
Canterbury	20	3.3	0	135	6
South Canterbury	3	–	1	9	2
Southern	76	21.1	1	89	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 boosters 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 age-appropriate pertussis vaccine doses.

Table 6: Vaccination status of cases aged 2 months to 12 months, by age and whether hospitalised, 1 January–22 November 2024

Age Group	Hospitalised		Not Hospitalised	
	Not vaccinated for age[1]	Vaccinated for Age[1]	Not vaccinated for age[1]	Vaccinated for Age[1]
2–3 months	11	3	1	0
4–5 months	6	1	1	1
6–11 months	11	1	6	5

Note: table excludes cases where vaccination status is unknown.

[1] A case is considered to have received age-appropriate vaccine doses if they have received at minimum: 1 dose for cases 2 to 3 months; 2 doses for cases 4 to 5 months and 3 doses for cases 6-11 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.

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.