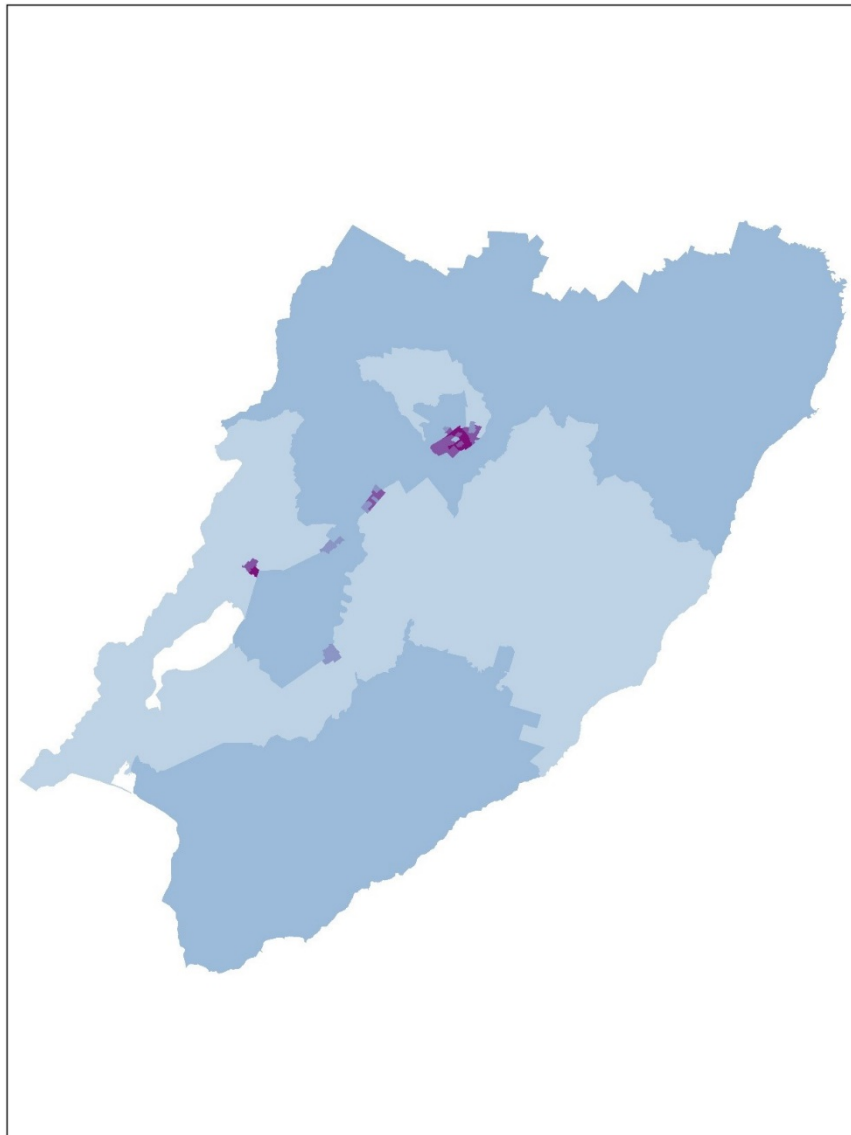# A deprivation and demographic profile of the Wairarapa DHB

Wairarapa DHB, showing overall IMD deprivation
with the most deprived areas shaded darkest

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Acknowledgments

A deprivation and demographic profile of the Wairarapa DHB

The New Zealand Index of Multiple Deprivation (IMD) allows one to look at disadvantage in overall terms, as well as in terms of seven domains of deprivation: Employment, Income, Crime, Housing, Health, Education and Access. The seven domains are weighted to reflect the relative importance of each domain in representing the key determinants of socio-economic deprivation, the adequacy of their indicators and the robustness of the data that they use. Figure 1 shows the IMD's 28 indicators and weightings of the seven domains.

The IMD measures deprivation at the neighbourhood level using custom designed data zones that were specifically developed for social and health research. The New Zealand (NZ) land mass has 5,958 neighbourhood-level data zones that have a mean population of 712 people. In urban settings, they are just a few streets long and a few streets wide. Data zones are ranked from the least to most deprived (1 to 5958) and grouped into five quintiles. Q1 (light shading) represents the least deprived 20% of data zones in the whole of NZ; while Q5 (dark shading) represents the most deprived 20%. This multidimensional deprivation information is combined with demographic information from the 2013 census to produce a DHB profile.
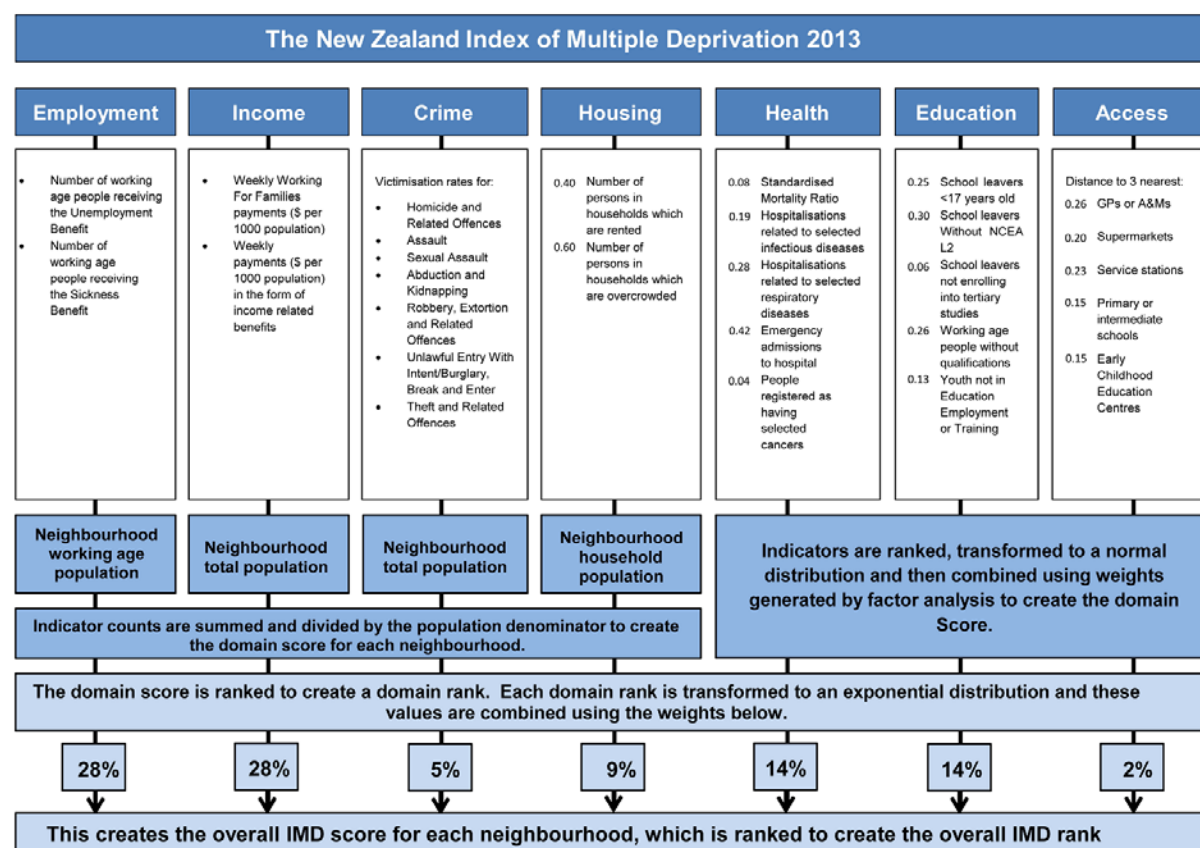
Figure 1. Flow diagram showing the IMD, its indicators, domains and weights. Adapted from Figure 4.2 SIMD 2012 Methodology, in Scottish Index of Multiple Deprivation 2012. Edinburgh: Scottish Government (Crown copyright 2012).

The stacked bar chart in Figure 2 shows the proportion of data zones in the Wairarapa DHB (WDHB) that belonged to each deprivation quintile for overall IMD deprivation and the seven domains in 2013. If the deprivation circumstances in the WDHB were the same as for all of NZ, we would see 20% of the WDHB's 58 data zones in each quintile. However, Figure 2 shows that the proportion of data zones with Q5 deprivation was less than 20% across all domains except for Health and Access. Conversely, the proportion of data zones with Q4 deprivation was greater than 20% except for the Crime and Housing Domains. As a result, the WDHB had relatively high levels of overall IMD deprivation, with 48.3% (28/58) of its data zones in either Q4 or Q5.
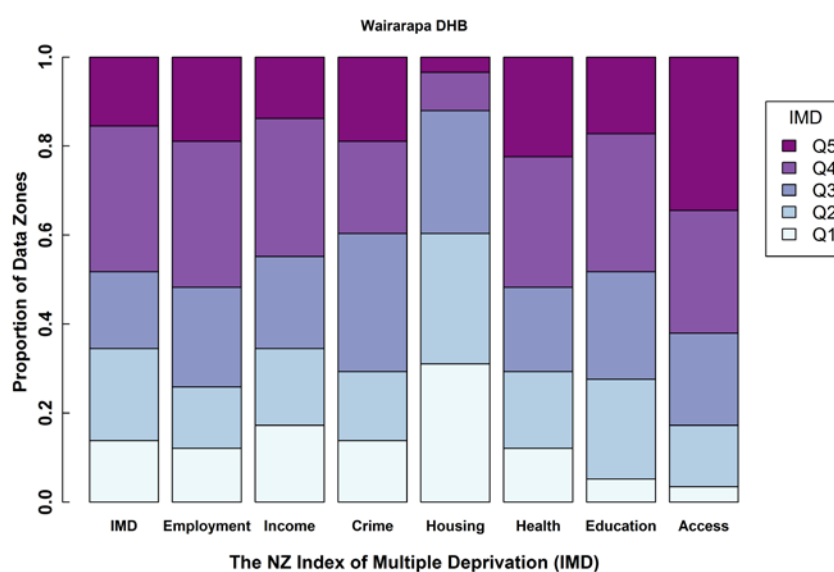
Figure 2. Stacked bar chart showing overall deprivation and seven domains in the WDHB

Table 1 shows summary statistics by domain for the nine WDHB's data zones that were among NZ's 20% most deprived (Q5) for the overall IMD, and reveals the contributions of different domains. In descending order, high (Q5) median deprivation ranks for Health (5295), Crime (5291), Income (5148), Employment (5054) and Education (5052) were contributing to high overall deprivation in these nine data zones in 2013, bearing in mind that these domains carry different weights in the IMD (see Figure 1).

Min, max and median[1] deprivation ranks by domain for 9 data zones with Q5 IMD							
	IMD	Employment	Income	Crime	Housing	Health	Education	Access
Min	4835	4389	4340	3410	2890	4519	4611	542
Max	5944	5856	5943	5940	5660	5947	5892	5305
Median	5250	5054	5148	5291	3992	5295	5052	2073

Table 1. Minimum, maximum and median deprivation ranks by domain for 9 data zones in the WDHB with Q5 IMD deprivation

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[1] When discussing the 20% most deprived data zones, ranks will usually be skewed, so it is better to discuss the median rank (the middle value) rather than the mean rank (the average, which can be disproportionately affected by very high values).
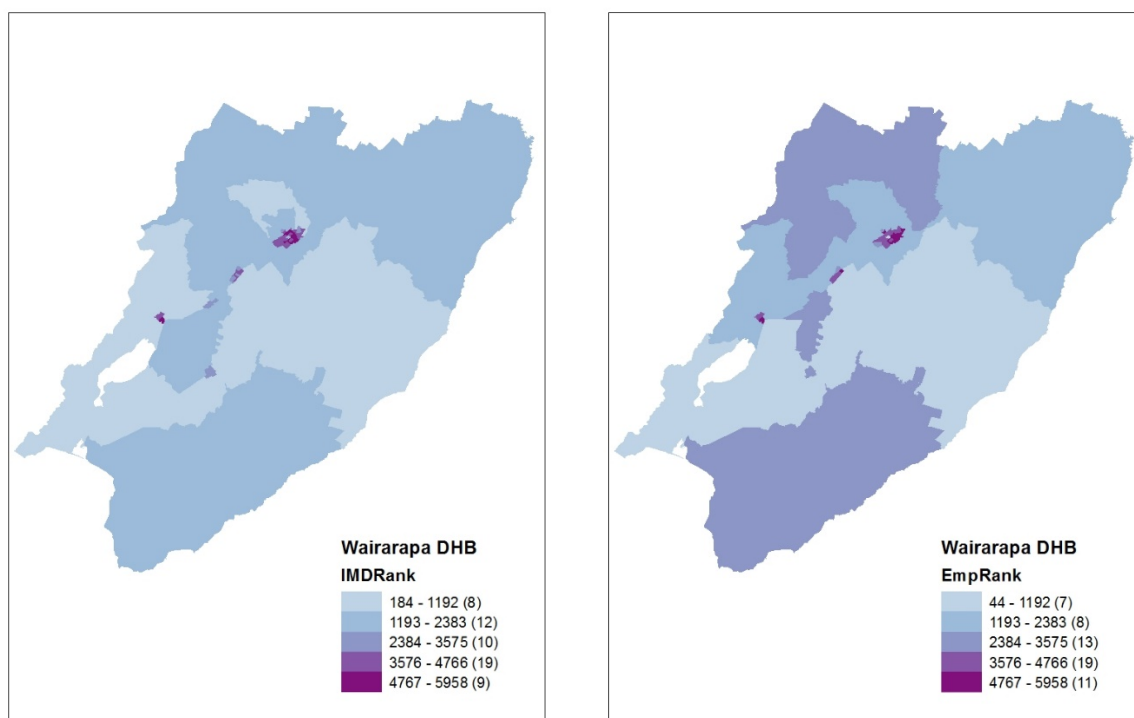
Figure 3. Distribution of overall IMD and employment deprivation in the WDHB

The values in brackets in the legends of the maps that follow are counts of data zones in the relevant quintile. The map for overall deprivation (IMD) on the left of Figure 3 shows relatively low levels of Q5 deprivation in the WDHB. Only 15.5% (9/58) of data zones were among NZ's 20% most deprived (Q5), while 13.8% (8/58) were among the 20% least deprived (Q1). The quintile with the most data zones was Q4. The median IMD rank in the WDHB was 3469, 8.2% (490 ranks) worse than the NZ median of 2979. There are no rural data zones with Q5 IMD deprivation. Urban data zones are difficult to see on these maps, so we suggest that readers use the interactive maps at the IMD website to explore the WDHB further.

The map of the Employment Domain on the right of Figure 3 reflects the proportion of working age people who were receiving the Unemployment or Sickness Benefits in 2013. In the WDHB, 19.0% (11/58) of data zones were among the 20% most deprived in NZ for the Employment Domain, while 12.1% (7/58) were among the least deprived 20%. The median employment deprivation rank in the WDHB was 3760, 13.1% (781 ranks) worse than the NZ median. The distribution of Q5 employment deprivation followed a similar pattern to overall IMD deprivation, except that it had two more Q5 data zones and three more Q3 data zones. There were no Q5 employment deprived data zones in rural parts of the WDHB.
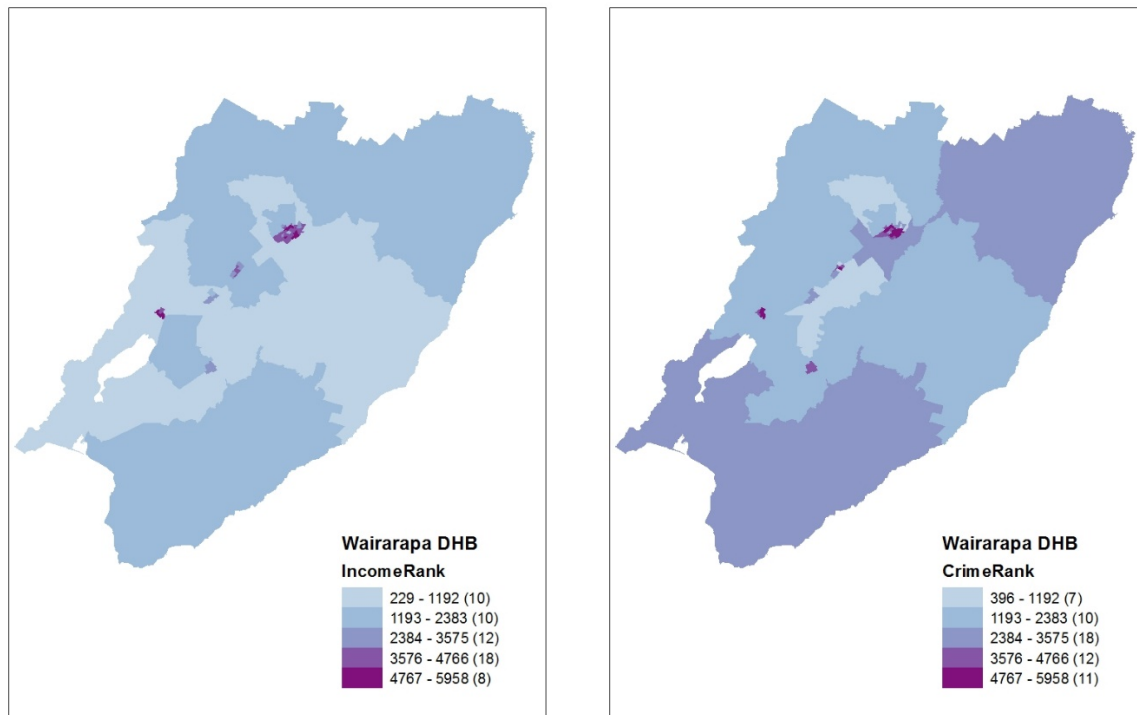
Figure 4. Distribution of income and crime deprivation in the WDHB

The Income Domain measures the amount of money per person paid by the government in the form of Working for Families payments and income-tested benefits. In the WDHB, 13.8% (8/58) of data zones were among NZ's 20% most income deprived, while 17.2% (10/58) were among the 20% least income deprived. The median income deprivation rank in the WDHB was 3347, 6.2% (368 ranks) worse than the NZ median. The distribution of Q5 income deprivation followed a very similar pattern to overall IMD deprivation, but with slightly fewer Q4 and Q5 data zones.

The Crime Domain measures victimisations per 1000 people and is largely driven by thefts (55%), burglaries (24%) and assaults (18%). In the WDHB, 19.0% (11/58) of data zones were among NZ's 20% most deprived for the Crime Domain, while 13.8% (8/58) were among the 20% least deprived. The median crime deprivation rank in the WDHB was 3146, 2.8% (167 ranks) worse than the NZ median. Q5 rates of crime victimization were confined to Masterton, Featherston and Carterton. Martinborough had Q4 crime deprivation, and five large rural data zones had Q3 crime deprivation.
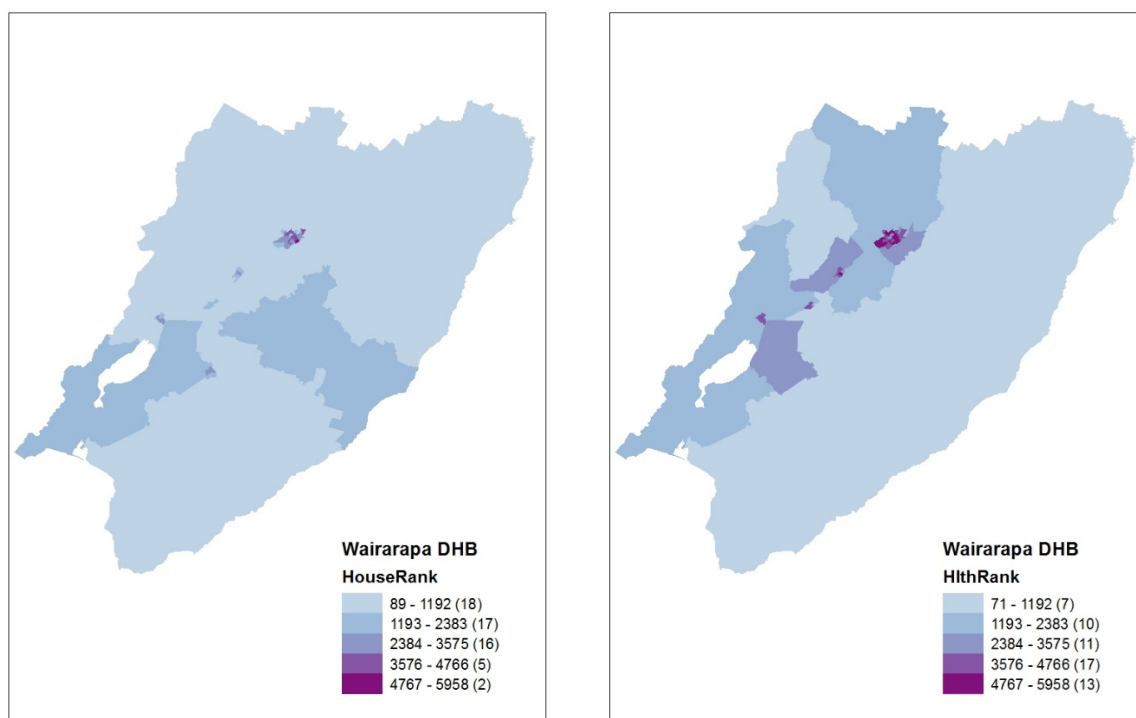
Figure 5. Distribution of housing and health deprivation in the WDHB

The Housing Domain measures the proportion of people living in overcrowded households (60% of the weighting) and rented dwellings (40%). In the WDHB, only 3.4% (2/58) of data zones were among NZ's 20% most housing deprived, while 31.0% (18/58) were among the 20% least deprived. The median housing deprivation rank in the WDHB was 1978, 16.8% (1002 ranks) better than the NZ median. The two data zones with Q5 housing deprivation were located in Masterton, while the majority of rural area had low levels of housing deprivation.

The Health Domain consists of five indicators: standard mortality ratio, acute hospitalisations related to selected infectious and selected respiratory diseases, emergency admissions to hospital, and people registered as having selected cancers. In the WDHB, 22.4% (13/58) of data zones were among NZ's 20% most health deprived, while 12.1% (7/58) were among the 20% least deprived. The median health deprivation rank in the WDHB was 3689, 11.9% (710 ranks) worse than the NZ median. The Health Domain had four more Q5 data zones than overall IMD deprivation and Q5 health deprivation was confined to Masterton and Carterton. Q4 health deprivation occurred in Masterton, Carterton, Greytown and Featherston.
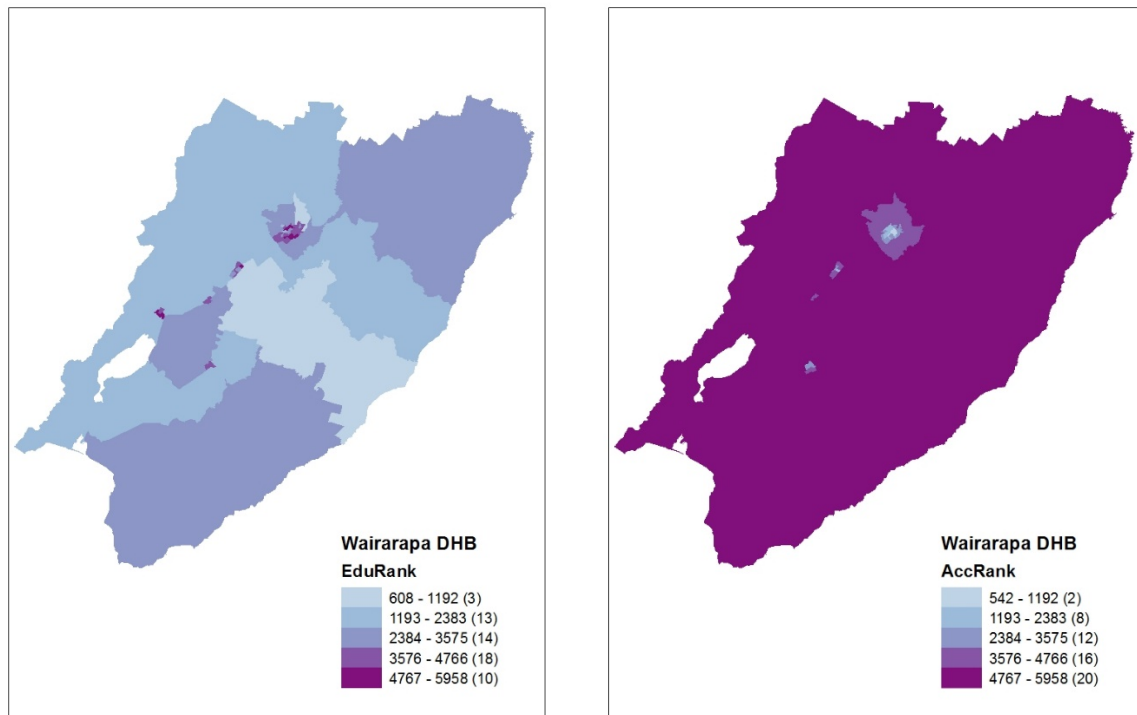
Figure 6. Distribution of education and access deprivation in the WDHB

The Education Domain measures retention, achievement and transition to education or training for school leavers; as well as the proportion of working age people 15-64 with no formal qualifications; and the proportion of youth aged 15-24 not in education, employment or training (NEET). In the WDHB, 17.2% (10/58) of data zones were among NZ's 20% most education deprived, while only 5.2% (3/58) were among the 20% least deprived. The median education deprivation rank in the WDHB was 3509, 8.9% (530 ranks) worse than the NZ median. The distribution of Q5 education deprived data zones followed a very similar pattern to the Crime Domain, but in urban areas, education deprivation had six more Q4 data zones. There were six large rural data zones with Q3 education deprivation.

The Access Domain measures the distance from the population weighted centre of each neighbourhood to the nearest three GPs, supermarkets, service stations, schools and early childhood education centres. In the WDHB, 34.5% (20/58) of data zones were among NZ's 20% most access deprived, while only 3.4% (2/58) were in NZ's 20% least deprived. The median access deprivation rank in the WDHB was 4025, 17.5% (1046 ranks) worse than the NZ median. Predictably, the entire rural part of the WDHB was Q5 access deprived. Greytown had Q4 access deprivation and Masterton, Carterton and Featherston had Q3 or better access deprivation.

Age profile of the Wairarapa DHB

In 2013 the WDHB had a total population of 41,130 people living in 58 data zones, with a mean of 709 people each (range: 513 to 918).

Mean data zone proportions for five age groups in the WDHB					
Age group	0-14	15-24	25-44	45-64	65+
Wairarapa DHB	19.9%	11.1%	21.0%	28.9%	19.1%
New Zealand[2]	20.4%	13.8%	25.6%	25.8%	14.3%
Difference	-0.5%	-2.7%	-4.6%	3.1%	4.8%

Table 2. Mean data zone proportions for five age groups in the WDHB

Table 2 shows that the age profile of the WDHB differs most from the national age profile in that it has 4.6% fewer people aged 25-44 and 4.8% more people aged 65+. Figure 7 shows the distribution of people in these two age groups.
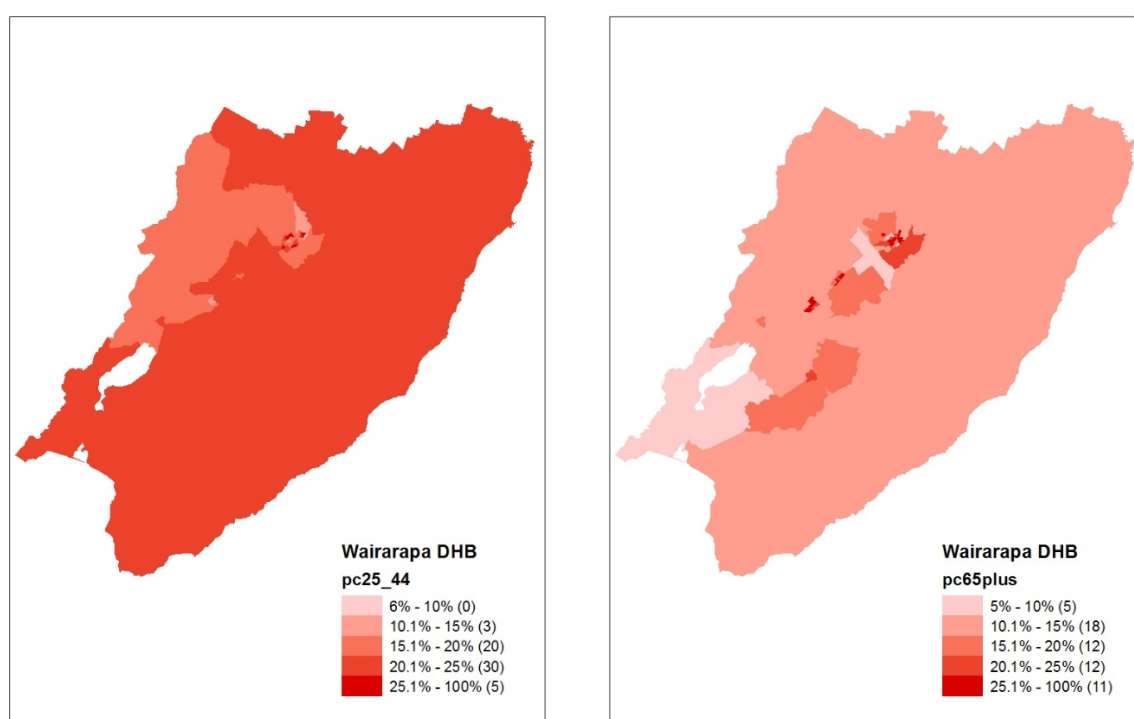
**Figure 7. Distribution of people aged 25-44 and people aged 65+ in the WDHB**

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[2] Proportions for age groups and ethnicities at the national level are calculated using data zone counts to ensure fair comparison with DHB values, which also use data zone counts.

Ethnicity profile of the Wairarapa DHB

This section uses the Total Response method to calculate proportions for each ethnicity from the 2013 census. Individuals who identify as more than one ethnicity are counted in more than one category. The proportion of Māori living in data zones within the WDHB ranged from 5.3% to 60.6%. The overall proportion of Māori in the WDHB was 16.1%, slightly higher than the national proportion of 14.9%. The proportion of Māori per data zone was greatest in two data zones in Masterton (60.6% and 54.8%).

The proportion of Pacific ethnicity living in data zones within the WDHB in 2013 ranged from 0.0% to 18.1%. The overall proportion of Pacific ethnicity was 2.6%, much lower than the national proportion of 7.3%. The proportion of Pacific was greatest in two data zones in Masterton (18.1% and 17%).

The proportion of New Zealand European and Other ethnicities (NZEO) living in data zones within the WDHB ranged from 52.7% to 99.4%. The overall proportion of NZEO was 91.8%, which is greater than the national proportion of 87.5%. The lowest proportions of NZEO (<60%) lived in Masterton.
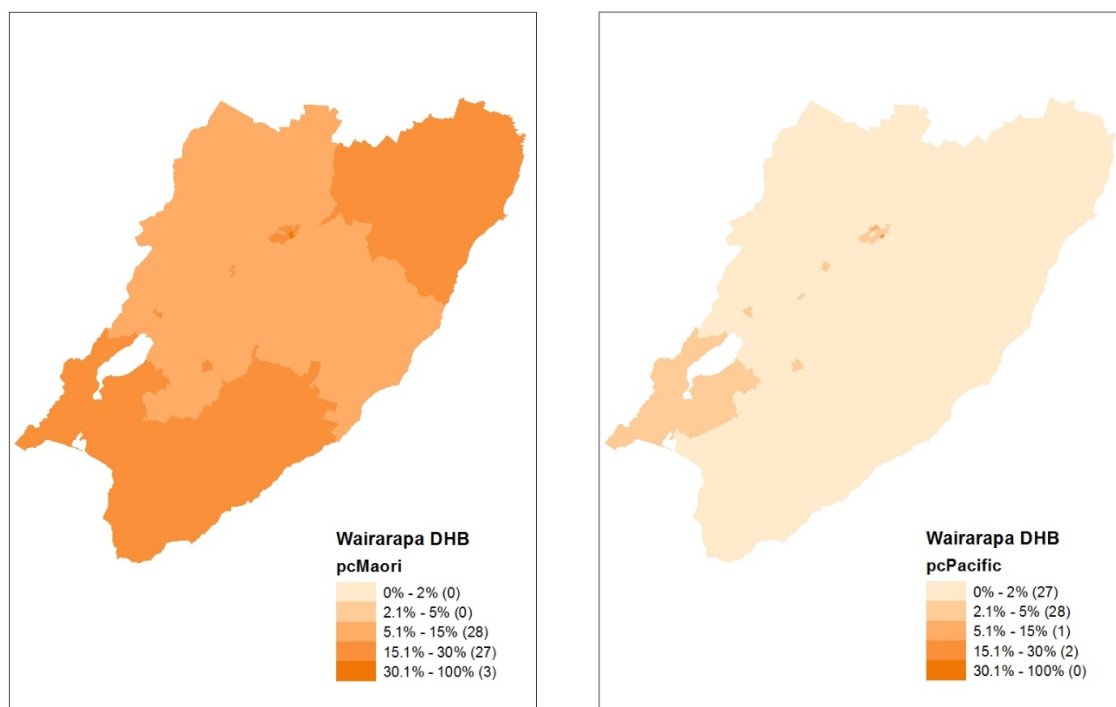
Figure 8. Distribution of Māori and Pacific people in the WDHB

For more information about the IMD, NZ data zones or this profile, please contact Dan Exeter at d.exeter@auckland.ac.nz. For downloadable spreadsheets of the IMD or NZ data zones, online interactive maps, publications and technical documentation, please go to the IMD website.