

Information topic	Details
Indicator name	Percentage of the population living in crowded households
Domain and topic	Indoor environment: Household crowding
Indicator definition and units	Number and percentage of people in New Zealand living in crowded households. A household is generally considered crowded if at least one or more bedrooms is needed (Stats NZ 2023): - Household crowding: at least one more bedroom is needed - Severe household crowding: at least two more bedrooms are needed.
Data source	New Zealand Census of Population and Dwellings, Stats NZ
Numerator	Number of people (usually resident population) living in households in occupied private dwellings that have been classified as crowded (2+ bedrooms needed or 1 bedroom needed)
Denominator	Number of people living in households in occupied private dwellings for which household crowding is known (i.e. Total stated). 'Total stated' is the total number of responses excluding any unknowns.
Methodology	In New Zealand, the number of bedrooms needed is defined using the Canadian National Occupancy Standard (CNOS). These criteria are (Stats NZ 2023): - there should be no more than two people per bedroom - children younger than five years may reasonably share a bedroom - children aged 5 to 17 years may reasonably share a bedroom only with the same gender (male only with another male, female only with female, and people of another gender only with someone else of another gender) - single adults 18 years and over and any additional children require a separate bedroom - household members 18 years and over should have a separate bedroom, as should parents or couples. Percentages for the population living in crowded households have been calculated among the 'total stated' population. The 2018 and 2023 Censuses had lower-than-expected response rates, resulting in missing data (unknown) for some people, households and dwellings. Alternative data sources

	were used by Stats NZ in some cases where data were missing. For example, counts of people in the published Stats NZ data tables include individuals from households where bedroom data was imputed. In such cases — for example, when input data was missing or flagged as unlikely (such as in some retirement village situations) — these households were coded as ‘Not stated’. While some households were excluded from the 2018 published counts due to non-derived values, they have been included in the 2023 Census output counts under the ‘Not stated’ category. Additionally, this indicator uses the published Census data table about people living in crowded households. This Census table gives a ‘total population’ of 4.64 million people (out of about 5 million people usually resident in New Zealand). Therefore, this Census table excludes about 350,000 people, including people who could not be placed in a household, and people living in non-private occupied dwellings (such as hospitals, residential care units, student hostels and motels). To account for some of the missing data, we present the lower and upper logical bounds of what the percentage could be, allowing for the ‘unknowns’ in the Census data table. The lower bound is calculated as the count among the ‘total population’, whereas the upper bound is calculated as the sum of the count and unknowns among the ‘total population’. However, these logical bounds do not take into account the 350,000 people not included in the Census table (some of whom could not be placed in a dwelling), and therefore the logical bounds should be considered indicative only.
Time period and time scale	Census years (eg 2013, 2018, 2023)
Population coverage	Results for household crowding from the Census are for the usually resident population (people who usually live in and were present in New Zealand on Census night) who live in households in occupied private dwellings. The usually resident population excludes overseas visitors and New Zealand residents temporarily overseas.
Spatial Coverage	National, territorial authority, district (formerly district health board)
Measures of frequency	Results are presented by age group, ethnic group (total response), district (formerly district health board), and territorial authority.
Limitations of indicator	Different cultural attitudes to space/room utilisation and different understanding of what constitutes crowding may cause some cultural groups to exhibit a greater degree of household crowding than others.

Limitations of data source	Household crowding is a derived variable from the Census, but the inputs for crowding have been rated by Stats NZ as very high, high, or moderate quality. Where possible, alternative data sources (admin data, historical census data, statistical imputation) were used by Stats NZ to fill in gaps in 2018 and 2023 Census data for household crowding. The changes to the Census methodology in 2018 and 2023 improved coverage of populations, particularly Māori and Pacific peoples. Households with Māori and Pacific peoples may also have a higher proportion of input variables sourced alternatively. However, Māori and Pacific peoples are overrepresented among those who could not be placed in a household, leading to a potential undercount of those living in crowded conditions. Despite this, a larger proportion of people, including Māori and Pacific peoples, were successfully placed in households compared to the 2018 census. Stats NZ notes that there are differences in 2018 counts between the 2023 Census outputs and the 2018 Census outputs. These differences are due to the following: - The 2018 Census household dataset was updated after the release of crowding data. - The 2018 published counts excluded some households that were not derived values, which are now coded as 'Not stated' and included in the 2023 Census output. Counts by total response ethnic groups means totals add up to more than 100%, as an individual can select more than one ethnicity. This makes direct comparisons between ethnic groups difficult.
Related indicators	- Lower respiratory tract infections (hospitalisations in children aged 0–14 years) - Meningococcal disease notifications in children aged 0–14 years - Social vulnerability indicators
References	Stats NZ. 2023. <i>Household crowding index 2023–Census</i> – Stats NZ DataInfo+. URL: Household crowding index – 2023 Census - Stats NZ DataInfo+ Goodyear, RK, Fabian, A, & Hay, J. 2011. <i>Finding the crowding index that works best for New Zealand</i>. (Statistics New Zealand Working Paper No 11–04). URL: https://www.stats.govt.nz/research/finding-the-crowding-index-that-works-best-for-new-zealand-applying-different-crowding-indexes-to-census-of-population-and-dwellings-data-for-19862006 (Available from www.stats.govt.nz).