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 houses A household is generally considered overcrowded if at least one or more bedrooms is needed (Statistics New Zealand 2020): - 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, Statistics New Zealand https://www.stats.govt.nz/news/almost-1-in-9-people-live-in-a-crowded-house
Numerator	Number of people (usual residents) living in a household that has been classified as an overcrowded household, all ages (2+bedrooms needed, 1 bedroom needed)
Denominator	Number of people living in households for which household crowding is known (ie Total stated). 'Total stated' is the total number of responses excluding any unknowns.
Methodology	In New Zealand, the number of bedrooms needed if defined using the Canadian National Occupancy Standard (CNOS). These criteria are (Statistics New Zealand 2020): - There should be no more than two people per bedroom - Children younger than five years may reasonably share a bedroom - Children five years or older of different sexes should not share a bedroom - Children younger than 18 years and of the same sex may reasonably share a bedroom - Household members 18 years or over should have a separate bedroom, as should parents or couples Counts of people in the published Stats NZ data tables exclude people from households where bedroom data was imputed. Data for these people have been included in the not stated/Unknown category. Percentages: Percentages are calculated using 'total stated' and not 'total' according to Stats NZ recommendation.

	Logical bounds:The 2018 Census suffered from implementation problems, and as a result, had a lower than expected response rate resulting in missing data. We therefore present the lower and upper logical bounds of what the percentage could be, allowing for the missing data. The lower bound is calculated as the count among the total value, whereas the upper bound is calculated as the sum of the count and unknowns among the total value.
Time period and time scale	From 2006 onwards (ie 2006, 2013, 2018). Generally, every 5 years.
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). The usually resident population excludes overseas visitors and New Zealand residents temporarily overseas. Household crowding covers households in occupied private dwellings.
Spatial Coverage	National, territorial authority, district
Measures of frequency	- Percentage of population living in crowded households - Percentage of population living in severely crowded households - Percentage of population living in crowded households, by age (including children 0–14 years) - Percentage of population living in crowded households, by ethnic group (total response) - Percentage of population living in crowded households, by TA - Percentage of population living in crowded households, by district
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 (administrative data, 2013 Census data, imputation) were used to fill in gaps in 2018 Census data for household crowding. Stats NZ (2020) noted 'there were over 300,000 people who could not be placed into households in the 2018 data. As a result, the

	number of people, including Māori and Pacific peoples, who lived in a crowded house may be undercounted. However, the impact on a time series is reduced, as in previous censuses there was no imputation or added sources of data used for ethnicity. For example, in 2013, around 200,000 people did not have an ethnicity record, which also meant that crowding for different ethnic groups would have been undercounted'. Stats NZ also notes that the level and patterns of household crowding in 2018 are consistent with previous censuses, and the patterns are also similar to the other surveys (Stats NZ 2020). Counts by total response ethnicity 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 hospitalisations in children aged 0-14 years
For more information	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
References	Statistics New Zealand. 2020. *Almost 1 in 9 people live in a crowded house*. Wellington: Statistics New Zealand (available from https://www.stats.govt.nz/news/almost-1-in-9-people-live- in-a-crowded-house, accessed April 2020)