Metadata

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	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. The indicator includes overnight hospital admissions for acute or semi-acute/arranged visits (admission type in 'AA', 'AC', 'ZA', 'ZC'). The following hospitalisations were excluded from analysis: • transfers within or between hospitals • overseas residents 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 (2016). 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.
Denominator	• Hospitalisation rate: population estimates (Statistics New Zealand) • Hospitalisation rate by NZDep: NZDep2018 Index of Deprivation (Atkinson et al 2021).
Methodology	**Confidence interval** 95% confidence intervals were calculated based on the methodology outlined in APHO (2008). Confidence intervals are presented as vertical bars on graphs. **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. When comparing groups of varying population sizes, differences that involve small groups may not be statistically significantly different, compared with similar differences for larger groups. This is due to a higher variability associated with the rate of the small group. For a more detailed explanation of this issue, see Appendix 2 – EHINZ Analytical Toolkit & Glossary.

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 (formerly District Health Board (DHB) areas) and territorial authority (TA).
Measures of frequency	Results are presented by year, month, sex, age group, prioritised ethnicity, NZDep2018 decile, urban/rural classification, district, and TA.
Limitations of indicator	• 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	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 (2016), 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.
Related indicators	Household crowding Second-hand smoke exposure Particulate matter Other air pollutants
References	APHO. 2008. *Technical Briefing 3: Commonly used public health statistics and their confidence intervals*. York, UK: Association of Public Health Observatories. Atkinson J, Salmond C, Crampton P. 2021. NZDep2018 analysis of Census 2018 variables. Wellington: Department of Public Health, University of Otago, Wellington. URL: https://www.otago.ac.nz/wellington/departments/publichealth/otago830998.html Craig E, Adams J, Oben G et al. 2013. *The Health Status of Children and Young People in New Zealand*. Dunedin: New Zealand Children and Youth Epidemiology

Service, University of Otago.

Health Quality and Safety Commission. 2016. *Atlas of Healthcare Variation Methodology: Asthma*. Wellington: Health Quality and Safety Commission. Available online: https://www.hqsc.govt.nz/assets/Our-data/Publications-resources/Methodology-asthma-update-2020.pdf (accessed 6 Dec 2022).

Simpson J, Duncanson M, Oben G et al. 2017. *The Health Status of Pacific Children and Young People in New Zealand 2015*. Dunedin: New Zealand Children and Youth Epidemiology Service, University of Otago.