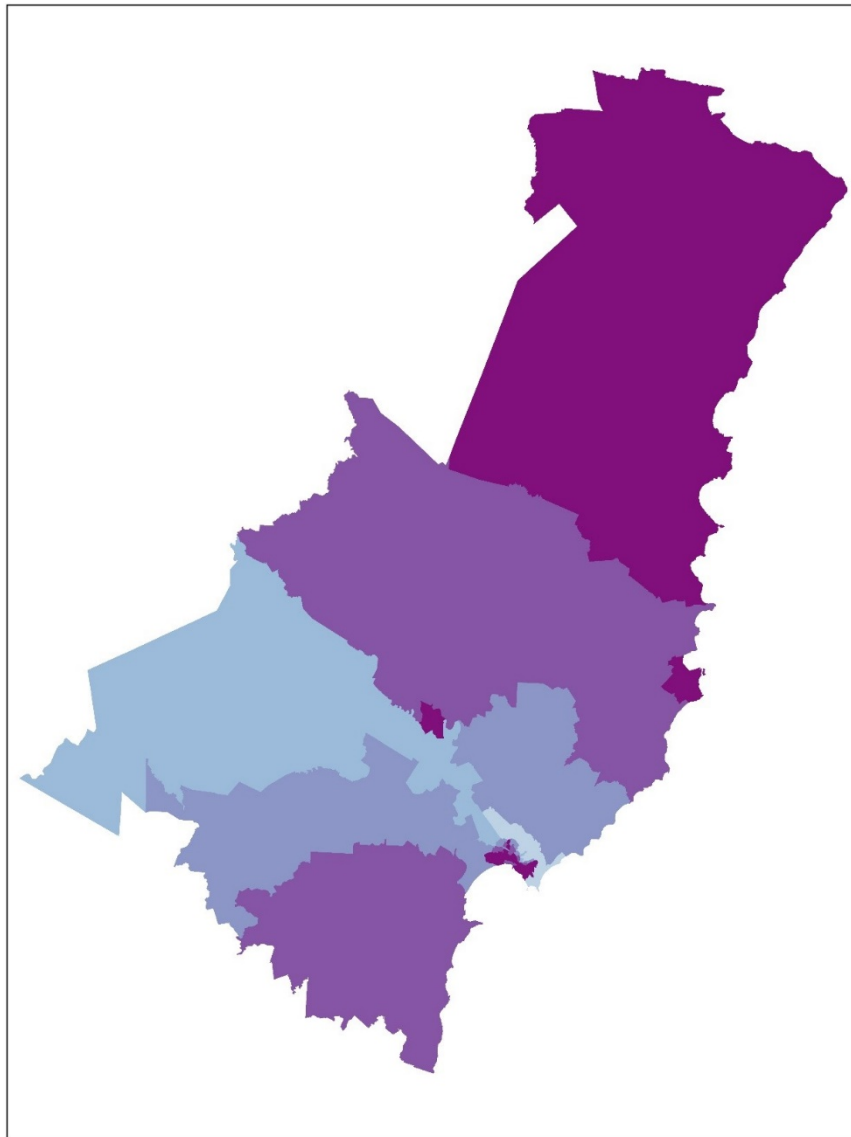# A deprivation and demographic profile of the **Tairāwhiti DHB**

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

Rachael Yong, Michael Browne, Dr Jinfeng Zhao, Dr Arier Chi Lun Lee, Dr Nichola Shackleton, Dr Sue Crengle, Dr Daniel Exeter
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THE UNIVERSITY OF
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Te Whare Wānanga o Tāmaki Makaurau
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**MEDICAL AND
HEALTH SCIENCES**

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Acknowledgments

A deprivation and demographic profile of the Tairāwhiti 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 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, data zones can be 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.
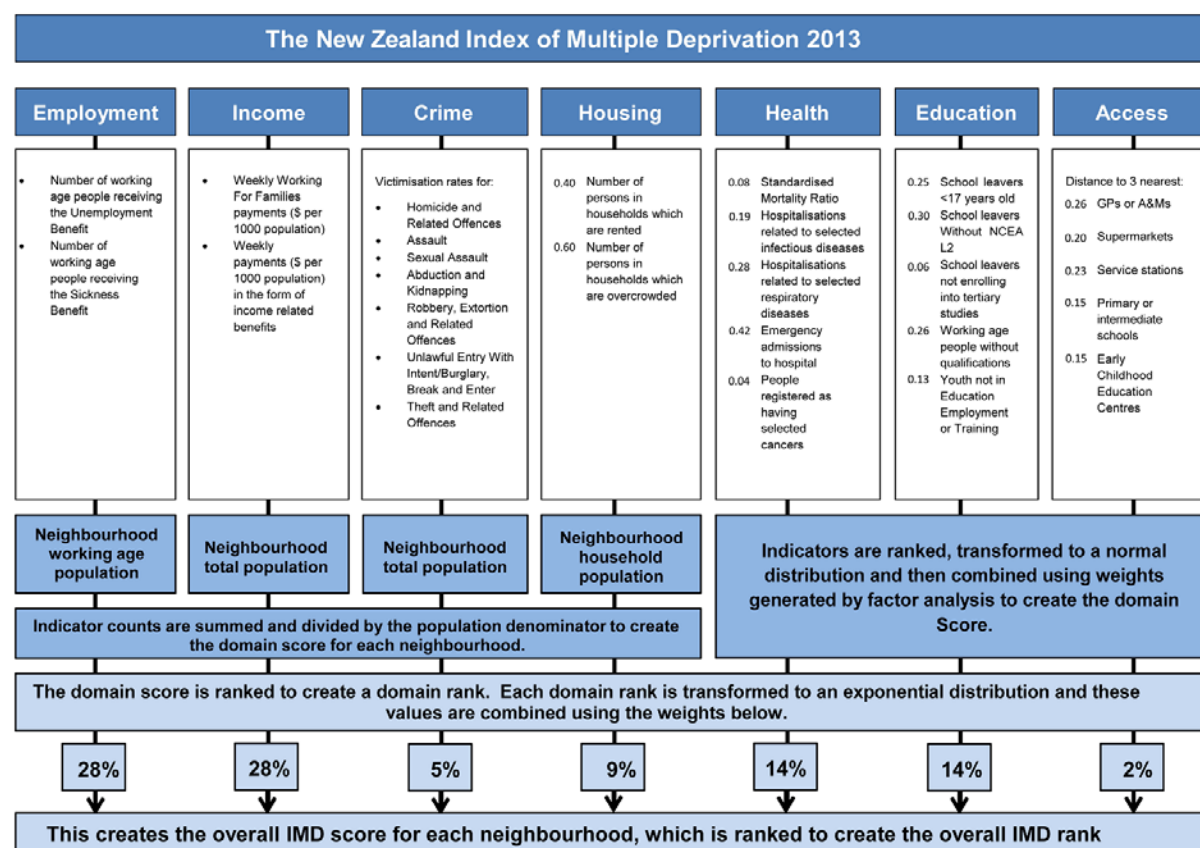
Figure 1. Flow diagram showing the IMD, its indicators, domains and weights. Adapted from Figure 4.2 SIMD 2012 Methodology, in Scottish Index of Multiple Deprivation 2012. Edinburgh: Scottish Government (Crown copyright 2012).

The stacked bar chart in Figure 2 shows the proportion of data zones in the Tairāwhiti DHB (TDHB) that belong to each deprivation quintile for overall deprivation (IMD) and the seven domains in 2013. If the deprivation circumstances in the TDHB were the same as all of NZ, we would see 20% of the TDHB's 64 data zones in each quintile. However, Figure 2 shows that the proportion of data zones with Q5 deprivation was significantly greater than 20% for overall IMD deprivation and for all domains. The proportion of data zones with Q4 deprivation was also greater than 20% for the IMD and all domains except Employment and Access. The TDHB had very high levels of overall IMD deprivation, with 67.2% (43/64) of its data zones in Q4 or Q5.
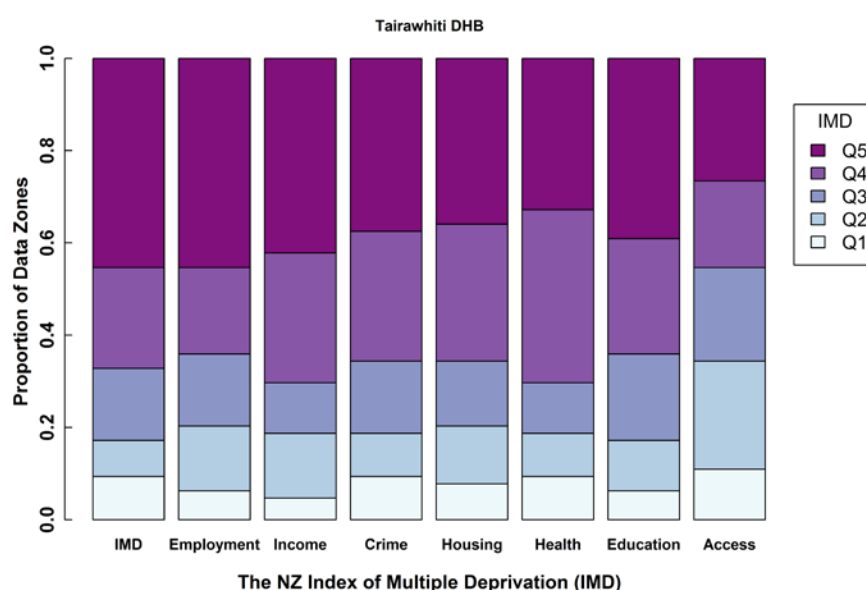
Figure 2. Stacked bar chart showing overall deprivation and seven domains in the TDHB

Table 1 shows summary statistics by domain for 29 TDHB data zones that were among NZ's 20% most deprived for the overall IMD and reveals the contributions of different domains. In descending order, high (Q5) median deprivation ranks for Income (5473), Employment (5433), Education (5390), Crime (5310), Housing (5232) and Health (5054) were contributing to overall IMD deprivation in these data zones in 2013. Note that IMD domains carry different weights (see Figure 1).

Min, max and median[1] deprivation ranks by domain for 29 data zones with Q5 IMD								
	IMD	Employment	Income	Crime	Housing	Health	Education	Access
Min	4882	4509	4521	2669	4393	3188	4181	121
Max	5935	5928	5913	5949	5814	5621	5927	5918
Median	5500	5433	5473	5310	5232	5054	5390	2786

Table 1. Minimum, maximum and median deprivation ranks by domain for 29 data zones in the TDHB with Q5 IMD

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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).
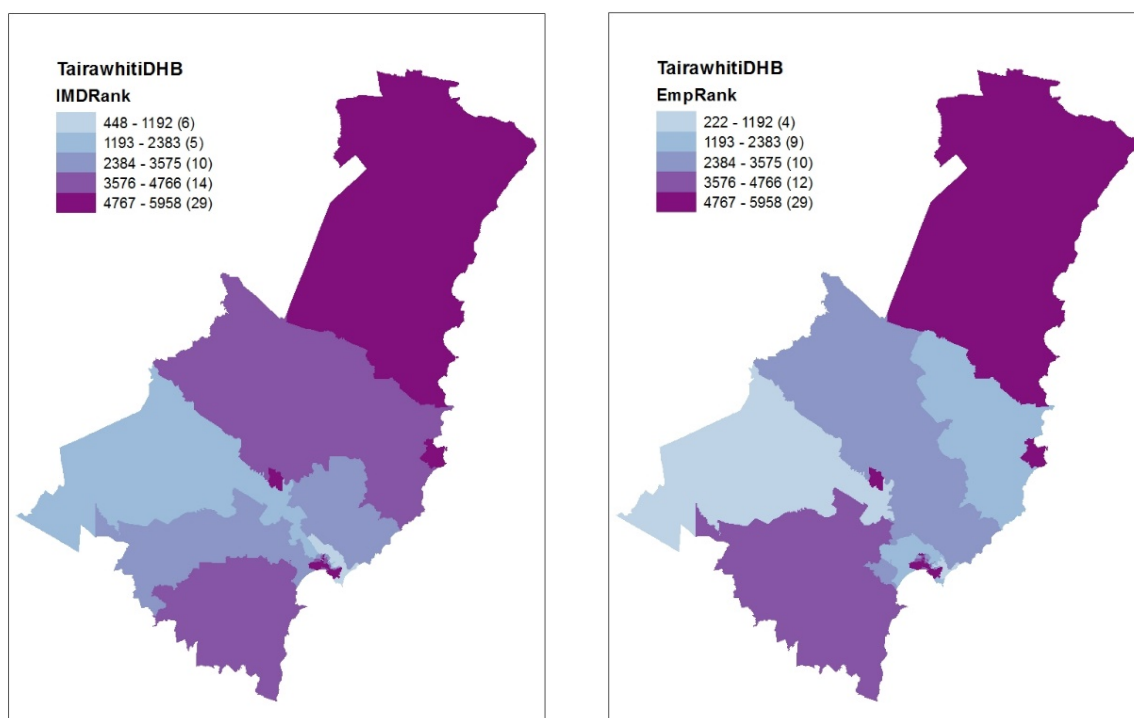
Figure 3. Distribution of overall IMD and employment deprivation in the TDHB

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 (IMD) on the left of Figure 3 shows very high levels of Q5 deprivation in the TDHB. 45.3% (29/64) of its data zones were among the most deprived 20% in NZ (Q5), while only 6% (9/64) were in the least deprived 20%. The median IMD rank in the TDHB was 4415, 24.1% (1436 ranks) worse than the NZ median of 2979. Most of the Q5 data zones were concentrated in the south-western part of the DHB around Gisborne, but they also occurred in Te Karaka, Tolaga Bay and in northern parts extending uninterrupted from Totaranui to Aorangi and Potaka. 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 TDHB 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 TDHB, 45.3% (29/64) of data zones were among the 20% most deprived in NZ for the Employment Domain, while only 6.3% (4/64) of data zones were in the least deprived 20%. The median employment deprivation rank in the TDHB was 4505, 25.6% (1526 ranks) worse than the NZ median. Q5 employment deprivation had a similar spatial pattern to overall IMD deprivation and the same number of Q5 data zones.
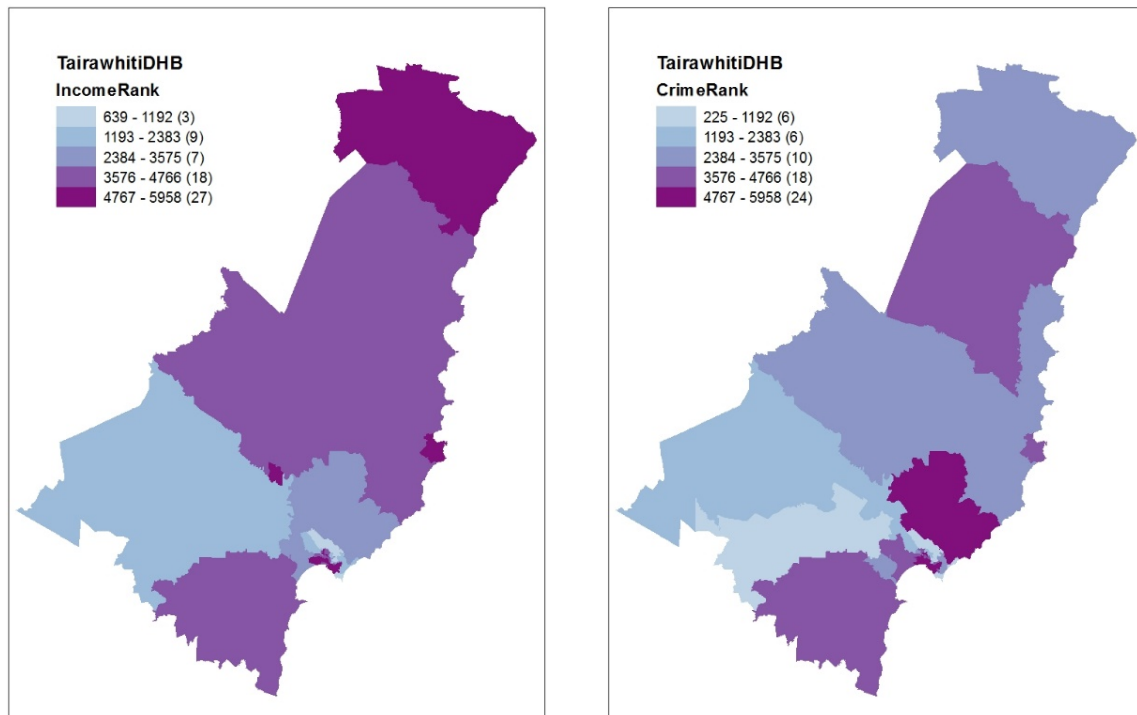
Figure 4. Distribution of income and crime deprivation in the TDHB

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 TDHB, 42.2% (27/64) of data zones were among NZ's 20% most income deprived, while only 4.7% (3/64) of data zones were among the 20% least income deprived. The median income deprivation rank in the TDHB was 4555, 26.4 % (1576 ranks) worse than the NZ median. High (Q5) levels of income deprivation followed the general pattern of the overall IMD, but there were fewer Q5 income deprived data zones in Aorangi and Totaranui.

The Crime Domain measures victimisations per 1000 people and is largely driven by thefts (55%), burglaries (24%) and assaults (18%). In the TDHB, 37.5% (24/64) of data zones were among the most deprived 20% for the Crime Domain, while only 9.4% (6/64) were among the least deprived 20%. The median crime deprivation rank in the TDHB was 4448, 24.6% (1469 ranks) worse than the NZ median. High (Q5) crime deprivation was concentrated in the urban area of Gisborne, but there was also a large rural data zone with Q5 crime deprivation stretching from Waimata and Kaitaratahi to Makorori and Pouawa.
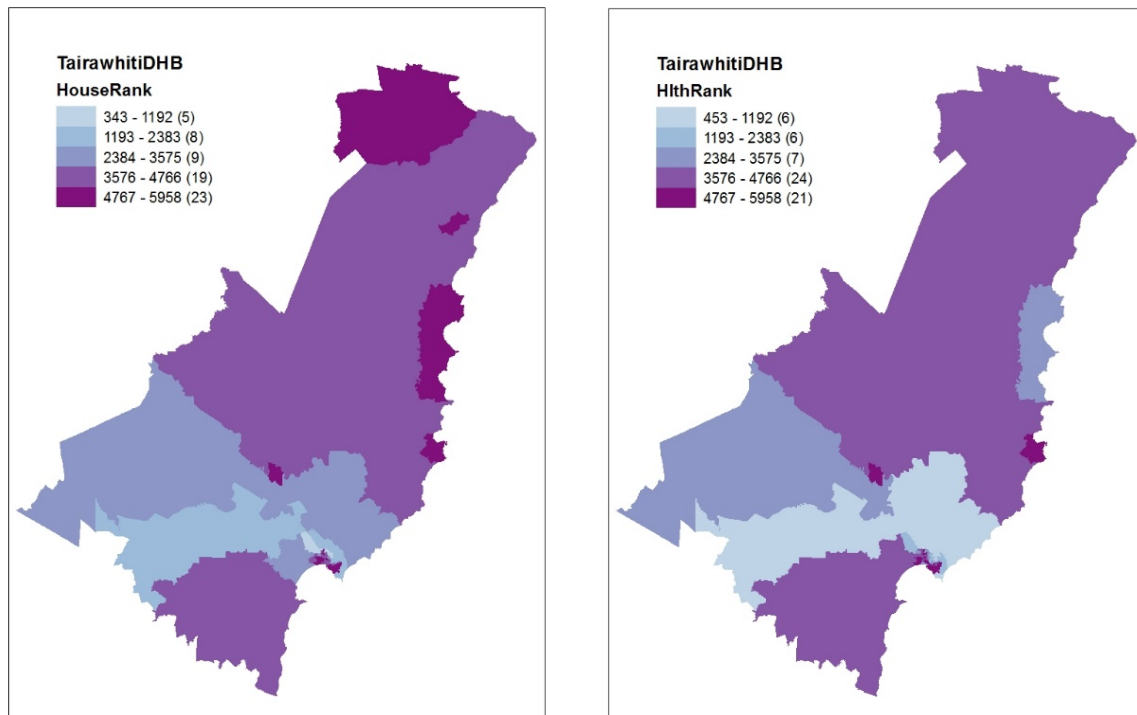
Figure 5. Distribution of housing and health deprivation in the TDHB

The Housing Domain measures the proportion of people living in overcrowded households (60% of the weighting) and rented dwellings (40%). In the TDHB, 35.9% (23/64) of data zones were among the most deprived 20% in NZ, while only 7.8% (5/64) of data zones were among the least deprived 20%. The median housing deprivation rank in the TDHB was 4405, 23.9% (1426 ranks) worse than the NZ median. These high (Q5) levels of housing deprivation were concentrated around Gisborne in Awapuni, Elgin, Riverdale, Inner Kaiti and Outer Kaiti. Data zones with Q5 housing deprivation were also located in Te Karaka, Tolaga Bay, Hikuwai, Ruatoria and the northern part of the DHB encompassing Hicks Bay and Potaka.

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 TDHB, 32.8% (21/64) of data zones were among the 20% most health deprived in NZ, while only 9.4% (6/64) were among the least deprived 20%. The median health deprivation rank in the TDHB was 4026, 17.6% (1047 ranks) worse than the NZ median. High (Q5) levels of health deprivation were concentrated around Gisborne but also occurred in Te Karaka.
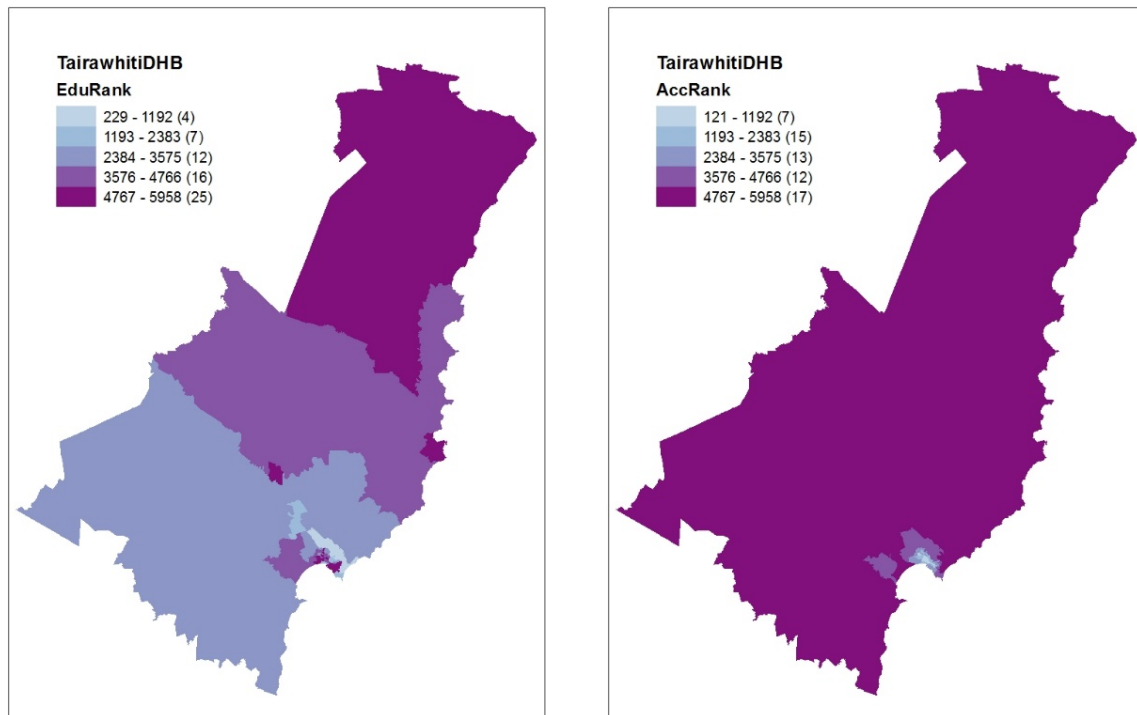
Figure 6. Distribution of education and access deprivation in the TDHB

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 TDHB, 39.1% (35/64) of data zones were among NZ's 20% most education deprived, while only 6.3% (4/64) were among the least deprived 20%. The median education deprivation rank in the TDHB was 4479, 25.2% (1500 ranks) worse than the NZ median. Q5 levels of education deprivation followed the general pattern of overall IMD deprivation, but with six more data zones. However, there were no Q5 education deprived data zones in Mangahauini, Hikuwai and Anaura Bay.

The Access Domain measures the distance from the population weighted centre of each data zone to the nearest three GPs, supermarkets, service stations, schools and early childhood education centres. In the TDHB, 26.6% (17/64) of data zones were among NZ's 20% most access deprived, while 10.9% (7/64) were among NZ's 20% least deprived. The median access deprivation rank in the TDHB was 3390, 6.9% (411 ranks) worse than the NZ median. High (Q5) levels of access deprivation occurred in all rural parts of the TDHB.

Age profile of the Tairāwhiti DHB

According to the 2013 census, the TDHB had a total population of 43,653 people living in 64 data zones, with a mean of 682 people each (range: 513 to 954).

Mean data zone proportions for five age groups in the TDHB					
Age group	0-14	15-24	25-44	45-64	65+
Tairāwhiti	24.6%	12.7%	22.9%	25.8%	14.0%
New Zealand[2]	20.4%	13.8%	25.6%	25.0%	14.3%
Difference	4.2%	-1.1%	-2.7%	0.0%	-0.3%

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

Table 2 shows that the age profile of the TDHB differs most from the national age profile in that it has 4.2% more children aged 0-14 and 2.7% fewer people aged 25-44. Figure 7 shows the distribution of people in these two age groups.
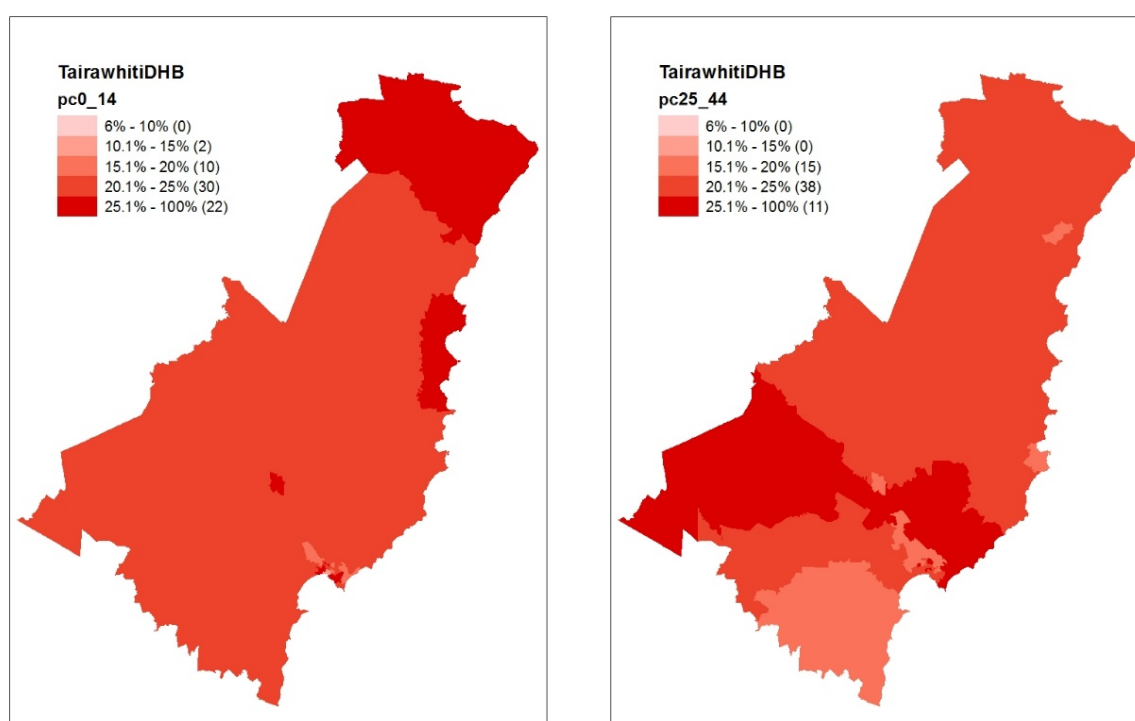
**Figure 7. Distribution of people aged 0-14 and people aged 25-44 in the TDHB**

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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 **Tairāwhiti 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 TDHB in 2013 ranged from 11.8% to 93.5%. The overall proportion of Māori in the CMDHB was 48.9%, which was much greater than the national proportion of 14.9%. The highest proportions of Māori (>50%) were concentrated in Gisborne and in rural areas in the north of the TDHB. Ruatoria had the three highest proportions of Māori per data zone (93.5%, 92% and 88.1%).

The proportion of Pacific ethnicity living in data zones within the TDHB ranged from 0.0% to 15.2%. The overall proportion of Pacific in the TDHB was 3.8%, lower than the national proportion of 7.3%. The greatest proportions of Pacific (>8%) were concentrated in Gisborne, in Outer Kaiti and Inner Kaiti. An Inner Kaiti data zone had the greatest proportion of Pacific (15.2%).

The percentage of New Zealand European and Other ethnicities (NZEO) in the TDHB ranged from 20.0% to 95.9%. The overall proportion of NZEO in the TDHB was 64.4%, significantly lower than the national proportion of 87.5%. The lowest proportions of NZEO (<30%) lived in data zones located in Outer Kaiti, Tolaga Bay and in the northern part of the DHB.
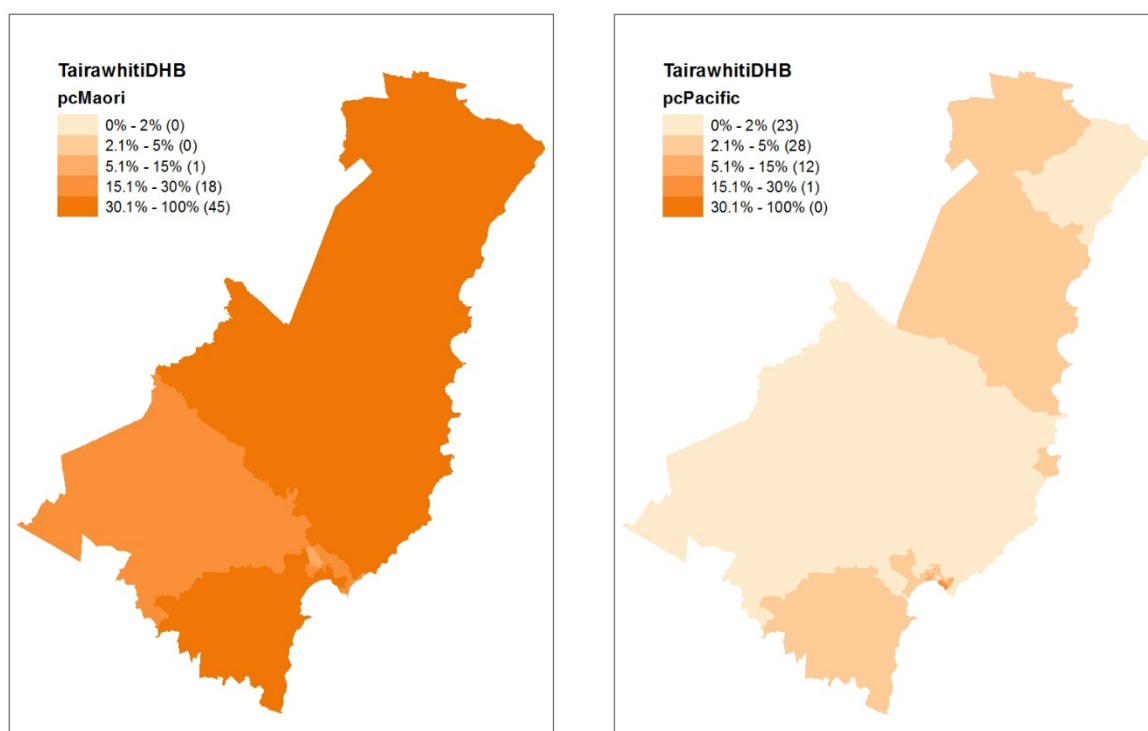
Figure 8. Distribution of Māori and Pacific people in the TDHB

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