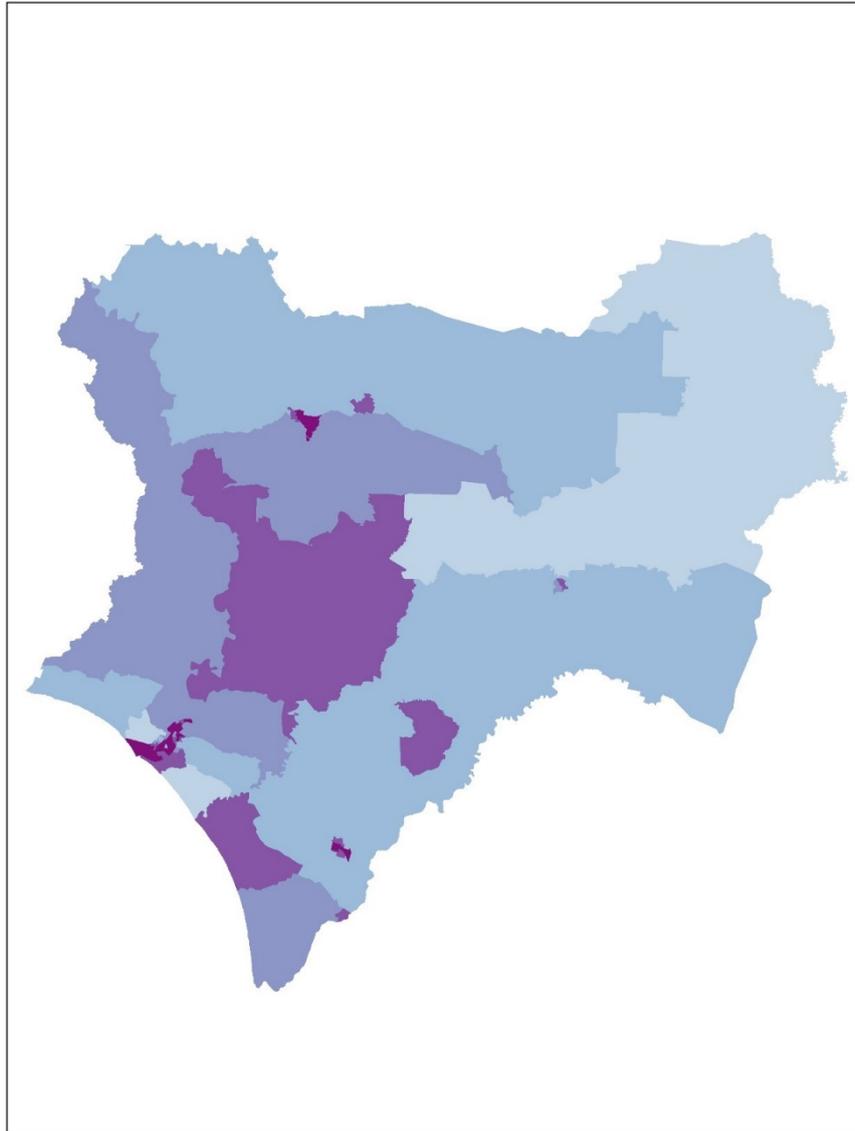# A deprivation and demographic profile of the Whanganui DHB

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

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17/10/2017

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**MEDICAL AND
HEALTH SCIENCES**

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Acknowledgments

A deprivation and demographic profile of the Whanganui 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.
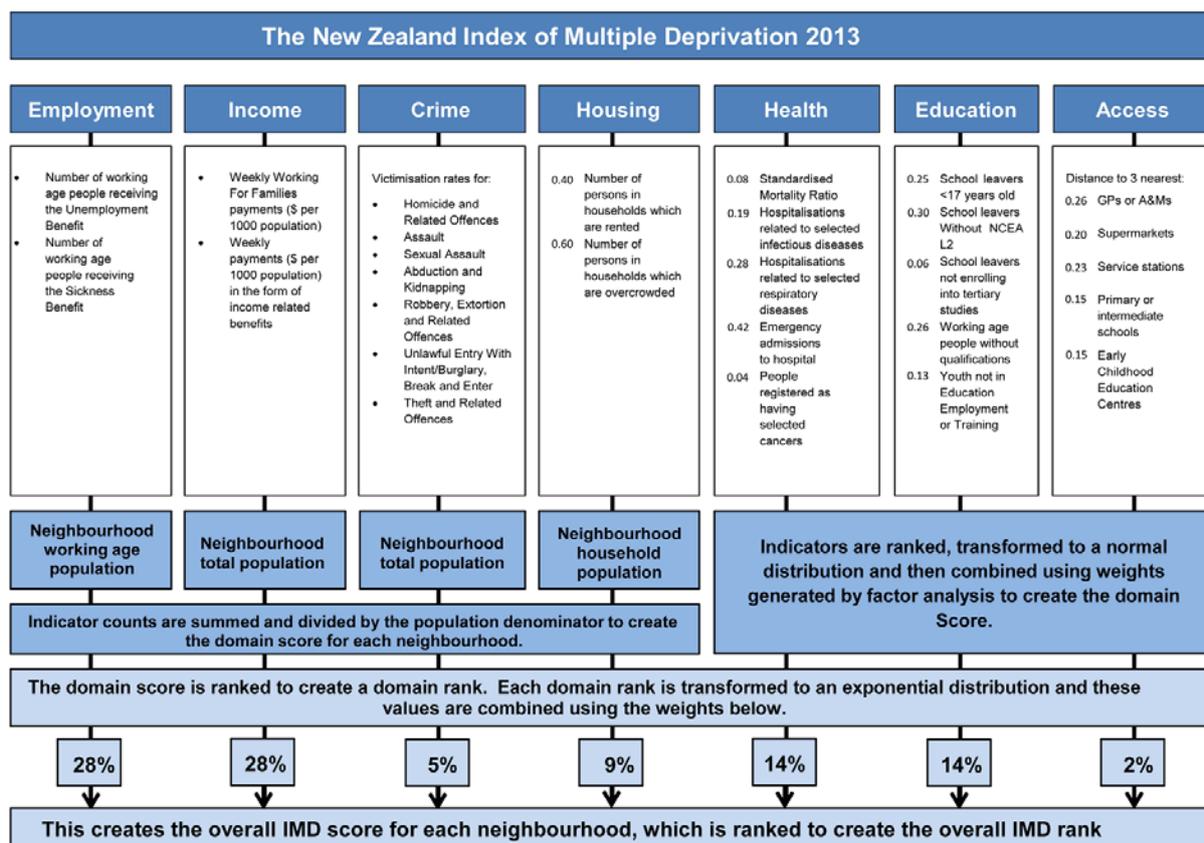

Figure 1. Flow diagram showing the IMD, its indicators, domains and weights. Adapted from Figure 4.2 SIMD 2012 Methodology, in Scottish Index of Multiple Deprivation 2012. Edinburgh: Scottish Government (Crown copyright 2012).

The stacked bar chart in Figure 2 shows the proportion of data zones in the Whanganui 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 90 data zones in each quintile. However, Figure 2 shows that the proportion of data zones with Q5 deprivation was greater than 20% for the IMD and all domains except for Housing. The proportion of data zones with Q4 deprivation was also greater than 20% except for Employment and Crime. The WDHB had high levels of overall IMD deprivation, with 58.9% (53/90) of its data zones in Q4 or Q5.
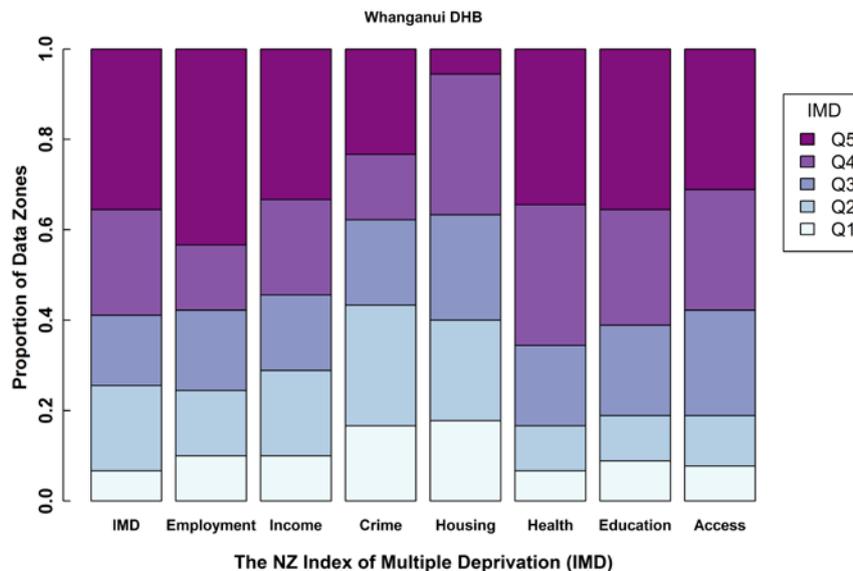
Figure 2. Stacked bar chart showing overall deprivation and seven domains in the WDHB

Table 1 shows summary statistics by domain for 32 WDHB 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 Income (5724), Employment (5448), Education (5324) Crime (5214) and Access (5189) were contributing to high overall IMD deprivation in these 32 data zones in 2013. Note that domains carry different weights in the IMD (see Figure 1).

Min, max and median[1] deprivation ranks by domain for 32 data zones with Q5 IMD							
	IMD	Employment	Income	Crime	Housing	Health	Education	Access
Min	4794	4443	4346	1338	2347	3886	2968	19
Max	5902	5934	5898	5929	5450	5896	5924	5477
Median	4004	5448	5724	5214	4626	4236	5324	5189

Table 1. Minimum, maximum and median deprivation ranks by domain for 32 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).
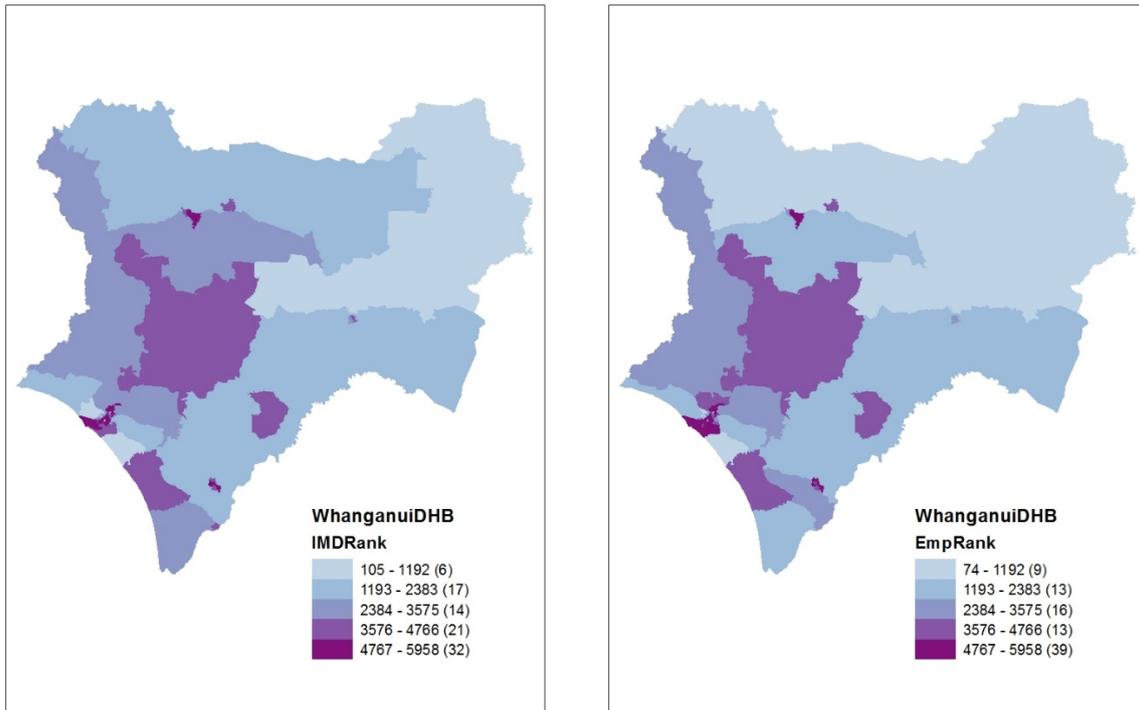
Figure 3. Distribution of overall IMD and employment deprivation in the WDHB

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 high levels of Q5 deprivation in the WDHB in 2013. 35.6% (32/90) of data zones were among the most deprived 20% in NZ (Q5), while only 6.7% (6/90) of data zones were in the least deprived 20% in NZ (Q1). The median IMD rank was 4004, 17.2% (1025 ranks) worse than the NZ median of 2979. The majority of Q5 data zones were in Whanganui, Whanganui East, Aramoho, College Estate and Castlecliff, but there were also some in Marton and Raetihi. 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, 43.3% (39/90) of data zones were among the 20% most deprived in NZ for the Employment Domain, while only 10.0% (9/90) were in the least deprived 20%. The median employment deprivation rank in the WDHB was 4260, 21.5% (1281 ranks) worse than the NZ median. The distribution of Q5 employment deprivation followed a similar pattern to overall IMD deprivation, except there were seven more Q5 data zones, six more in Whanganui and one more in Marton.

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 ben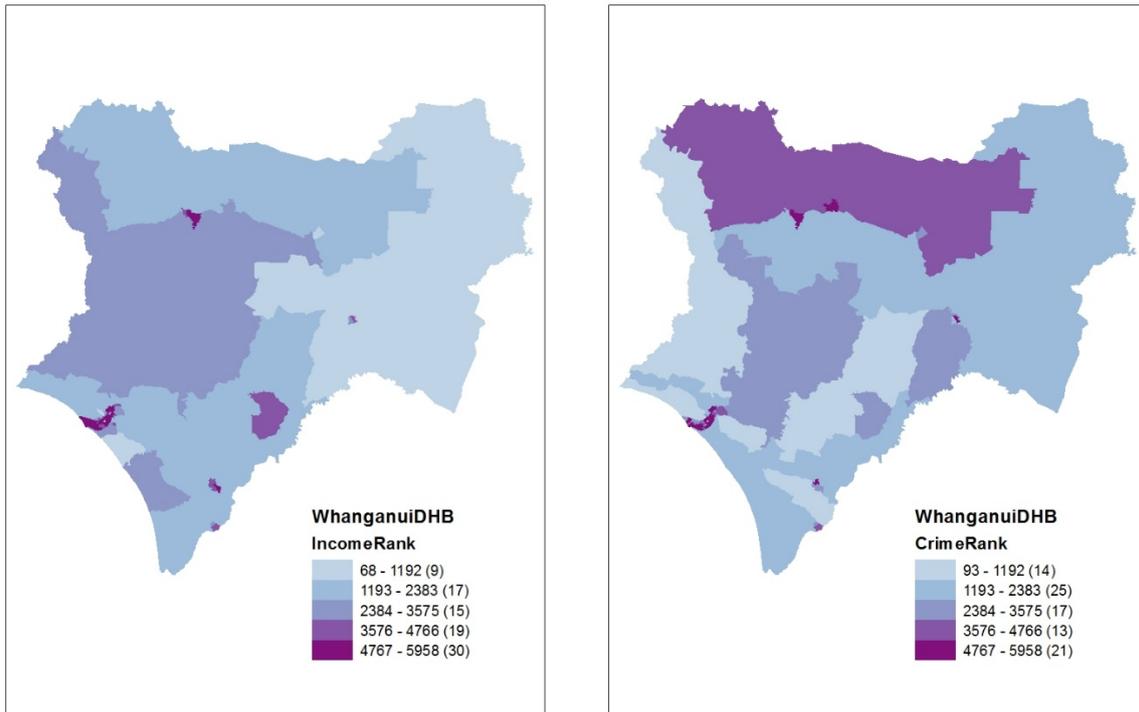efits. In the WDHB, 33.3% (30/90) of data zones were among NZ's 20% most income deprived, while only 10% (9/90) were among the 20% least deprived. The median income deprivation rank in the WDHB was 3897, 15.4% (918 ranks) worse than the NZ median. The distribution of Q5 income deprivation followed a similar pattern to overall IMD deprivation, except there were two fewer Q5 data zones and two fewer large rural data zones with Q4 deprivation.

The Crime Domain measures victimisations per 1000 people and is largely driven by thefts (55%), burglaries (24%) and assaults (18%). In the WDHB, 23.3% (21/90) of data zones were among NZ's most deprived 20% for the Crime Domain, while 15.6% (14/90) were among the least deprived 20%. The median crime deprivation rank in the WDHB was 2858, 2.0% (121 ranks) better than the NZ median. The distribution of Q5 crime deprivation followed a similar pattern to overall IMD deprivation, except there were 11 fewer Q5 data zones. There were fewer data zones with Q5 crime deprivation in Whanganui and Marton, and more in Okahune and Taihape. Interestingly there is a large rural data zone stretching from Ruatiti and Horopito to beyond Waiouru with Q4 crime deprivation.
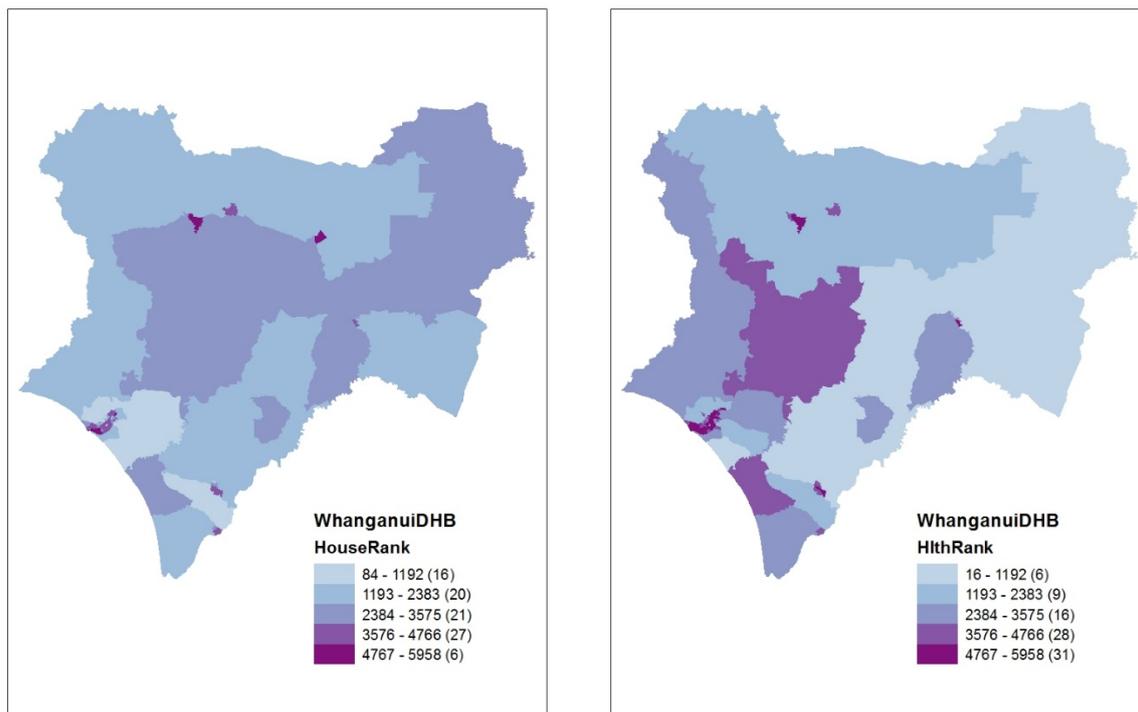
Figure 5. Distribution of housing and health deprivation in the WDHB

The Housing Domain measures the proportion of people living in overcrowded households (60% of the weighting) and rented dwellings (40%) in 2013. In the WDHB, only 6.7% (6/90) of data zones were among the most deprived 20% in NZ, while 17.8% (16/90) were among the least deprived 20%. However, the median housing deprivation rank in the WDHB was 3039, 1.0% (60 ranks) worse than the NZ median. Four of the six data zones that had Q5 housing deprivation were located in Whanganui in Gonville (2), Castlehill and Wanganui East. Raetihi and Waiouru had one Q5 data zone each.

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, 34.4% (31/90) of data zones were among the 20% most health deprived in NZ, while only 6.7% (6/90) were among the least deprived 20%. The median health deprivation rank in the WDHB was 4273, 21.7% (1294 ranks) worse than the NZ median. The 31 data zones with high (Q5) health deprivation were concentrated in the city of Whanganui, but there were four Q5 data zones in Raetihi, Marton (2) and Taihape. There was a very large rural data zone with Q4 health deprivation straddling Highway 4, and a smaller one near Rātana and Turakina.
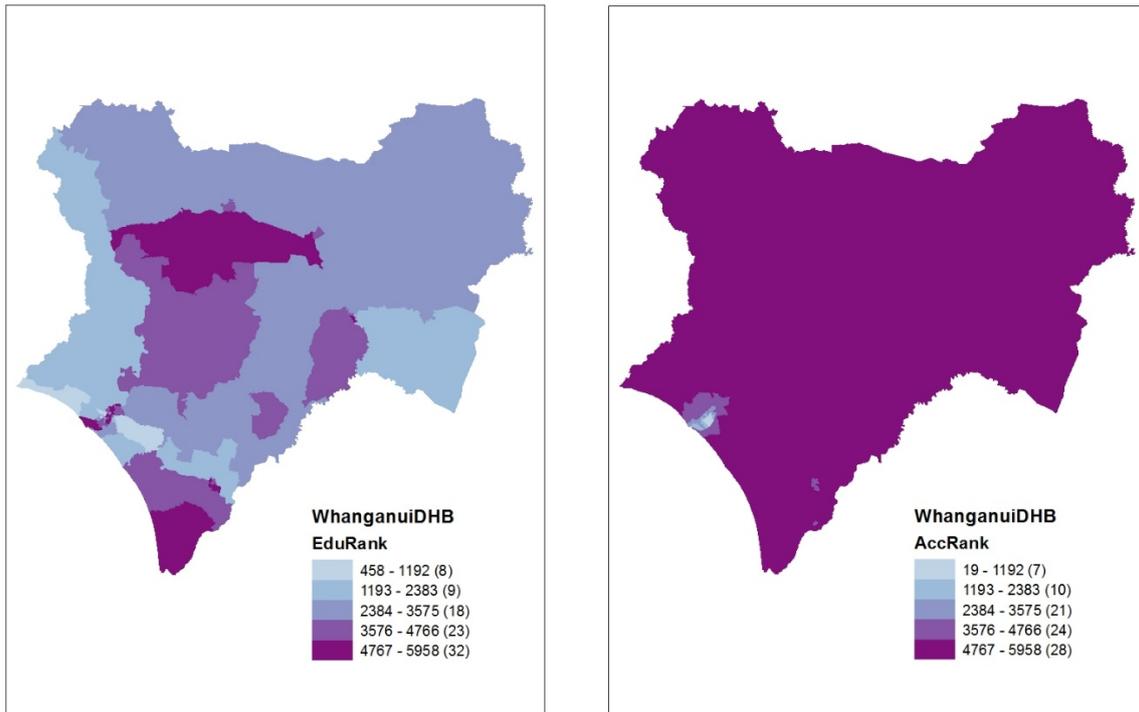
Figure 6. Distribution of education and access deprivation in the WDHB

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, 35.6% (32/90) of data zones were among NZ's 20% most education deprived, while only 8.9% (8/90) were among the least deprived 20%. The median education deprivation rank in the WDHB was 4071, 18.3% (1092 ranks) worse than the NZ median. The distribution of education deprivation followed a similar pattern to overall IMD deprivation, but with the addition of two large rural data zones with Q5 education deprivation (one to the south of Raetihi stretching from Waipuna to Tangiwai and the other around Santoft), and two more with Q4 education deprivation (one south of Taihape and another southwest of Marton).

The Access Domain measures the distance from the centre of each neighbourhood to the nearest three GPs, supermarkets, service stations, schools and early childhood education centres. In the WDHB, 31.1% (28/90) of data zones were among NZ's 20% most access deprived, while only 7.8% (7/90) were in NZ's 20% least deprived. The median access deprivation rank in the WDHB was 4056, 18.1% (1077 ranks) worse than the NZ median. Predictably, the entire rural part of the WDHB had Q5 access deprivation.

Age profile of the Whanganui DHB

According to the 2013 census, the WDHB had a total population of 60,117 people living in 90 data zones, with a mean of 668 people each (range: 501 to 987).

Mean data zone proportions for five age groups in the WDHB					
Age group	0-14	15-24	25-44	45-64	65+
Whanganui DHB	20.7	12.1	21.4	27.6	18.2
New Zealand[2]	20.4%	13.8%	25.6%	25.8%	14.3%
Difference	0.3%	1.7%	-4.2%	1.8%	3.9%

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 4.2% fewer people aged 25-44 and 3.9% more people aged 65+. Figure 7 shows the distribution of people in these two age groups.
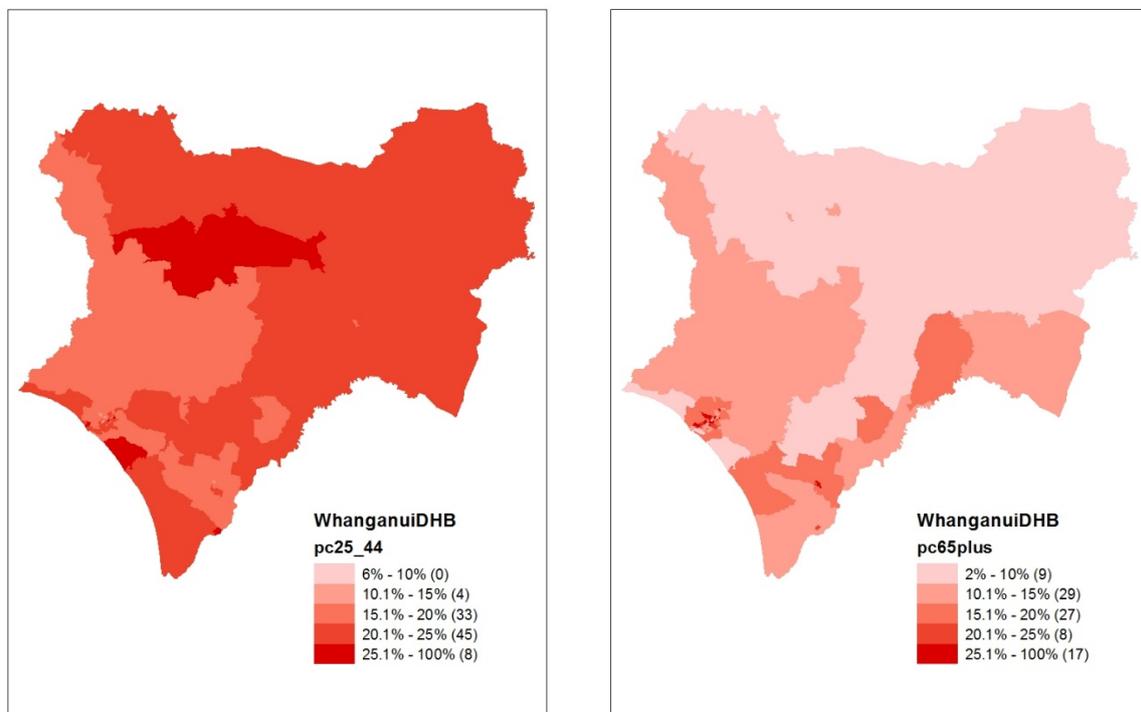

Figure 7. Distribution of people aged 25-44 and people aged 65+ in the WDHB

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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 Whanganui 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 4.4% to 75.7%. The overall proportion of Māori in the WDHB was 24.7%, much higher than the national proportion of 14.9%. The proportion of Māori per data zone was greatest in a data zone located in Raetihi (75.7%), followed by Aramoho (71.2%), and there were high proportions of Māori (>50%) in Taihape and Rātana.

The proportion of Pacific ethnicity living in data zones within the WDHB in 2013 ranged from 0.0% to 13.7%. The overall proportion of Pacific ethnicity was 2.9%, much lower than the national proportion of 7.3%. The proportion of Pacific ethnicity was greatest in two data zones in Marton (13.7% and 9.5%), and there were relatively high proportions (>7%) in Castlehill, Gonville, Whanganui and Aramoho.

The percentage of New Zealand European and Other ethnicities (NZEO) living in data zones within the WDHB ranged from 42.0% to 98.3%. The overall proportion of NZEO was 84.8%, slightly lower than the national proportion of 87.5%. The lowest proportion of NZEO lived in Raetihi (42.0%).
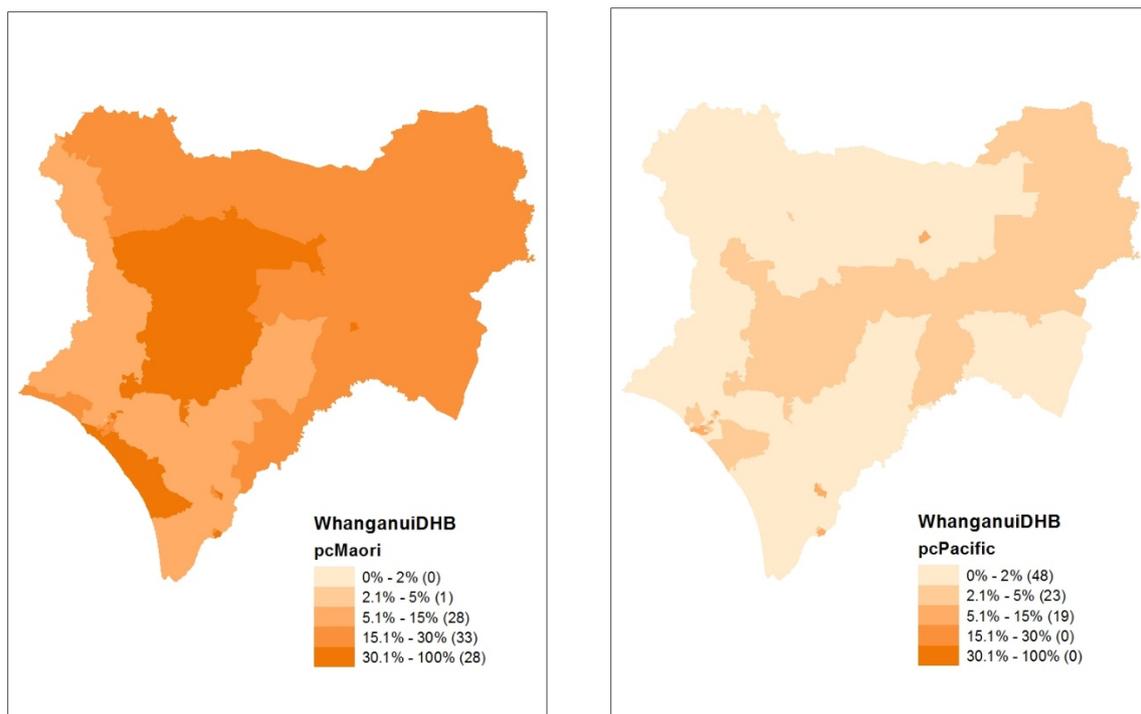

Figure 8. Distribution of Māori and Pacific people in the WDHB

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.