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Related indicators

Helene Marsters
Senior Intelligence Analyst

Lower respiratory tract infection hospitalisation (0–4 years)

This factsheet presents information on lower respiratory tract infection (LRTI) hospitalisation rates among children aged 0–4 years in New Zealand.

Marked reduction in LRTI hospitalisations in 0–4 year olds coincided with the COVID-19 lockdown in 2020.

The usual winter LRTI hospitalisation peak was down by 85% in 2020.

Infants (under one-year-old) continue to have the highest LRTI hospitalisation rates since 2001.

Pacific and Māori children had three times the rate of LRTI hospitalisation as European/Other children in 2020.

NZ Dep

Children living in the most deprived areas (NZDep 2018 quintile 5) had almost three times the rate of LRTI hospitalisation as children living in the least deprived areas (quintile 1).

Poor indoor and outdoor air quality increases the risk of lower respiratory tract infections among children

Lower respiratory tract infections (LRTI) refer to infections of the windpipe (trachea), lungs, and airways (bronchi, bronchioles). These include pneumonia, bronchitis and bronchiolitis. Household crowding, second-hand smoke exposure (Baker et al 2013; U.S. Department of Health and Human Services 2007), indoor dampness and mould (Fisk et al 2010) and outdoor air pollution (Mehta et al 2013) increase the risk of lower respiratory tract infections in young children. Compared with other developed countries, New Zealand has high rates of LRTI hospitalisation among young children (Trenholme et al 2013). For more background information, please visit our website.

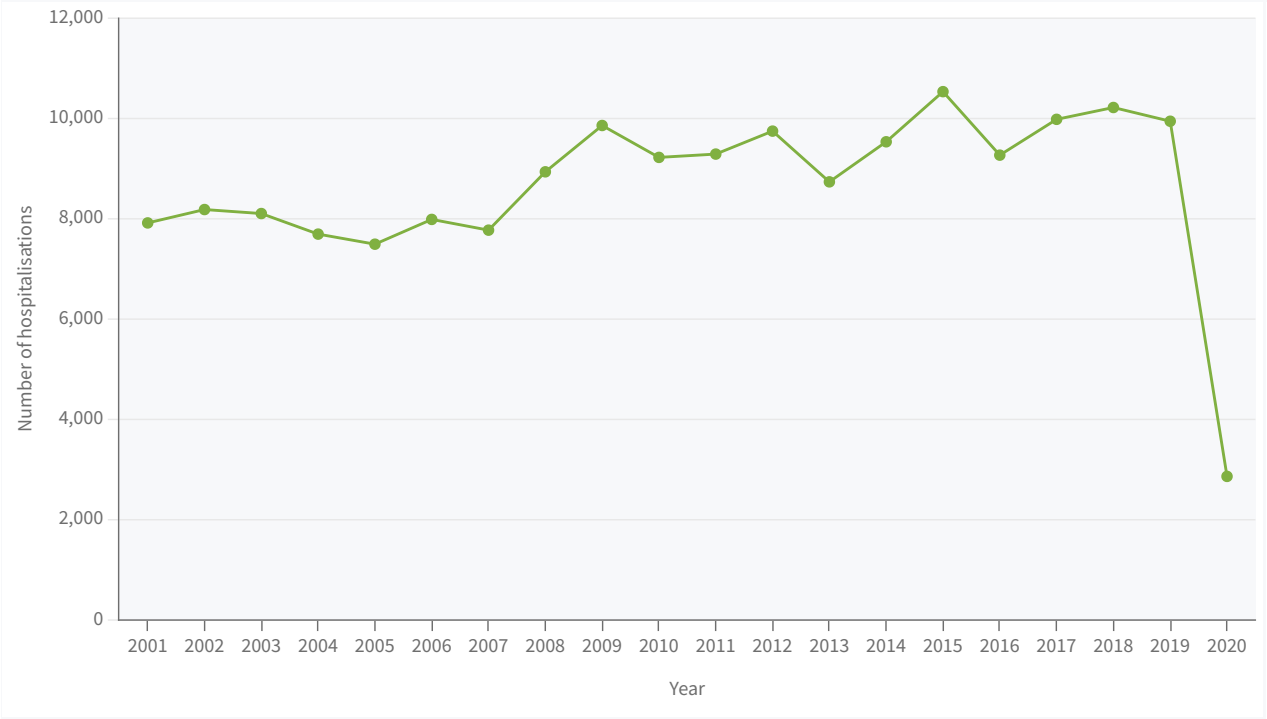
The COVID-19 pandemic

In March 2020, the New Zealand Government pursued an elimination strategy for COVID-19. New Zealand moved to Alert Level 4 (Lockdown) on 25 March 2020, along with temporary border closures, quarantine requirements, community testing, school closures, and contact tracing. These public health measures appeared to have affected lower respiratory tract infection (LRTI) hospitalisation rates in children 0–4 years in 2020.

Number of LRTI hospitalisations decreased dramatically in 2020

In 2020, there were 2856 LRTI hospitalisations in children under five years old, a 71% decrease since 2019 (9939 hospitalisations)(Figure 1).

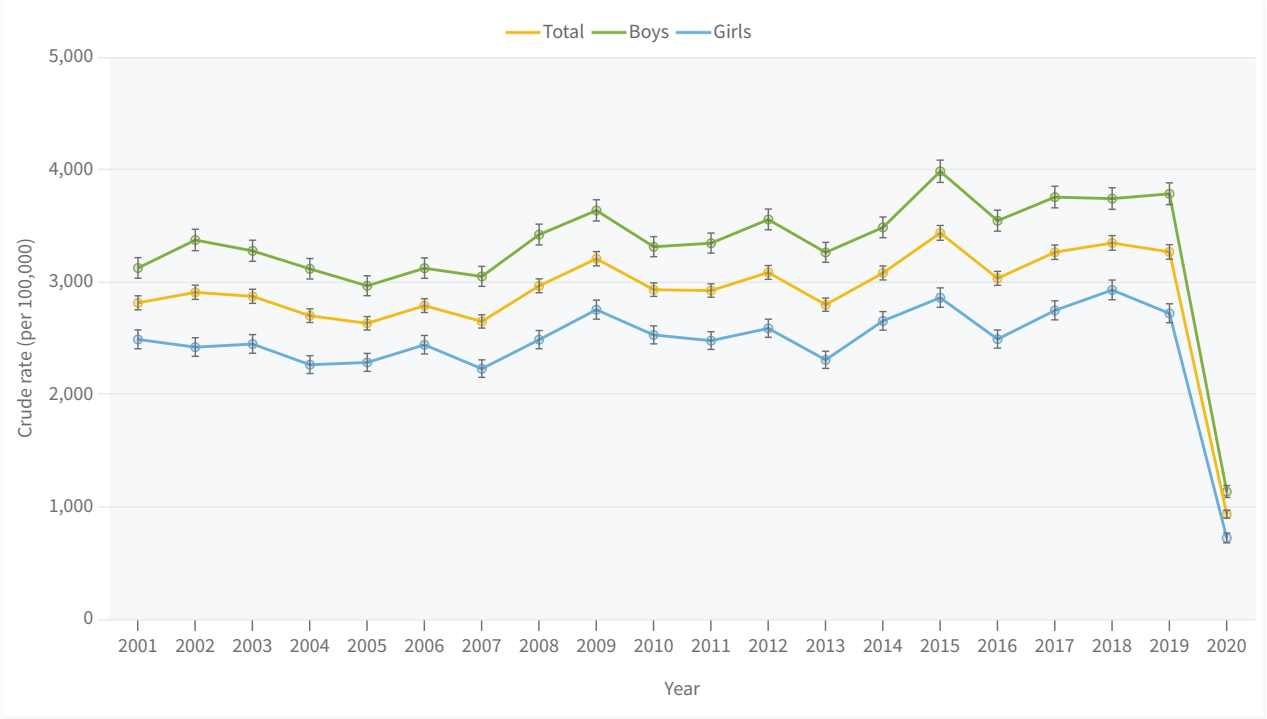
Figure 1 Number of lower respiratory tract infection hospitalisations in children aged 0-4 years, 2001-2020



Source: National Minimum Dataset, Ministry of Health 2021

LRTI hospitalisation rates were substantially lower in 2020 (935.4 per 100,000) than in previous years (Figure 2) . LRTI hospitalisation rates have dramatically dropped since the government implemented a nationwide COVID-19 lockdown on 25 March 2020. Respiratory viral infections also declined overseas due to public health interventions for COVID-19 (Groves et al 2021; Britton et al 2020).

Figure 2 Lower respiratory tract infection hospitalisations in children aged 0–4 years, by sex, 2001-2020 (crude rate per 100,000)



Note: 95% confidence intervals have been presented as error bars.

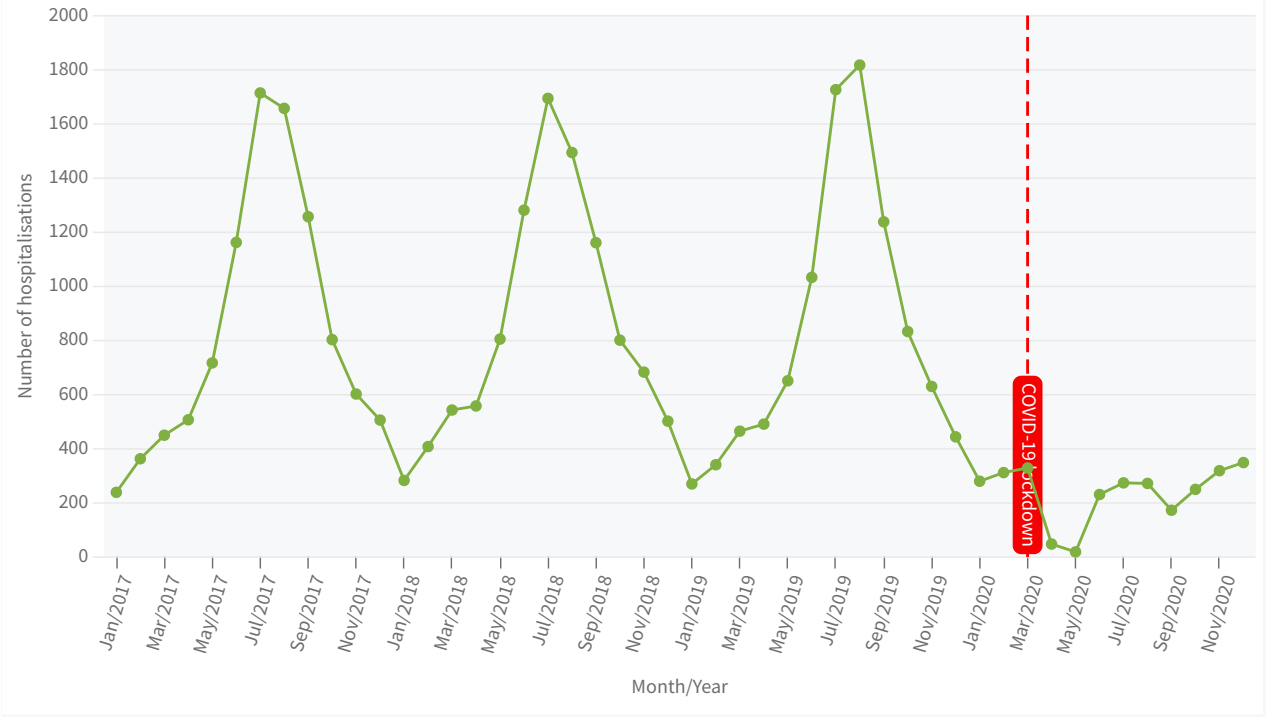
Source: National Minimum Dataset, Ministry of Health 2021

As with other childhood respiratory illnesses such as asthma (Fuseini and Newcomb 2017), boys have higher LRTI hospitalisation rates than girls. In 2020, the rate for boys was 1136.4 per 100,000 compared with 723.5 per 100,000 for girls (Figure 2).

Usual winter LRTI hospitalisation peak was down by 85%

The LRTI hospitalisation rate during the 2020 winter season was very low compared to previous years since 2001. There were 272 hospitalisations in August 2020, down from 1817 in August 2019 (Figure 3). This dramatic decrease in LRTI hospitalisations is likely related to the strict public health measures implemented during the COVID-19 pandemic, and is consistent with other studies in New Zealand (Trenholme et al 2021, Huang et al 2021) and overseas (Groves et al 2021, Britton et al 2020, Lee et al 2020). While a decrease in LRTI hospitalisation rates occurred in 2020 due to lockdowns, it remains to be seen whether lower rates will continue as COVID-19 restrictions ease over time.

Figure 3 Number of lower respiratory tract hospitalisations in children aged 0-4 years, by month, 2017-2020



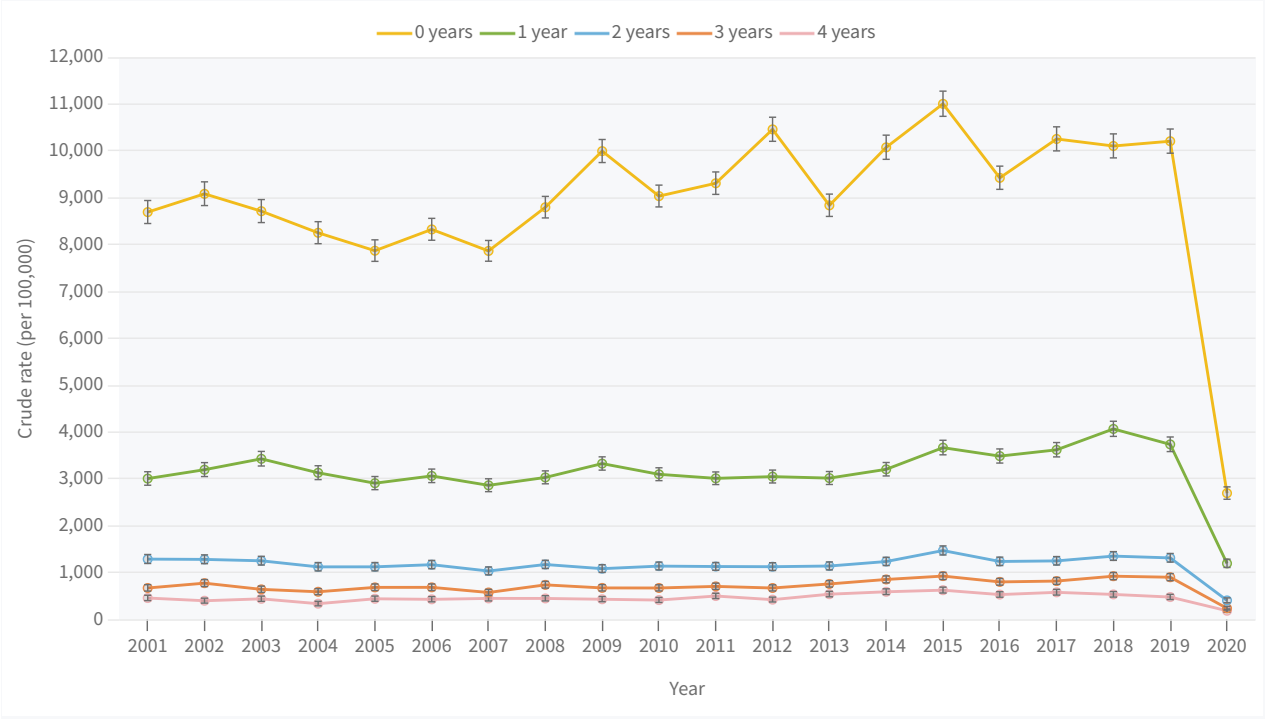
Note: 95% confidence intervals have been presented as error bars.

Source: National Minimum Dataset, Ministry of Health 2021

Infants continued to have the highest LRTI hospitalisation rates

In 2020, infants (under one-year-old) had the highest rate (2698.3 per 100,000) of LRTI hospitalisations compared to children aged 1-4 years (Figure 4).

Figure 4 Lower respiratory tract hospitalisations in children aged 0-4 years, by age, 2001-2020 (crude rate per 100,000)



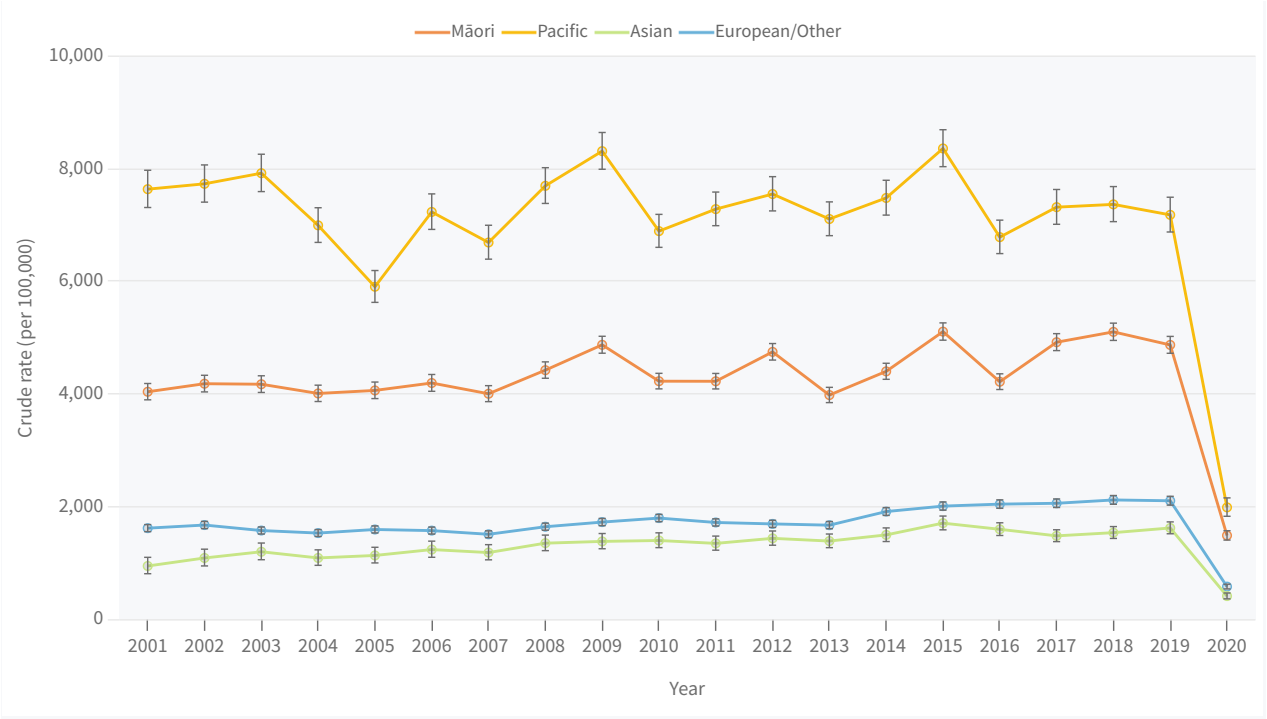
Note: 95% confidence intervals have been presented as error bars.

Source: National Minimum Dataset, Ministry of Health 2021

Pacific and Māori children were disproportionately affected by LRTI

Since 2001, Māori and Pacific children consistently had higher rates of LRTI than European/Other children (Figure 5). In 2020, the LRTI hospitalisation rate was three times higher in Pacific (1987.7 per 100,000) and Māori (1488.7 per 100,000) children than European/Other children. In Pacific infants (under one year old), the rate was four times higher than European/Other children in 2020.

Figure 5 Lower respiratory tract infection hospitalisations in children aged 0-4 years, by ethnic group (prioritised), 2001-2020 (crude rate per 100,000)



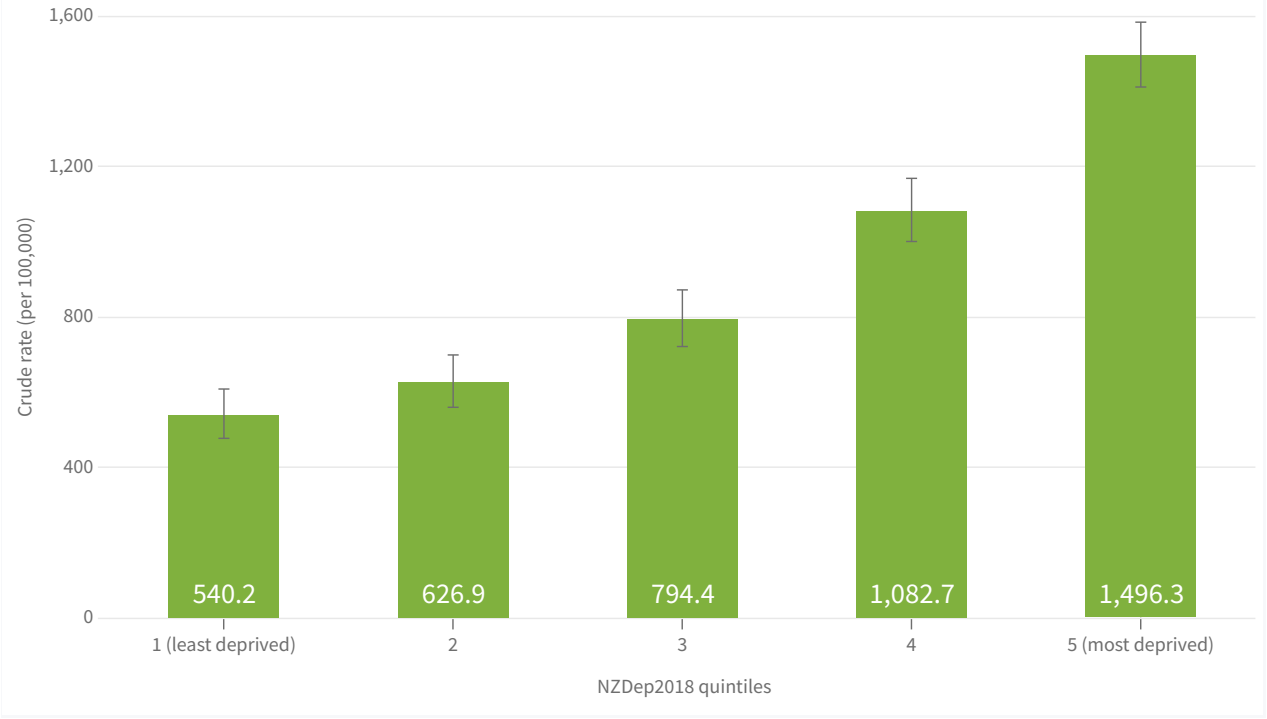
Note: 95% confidence intervals have been presented as error bars.

Source: National Minimum Dataset, Ministry of Health 2021

Higher LRTI hospitalisaton rates in more deprived areas

In 2020, LRTI hospitalisation rates were much higher in more socioeconomically deprived areas. Children living in the most deprived areas (NZDep 2018 quintile 5) had almost three times the rate of LRTI hospitalisation as children living in the least deprived areas (quintile 1) (Figure 6).

Figure 6 Lower respiratory tract infection hospitalisations in children aged 0-4 years, by NZDep 2018 quintiles, 2020 (crude rate per 100,000)



Note: 95% confidence intervals have been presented as error bars.

Source: National Minimum Dataset, Ministry of Health 2021

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Interactive regional dashboard

Data for this indicator

This indicator is an analysis of the most recent data available from the National Minimum Dataset, provided to EHINZ by the Ministry of Health in August 2021.

This indicator reports on LRTI hospitalisations among children aged 0–4 years with a primary diagnosis in the following ICD-10AM codes:

- pneumonia (J12, J13, J14, J15, J16, J18)
- bronchitis (J20)
- bronchiolitis (J21)
- unspecified acute lower respiratory tract infection (J22).

For additional information, see the metadata link below.

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Other related topics include:

Second-hand smoke exposure Health burden due to second-hand smoke exposure Household crowding

Particulate matter

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Contact

ehinz@massey.ac.nz

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Further information

For descriptive information about the data Metadata Sheet

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