



# Understanding multiple deprivation

A supplementary handout  
for April 12 presentation to  
CPAG Nelson  
by Dan Exeter

## **Index of Multiple Deprivation (IMD)**

The IMD measures deprivation at the neighbourhood-level in custom designed data zones that have an average population of 712. Data zones are aggregations of Statistics New Zealand's census meshblocks (approximately 8 meshblocks per data zone) and in urban settings they are just a few streets long and a few streets wide. They are designed to produce better small area information without losing their contents to suppression or confidentiality.

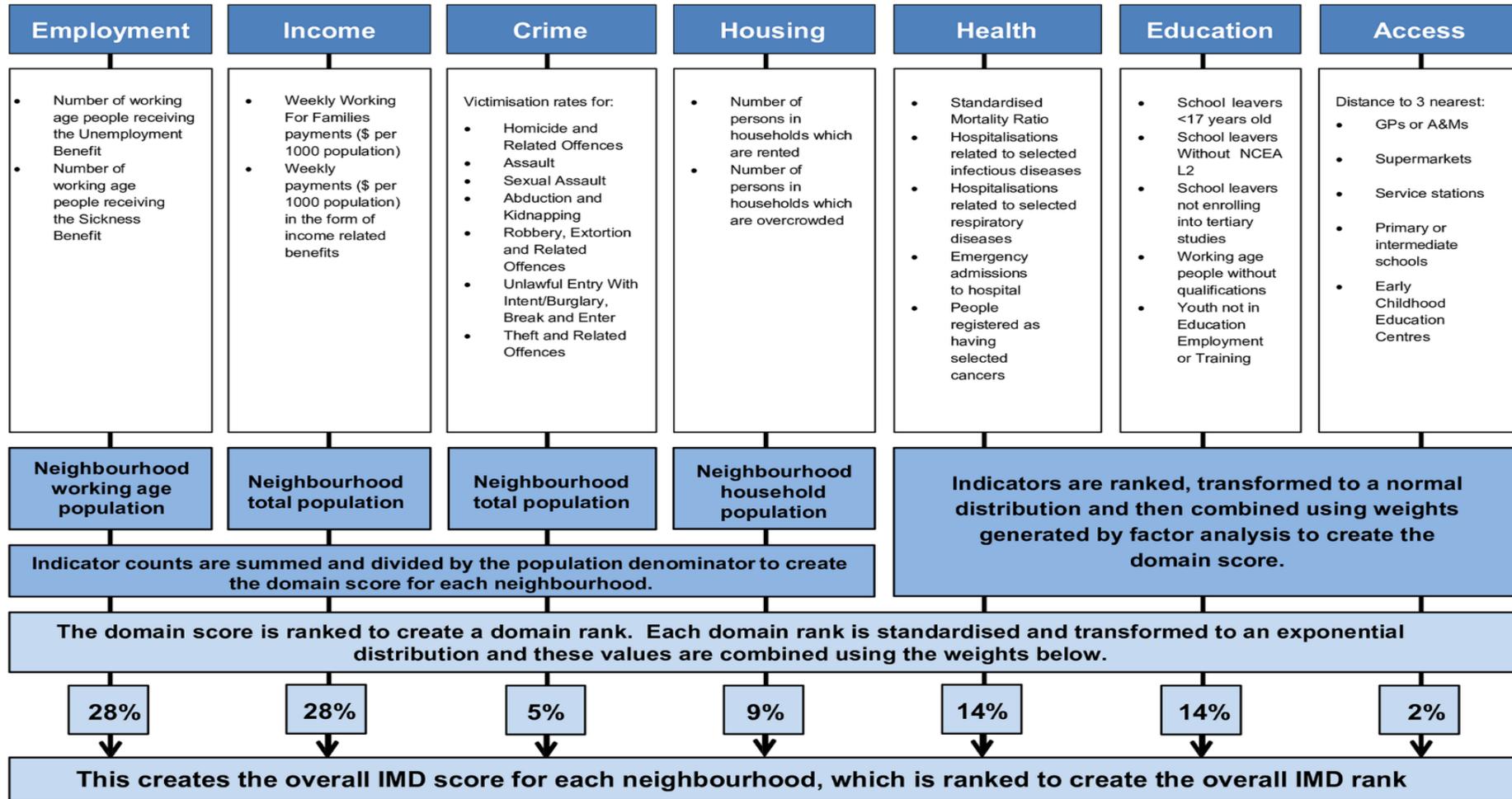
The IMD uses routinely collected data from government departments, census data and methods comparable to current international deprivation indices to measure different forms of disadvantage. It is comprised of 28 indicators grouped into seven domains of deprivation: Employment, Income, Crime, Housing, Health, Education and Access to services. The IMD is the combination of these seven domains, which may be used individually or in combination to explore the geography of deprivation and its association with a given health or social outcome. Figure 1 shows the IMD's 28 indicators and seven domains with their weightings.

The Index of Multiple Deprivation was developed by the [IMD team](#): Dr Daniel John Exeter, Dr Jinfeng Zhao, Dr Sue Crengle, Dr Arier Chi Lun Lee and Michael Browne, with help and support from numerous individuals and organisations.

Further information on the IMD can be found here  
<https://www.fmhs.auckland.ac.nz/en/soph/about/our-departments/epidemiology-and-biostatistics/research/hgd/research-themes/imd.html>

– including an interactive tool which allows you to explore deprivation in your city / town / neighbourhood.

# The New Zealand Index of Multiple Deprivation 2013



**Employment:** The employment indicator measures the degree to which the working age population is excluded from paid employment. It comprises two indicators that use data from the Ministry of Social Development. The first is the number of people in the working age population receiving a Sickness Benefit and the second is the working age population receiving an Unemployment Benefit on the last week of March 2013.

**Income:** This IMD measure captures income deprivation by assessing the level of financial support provided by the state to those whose income is considered inadequate. The first measure is the number of people receiving Working for Families Tax Credits (\$per 1000 population). The other measure includes payments from Inland Revenue (i.e. WFF tax Credits, Child Tax Credits, and Paid Parental Leave for working people).

**Crime:** This measure was created using data from the NZ Police's Recorded Crime Victimization Statistics (RCVS) dataset, which counts victims for seven major offence types. The scene of the offence was used to allocate the offence to a data Zone. A victimisation rate (per 1000) was calculated and then ranked in order of increasing victimisation rates.

**Housing:** The housing domain is constructed from of two indicators that are derived from 2013 census data: the proportion of population living in overcrowded households and the proportion of people living in rented accommodation. The indicators were weighted 60:40 respectively because in the literature, overcrowding had a stronger correlation with poor social outcomes than living in renting accommodation.

**Health:** The health indicator identifies areas with a greater than expected level of ill-health or mortality using data from the Ministry of Health. The five chosen indicators were given different weightings using exploratory factor analysis (the maximum likelihood method): Emergency Department admissions to hospital (0.42). The selected indicators (and their respective weightings) were: Acute Hospitalisations related to respiratory disease with a social gradient (0.28); Acute hospitalisations related to infectious diseases with a social gradient (0.19); Standardised Mortality Ratio (0.08) and Registration for cancers with a social gradient (0.04).

**Access:** The access domain is intended to measure the cost and inconvenience of travelling in order access what are seen as basic amenities. The amenities used in this domain (with their associated weightings in brackets) include access to a GP or Accident and Emergency Clinic with a weighting value, (0.26), access to a Petrol Station (0.23), Supermarket (0.20), School for Years 1 to 8 (0.15), Early Childhood Education Centre (0.15).

**Education:** The education domain has five components, each with a different weight calculated on standardised scoring coefficients generated by factor analysis (Exeter et al., 2017). Out of these, three were extracted from information held in Statistics New Zealand's Integrated Data Infrastructure and these are: school leavers with less than NCEA Level 2 (0.30), school leavers younger than 17 years old (0.25), and school leavers not transitioning to tertiary studies (0.06). The other two indicators were derived from 2013 Census data which measured Youth not in Education, Employment or Training (0.13) and Working age people 15-64 with no qualification (0.26).