

Information topic	Details
Indicator name	Lower respiratory tract infection hospitalisations in children aged 0–4 years
Domain and topic	Indoor environment (and Children’s Environmental Health) domain: Lower respiratory tract infections
Indicator definition and units	The number and rate of hospitalisations for lower respiratory tract infections, among children aged 0–4 years. Rates are presented per 100,000 population.
Data source	National Minimum Dataset (NMDS), Ministry of Health.
Numerator	<p>Acute hospital admissions with a primary diagnosis of pneumonia (ICD-10 AM J12, J13, J14, J15, J16, J18), bronchitis (J20), bronchiolitis (J21) or unspecified acute lower respiratory tract infection (J22), among children aged 0–4 years.</p> <p>The indicator includes overnight hospital admissions for acute or semi-acute/arranged visits (admission type in ‘AA’, ‘AC’, ‘ZA’, ‘ZC’).</p> <p>The following hospitalisations were excluded from analysis:</p> <ul style="list-style-type: none"> • transfers within or between hospitals • overseas visitors <p>Day cases and emergency department cases meeting the three-hour threshold have been included, to align with the approach taken by the Child and Youth Epidemiology Service (Simpson et al 2017) and Health Quality and Safety Commission (2020). It is thought that this is the best way to measure childhood medical hospitalisations across the country, as some hospitals admit children as an in-patient, while other hospitals treat children in a short-stay unit.</p>
Denominator	Population estimates (2018 and prior) and projections (after 2018) from Statistics New Zealand. For the NZDep2018 analysis, the 2018 denominator population by NZDep2018 deciles, age group and sex has been used.
Methodology	<p>Confidence interval 95% confidence intervals were calculated based on the methodology outlined in APHO (2008). Confidence intervals are presented as error bars on graphs.</p> <p>Interpreting graphs Crude rates are suppressed for counts less than 5 or populations less than 30, due to unreliability of the estimate with small numbers.</p> <p>Prioritised ethnic groups have been used, in the following prioritisation order: Māori, Pacific peoples, Asian, European/Other.</p>

Metadata

Time period and time scale	Annual data, from 2001 to the most recent data available.
Population coverage	New Zealand usually resident population aged 0–4 years.
Spatial Coverage	Nationally, with regional results available by District and Territorial Authority (TA)
Measures of frequency	Results are presented by year, sex, age group, prioritised ethnicity, NZDep2018 decile (Atkinson et al 2021), District and TA.
Limitations of indicator	<ul style="list-style-type: none"> - The indicator only covers lower respiratory tract infections that resulted in hospital admissions. - The indicator presents the rate of hospitalisations and does not give information about the number of children affected; some children may be admitted more than once in a year, and each hospitalisation is counted in our analysis.
Limitations of data source	<p>From 2000 to about 2009, there were regional variations in whether providers uploaded their day cases to the NMDS. This has led to issues when comparing regions and time series. One possible way of minimising this variation is to exclude day cases and emergency department short stay visits from the analysis. However, this approach is not necessarily appropriate for children, since some hospitals treat children in specialist paediatric short-stay units, rather than admitting the child to hospital. For this reason, and for consistency with other agencies, we have used the same approach as the Child and Youth Epidemiology Service (Craig et al 2013; Simpson et al 2017) and the Health Quality and Safety Commission (2020), and included all day cases and emergency department visits that meet the 3-hour treatment rule. However, this may mean that earlier years of data (especially 2000–2009) have undercounted the number of admissions, since some hospitals may not have recorded all day cases during this time period.</p>
Related indicators	<p>Second-hand smoke exposure Health burden due to second-hand smoke exposure Household crowding Particulate matter</p>
References	<p>APHO. 2008. <i>Technical Briefing 3: Commonly used public health statistics and their confidence intervals</i>. York, UK: Association of Public Health Observatories.</p> <p>Atkinson J, Salmond C, Crampton P. 2021. <i>NZDep2018 analysis of Census 2018 variables</i>. Wellington: Department of Public Health, University of Otago, Wellington. URL: https://www.otago.ac.nz/wellington/departments/publichealth/otago830998.html</p> <p>Craig E, Adams J, Oben G, et al. 2013. <i>The Health Status of Children and Young People in New Zealand</i>. Dunedin: New Zealand Children and Youth Epidemiology Service, University of Otago.</p>

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	<p>Health Quality and Safety Commission. 2020. <i>Atlas of Healthcare Variation Methodology: Asthma</i>. Wellington: Health Quality and Safety Commission. Available online: https://www.hqsc.govt.nz/assets/Our-data/Publications-resources/Methodology-asthma-update-2020.pdf (accessed 18 July 2022).</p> <p>Simpson J, Duncanson, M, Oben G, et al .2017. <i>The Health Status of Pacific Children and Young People in New Zealand 2015</i>. Dunedin: New Zealand Children and Youth Epidemiology Service, University of Otago.</p>
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