

Lower respiratory tract infection hospitalisations (0–4 years)

HIGHLIGHTS:

- In 2016, there were 9262 hospitalisations for lower respiratory tract infections in children aged 0–4 years in New Zealand. The highest hospitalisation rates were for children younger than 12 months old.
- Pacific and Māori children had much higher hospitalisation rates for lower respiratory tract infections than Asian and European/Other children.
- The lower respiratory tract infection hospitalisation rate was 3.5 times as high in the most deprived areas (NZDep2013 quintile 5) as in the least deprived areas (quintile 1) in 2016.
- Tairāwhiti, Lakes, Waikato and Northland District Health Boards had the highest hospitalisation rates for lower respiratory tract infections in 2016.

Relevance of lower respiratory tract infections to environmental health

Lower respiratory tract infections refer to infections of the windpipe (trachea), lungs, and airways (bronchi, bronchioles), and include pneumonia, bronchitis and bronchiolitis. Household crowding and second-hand smoke exposure both increase the risk of lower respiratory tract infections in young children (Baker et al., 2013; U.S. Department of Health and Human Services, 2007). Evidence also suggests that outdoor air pollution increases the risk of acute lower respiratory tract infection hospitalisations (Mehta et al., 2013). Each year, a small number of children in New Zealand die from lower respiratory tract infections; in 2014, five children died from lower respiratory tract infections.

Data for this indicator

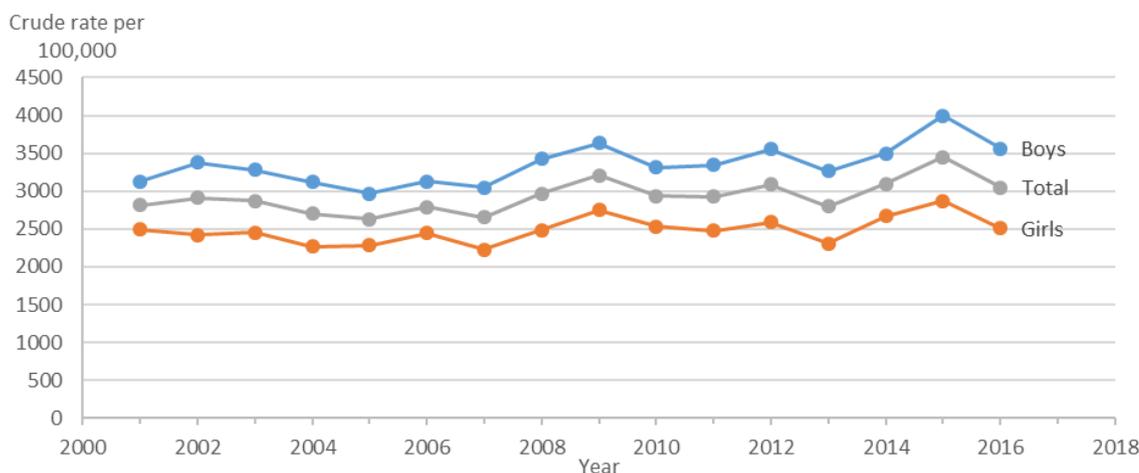
This indicator reports on hospitalisations for lower respiratory tract infections (including pneumonia, bronchitis and bronchiolitis) among children aged 0–4 years, from the National Minimum Dataset.

Over 9000 hospitalisations for lower respiratory tract infections in 0–4-year-olds in 2016

In 2016, there were 9262 hospitalisations for lower respiratory tract infections (LRTI) among children aged 0–4 years. The rate for LRTI hospitalisations had increased from 2815 per 100,000 in 2001, to 3050 per 100,000 in 2016 (Figure 1).

Boys had a consistently higher LRTI hospitalisation rate than girls. In 2016, the LRTI hospitalisation rate was 3564 per 100,000 for boys, compared with 2507 per 100,000 for girls.

Figure 1 : Lower respiratory tract infection hospitalisations in children aged 0–4 years, by sex, 2001–2016 (crude rate per 100,000)



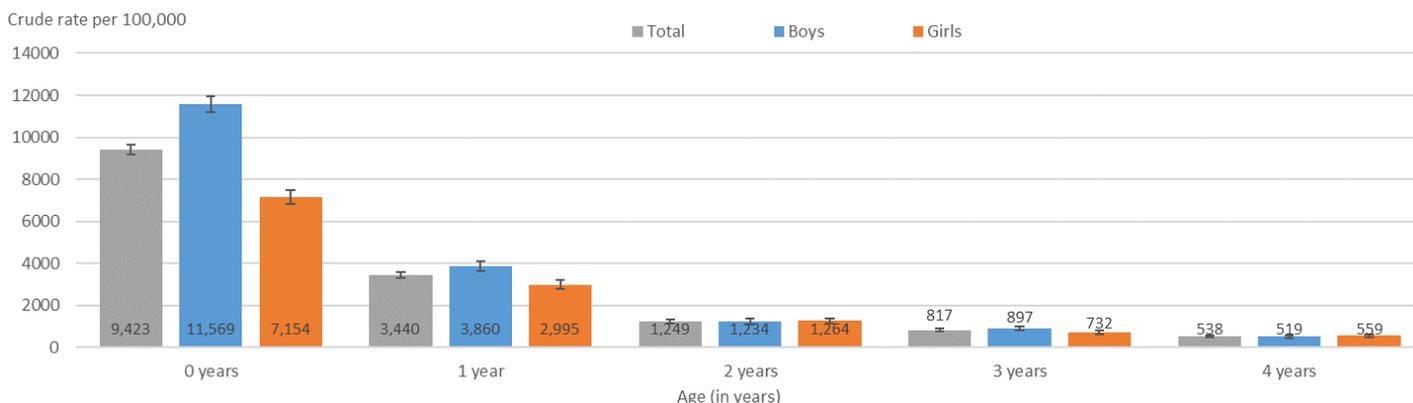
Source: National Minimum Dataset

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Children younger than 12 months old had higher hospitalisation rates for lower respiratory tract infections

In 2016, the LRTI hospitalisation rate was highest in children younger than 12 months old (9423 per 100,000), followed by children aged 1 year (3440 per 100,000) (Figure 2). LRTI hospitalisation rates were much lower for children aged 2+ years. Among children younger than 12 months old, boys had a much higher hospitalisation rate (11,569 per 100,000) than girls (7154 per 100,000).

Figure 2: Lower respiratory tract infection hospitalisations in children aged 0–4 years, by age group and sex, 2016 (crude rate per 100,000)



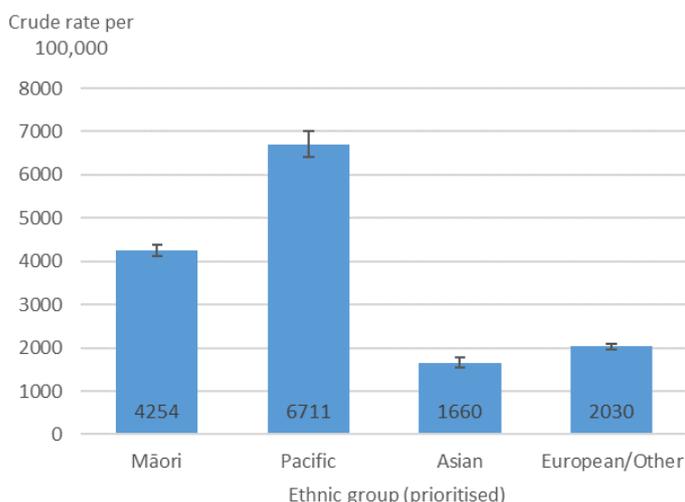
Source: National Minimum Dataset

Pacific and Māori children have higher hospitalisation rates for lower respiratory tract infections

In 2016, LRTI hospitalisation rates were highest among Pacific (6711 per 100,000) and Māori (4254 per 100,000) children (Figure 3). The rates for European/Other children (2030 per 100,000) and Asian children (1660 per 100,000) were substantially lower.

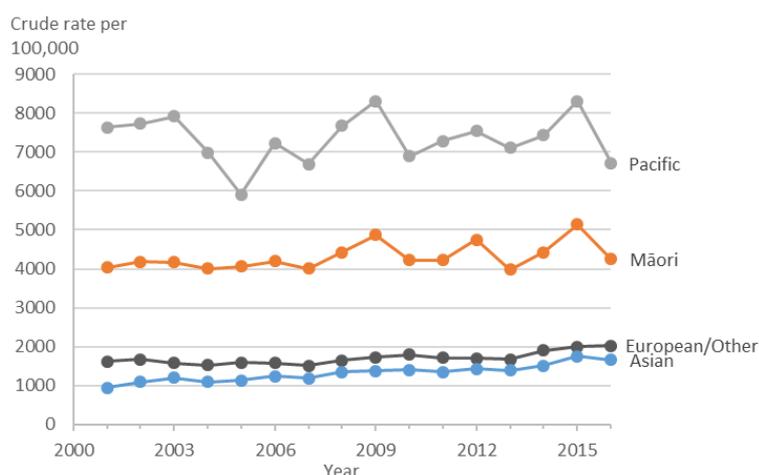
The LRTI hospitalisation rates decreased for Pacific and Māori children from 2015 to 2016 (Figure 4). From 2001 to 2016, the LRTI hospitalisation rate increased for Asian children (from 948 per 100,000 in 2001, to 1660 per 100,000 in 2016) and European/Other children (1619 per 100,000, to 2030 per 100,000), but had not change significantly for Māori children (4039 per 100,000, to 4254 per 100,000), and had decreased for Pacific children (7634 per 100,000, to 6711 per 100,000).

Figure 3: Lower respiratory tract infection hospitalisations in children aged 0–4 years, by prioritised ethnic group, 2016 (crude rate per 100,000)



Source: National Minimum Dataset

Figure 4: Lower respiratory tract infection hospitalisations in children aged 0–4 years, by prioritised ethnic group, 2001–2016 (crude rate per 100,000)



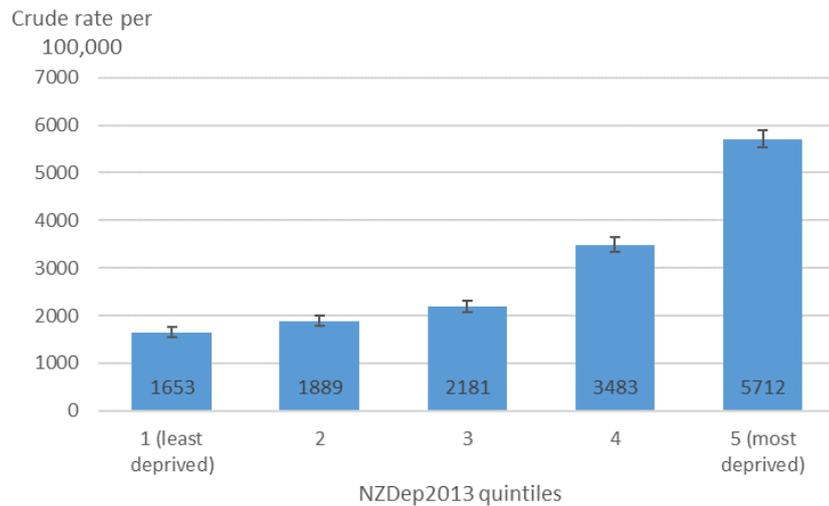
Source: National Minimum Dataset

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Higher LRTI hospitalisation rates for children living in more deprived areas

In 2016, the LRTI hospitalisation rate was higher for children living in more deprived areas (NZDep2013 quintile 5) (5712 per 100,000) than those in the least deprived areas (quintile 1) (1653 per 100,000) (Figure 5). The hospitalisation rate was 3.5 times as high in the most deprived areas (quintile 5) than in the least deprived areas (quintile 1) (rate ratio = 3.46, 95% confidence interval 3.21–3.72).

Figure 5: Lower respiratory tract infection hospitalisations in children aged 0–4 years, by NZDep2013 quintiles, 2016 (crude rate per 100,000)

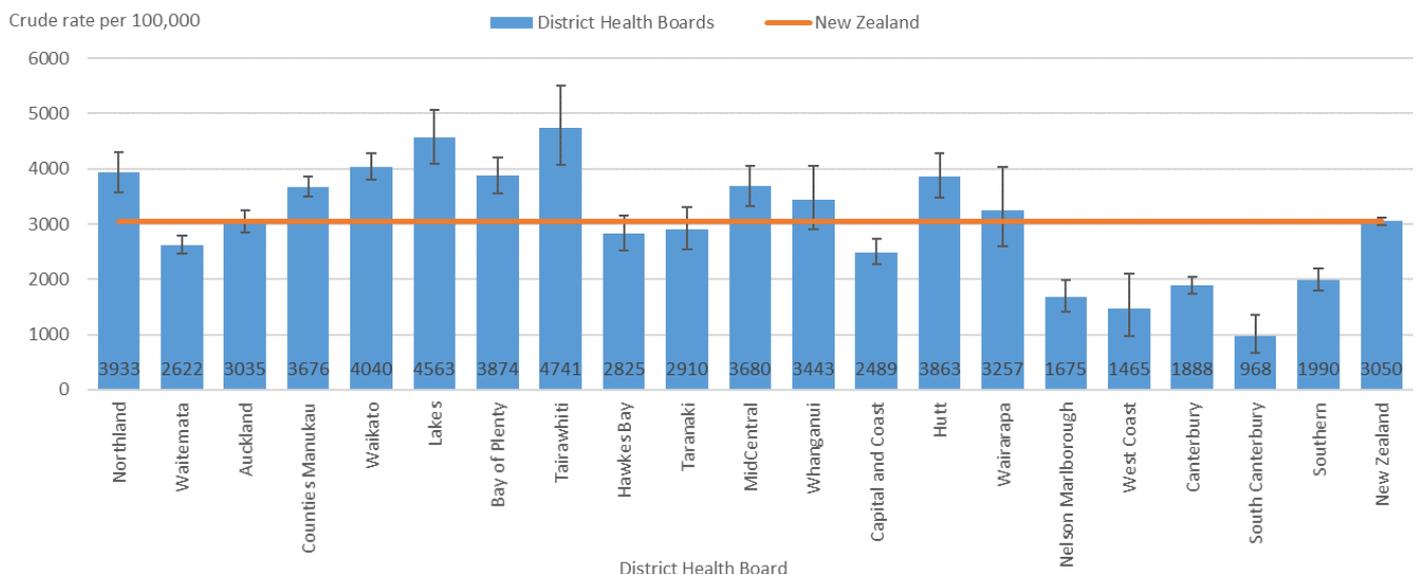


Source: National Minimum Dataset

Tairawhiti and Lakes DHBs had the highest LRTI hospitalisation rates in 2016

In 2016, there were substantial regional differences in the children’s LRTI hospitalisation rates (Figure 6). The highest LRTI hospitalisation rates were in Tairawhiti, Lakes, Waikato and Northland District Health Boards (DHBs). The DHBs with the lowest LRTI hospitalisation rates were all in the South Island.

Figure 6: Lower respiratory tract infection hospitalisations in children aged 0–4 years, by District Health Board, 2016 (crude rate per 100,000)



Source: National Minimum Dataset

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DATA SOURCES AND ANALYSIS

Data come from the National Minimum Dataset, from the Ministry of Health. The indicator presents acute and semi-acute hospital admissions for pneumonia (ICD-10 AM J12–J18), bronchitis (J20), bronchiolitis (J21) and unspecified acute lower respiratory tract infection (J22). The analysis has excluded transfers within and between hospitals, overseas visitors and deaths, but has included day-cases and emergency department visits of at least three hours, to align with the Child and Youth Epidemiological Service’s approach to analysing childhood medical hospitalisations (Simpson et al., 2017), and because this is considered to be the best approach for having regional consistency in childhood hospitalisations for medical reasons (HQSC, 2016).

Crude rates have been presented, rather than age-standardised rates, due to the small age group. 95% confidence intervals have been presented for this indicator. For more information about this indicator, see the metadata.

RELATED INDICATORS

Related environmental health indicators for the indoor environment, available from the EHINZ website (www.ehinz.ac.nz), include:

- Second-hand smoke exposure
- Maternal smoking at two weeks postnatal
- Household crowding
- Asthma prevalence
- Asthma hospitalisations
- Sudden unexpected death in infancy (SUDI)
- Meningococcal disease.

See also the indicators in the Air Domain.

REFERENCES

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