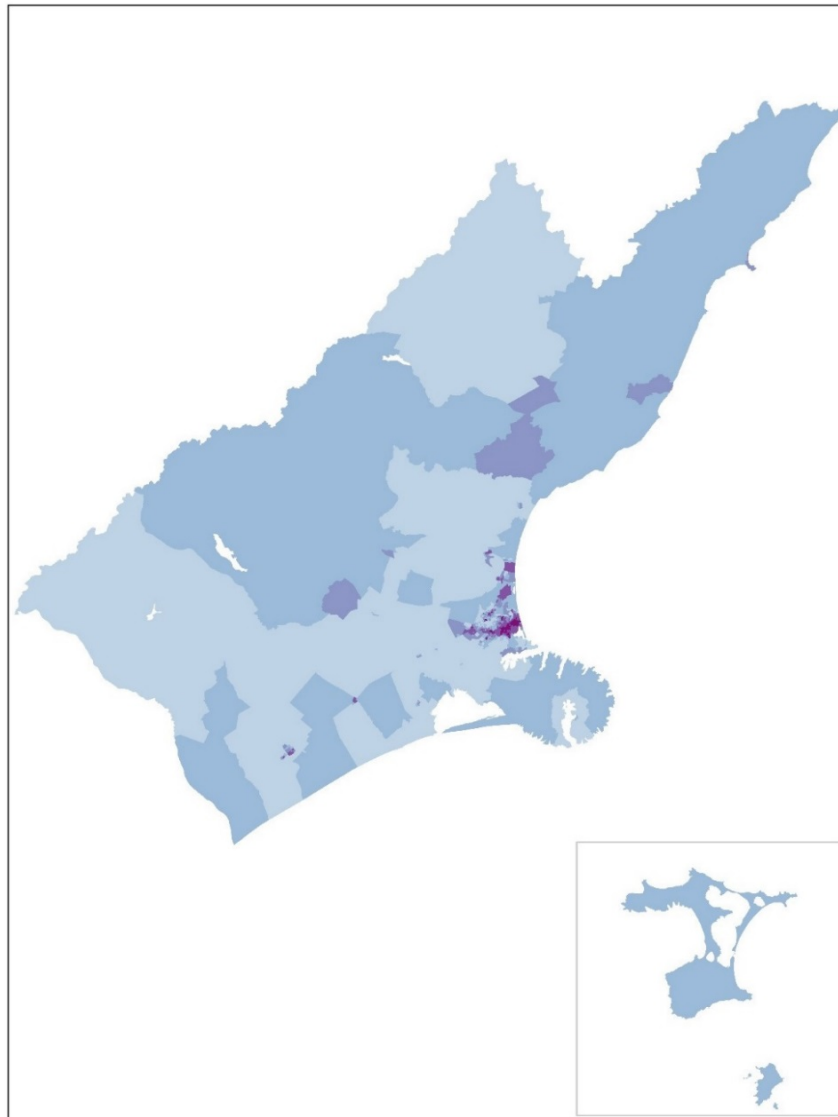# A deprivation and demographic profile of the Canterbury DHB

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

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Acknowledgments

A deprivation and demographic profile of the Canterbury DHB

The 2013 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.
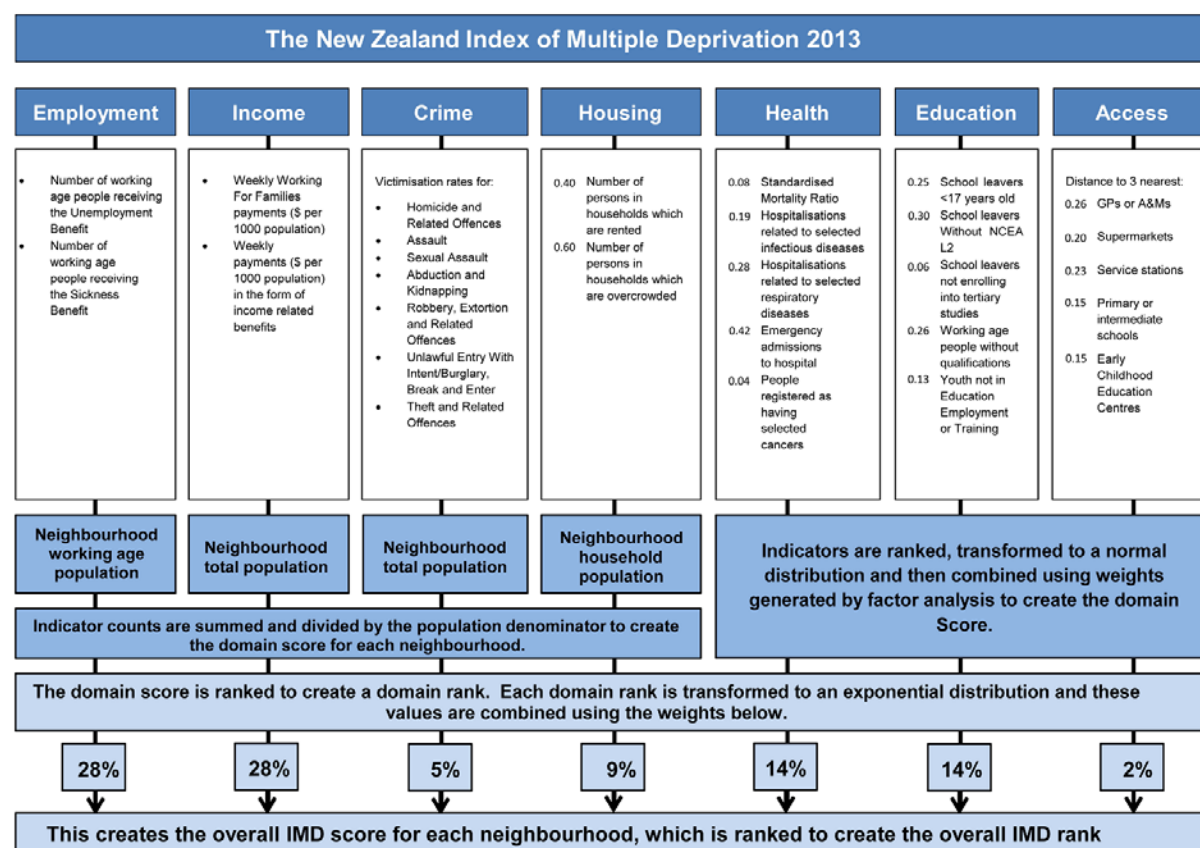
Figure 1. Flow diagram showing the IMD, its indicators, domains and weights. Adapted from Figure 4.2 SIMD 2012 Methodology, in Scottish Index of Multiple Deprivation 2012. Edinburgh: Scottish Government (Crown copyright 2012).

The stacked bar chart in Fig 2 shows the proportion of data zones in the Canterbury DHB (CDHB) that belonged to each deprivation quintile for overall IMD deprivation and the seven domains in 2013. If the deprivation circumstances were the same as for all of NZ, we would see 20% of the CDHB's 688 data zones in each quintile. However, Figure 2 shows that the proportion of data zones with Q5 deprivation was much lower than 20% across all seven domains, especially in the Employment, Income, Housing and Health Domains. Q4 deprivation was also lower than average, except for Education. The CDHB had low levels of overall IMD deprivation, with only 25.6% (176/688) of its data zones in Q4 or Q5.
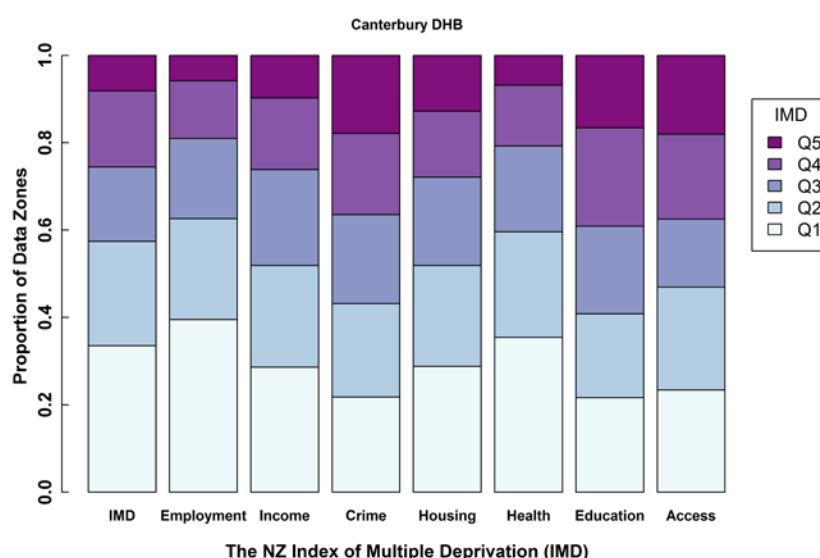
Figure 2. Stacked bar chart showing overall deprivation and seven domains in the CDHB

Table 1 shows summary statistics by domain for the 56 CDHB 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 Education (5454), Income (5275), Crime (5186), Housing (4968), Employment (4895) and Health (4865) were all contributing to high overall IMD deprivation in these 56 data zones in 2013. Please note that domains carry different weights in the IMD (see Figure 1).

Min, max and median[1] deprivation ranks by domain for 56 data zones with Q5 IMD								
	IMD	Employment	Income	Crime	Housing	Health	Education	Access
Min	4770	3500	4212	3360	3224	2831	3835	59
Max	5854	5786	5802	5917	5737	5845	5894	3644
Median	5121	4895	5275	5186	4968	4865	5454	1171

Table 1. Minimum, maximum and median deprivation ranks by domain for 56 data zones in the CDHB with Q5 IMD deprivation

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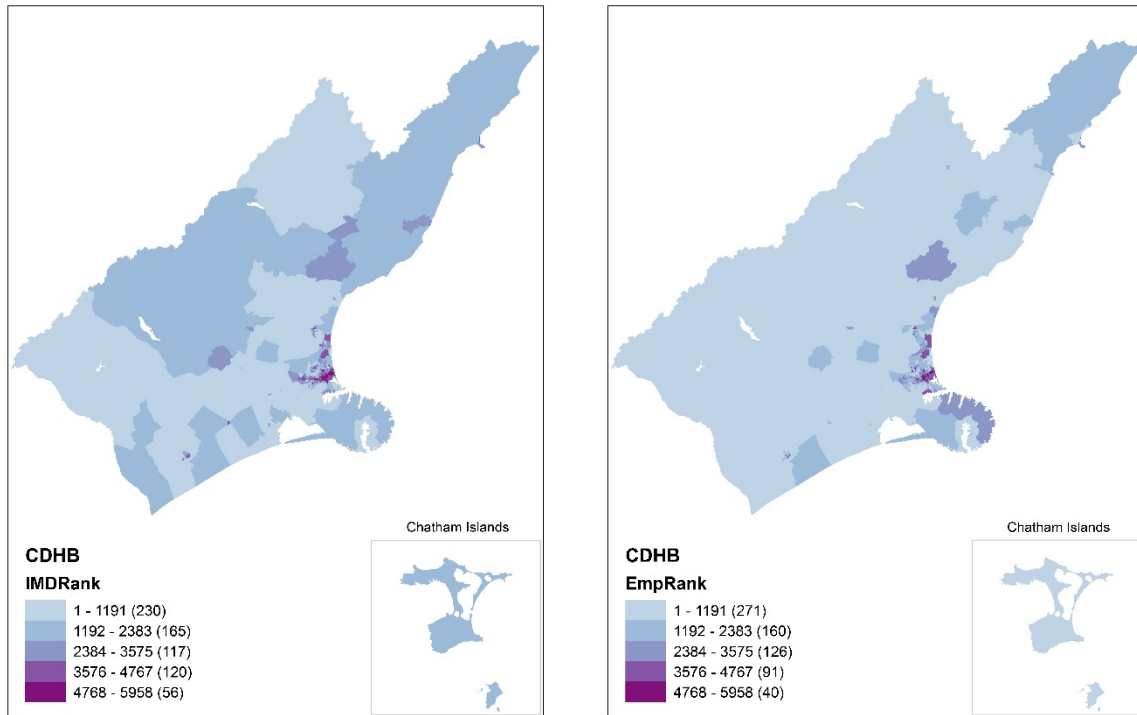
Figure 3. Distribution of overall IMD and employment deprivation in the CDHB

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 low levels of Q5 deprivation in the CDHB. Only 8.1% (56/688) of data zones were among the most deprived 20% in NZ (Q5), while 33.4% (230/688) of data zones were in the least deprived 20% in NZ (Q1). The median IMD rank in the CDHB was 2000, 16.4% (979 ranks) better than the NZ median of 2979. The majority (42/56) of Q5 data zones were in Christchurch, stretching from Latimer Square eastwards to the sea, and in suburbs such as Addington, Hoon Hay and Broomfield. Urban data zones are difficult to see on these maps, so readers can use the interactive maps at the IMD website to explore the CDHB 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 CDHB, only 5.8% (40/688) of data zones were in the 20% most deprived in NZ for the Employment Domain. In contrast, 39.4% (271/688) of data zones were in the least deprived 20%. The median employment deprivation rank in the Canterbury DHB was 1700, 21.5% (1280 ranks) better than the NZ median of 2979. The distribution of Q5 employment deprivation followed a similar pattern to overall IMD deprivation, but with fewer Q5 data zones. There were no Q5 employment deprived data zones in rural parts of the CDHB.
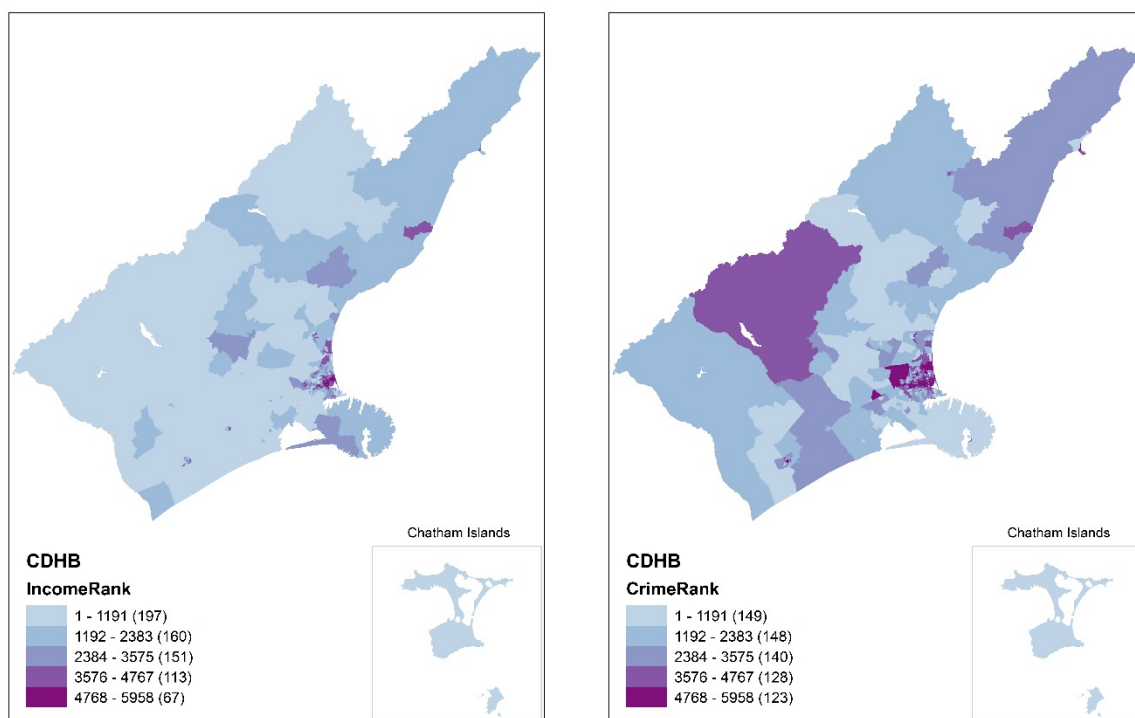
Figure 4. Distribution of income and crime deprivation in the CDHB

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 CDHB, only 9.7% (67/688) of data zones were among NZ's 20% most income deprived, while 28.6% (197/688) were among the 20% least income deprived. The median income deprivation rank in the CDHB was 2269, 11.9% (710 ranks) better than the NZ median. These figures show that income deprivation was a bigger issue in the CDHB area than employment deprivation. The distribution of Q5 data zones followed the same pattern as overall (IMD) deprivation. There were no Q5 income deprived data zones in rural parts of the CDHB.

The Crime Domain measures victimisations per 1000 people and is largely driven by thefts (55%), burglaries (24%) and assaults (18%). In the Canterbury DHB, 17.9% (123/688) of data zones were among NZ's 20% most deprived for the Crime Domain, while 21.7% (149/688) were among NZ's 20% least deprived. The median crime deprivation rank in the CDHB was 2820, 2.7% (159 ranks) better than the NZ median. High (Q5) rates of crime victimisation occurred in urban areas, including Christchurch, Kaikoura and Ashburton, and in a large semi-rural area that includes Christchurch International Airport and Christchurch Women's Prison and Christchurch Men's Prison.
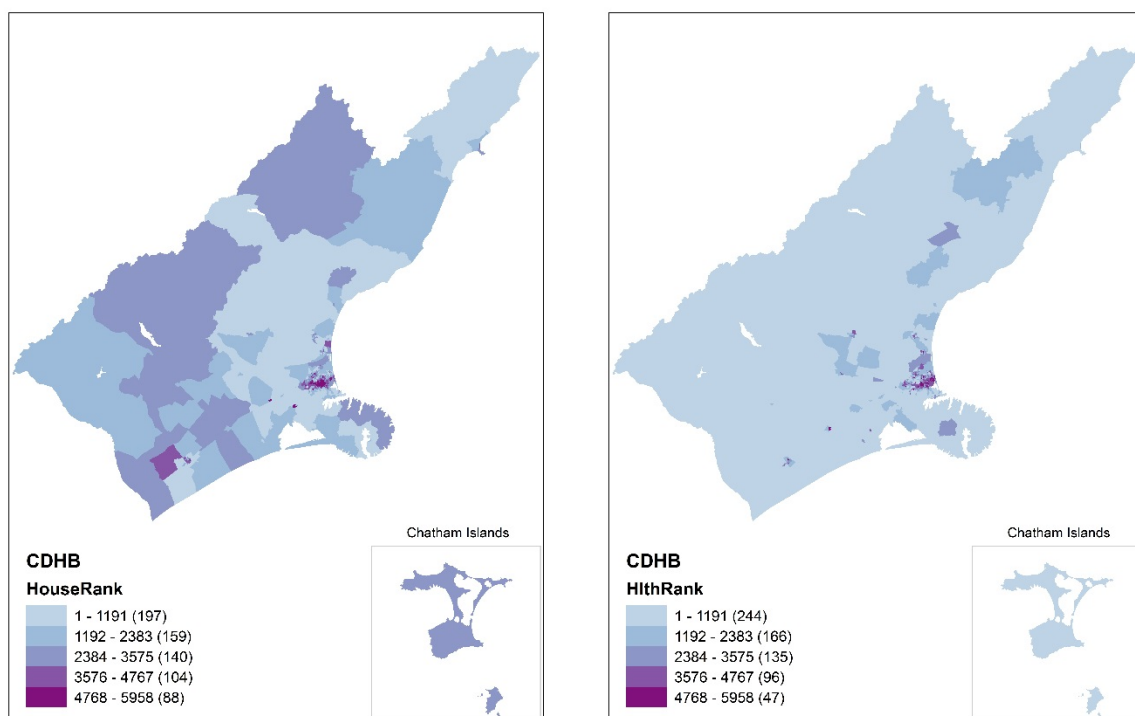
Figure 5. Distribution of housing and health deprivation in the CDHB

The Housing Domain measures the proportion of people living in overcrowded households (60% of the weighting) and rented dwellings (40%) in 2013. In the Canterbury DHB, only 12.8% (88/688) of data zones were among the 20% most deprived in NZ and 28.6% (197/688) of data zones were among the 20% least deprived. The median housing deprivation rank in the Canterbury DHB was 2259, 12.1% (721 ranks) better than the NZ median. In Christchurch City, many data zones in the Wigram GED were Q5 housing deprived, and beyond the city there was Q5 housing deprivation near Lincoln University, the Burnham Army Camp and Netherby.

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 Canterbury DHB, only 6.8% (47/688) of data zones were among the 20% most health deprived in NZ, and 35.5% (244/688) were among the least deprived 20%. The median health deprivation rank in the Canterbury DHB was 1951, 17.3% (1028 ranks) better than the NZ median, showing that there were relatively low levels of health deprivation in the Canterbury DHB. In Christchurch City, there were fewer data zones (44) with Q5 health deprivation than for overall (IMD) deprivation (56). Beyond the city, Rakaia, Ashburton, Kaiapoi and Rangiora had one Q5 health deprived data zone each.
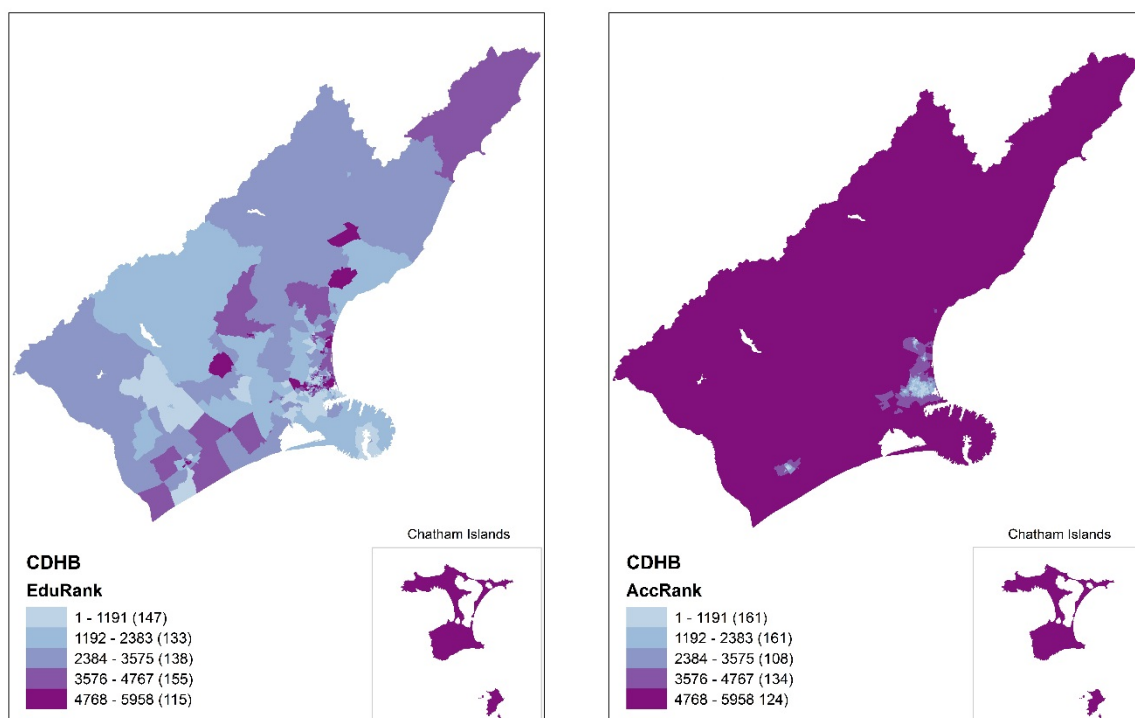
Figure 6. Distribution of education and access deprivation in the CDHB

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 Canterbury DHB, 16.7% (115/688) of data zones were among NZ's 20% most education deprived and 21.4% (147/688) were in the least deprived 20%. The median education deprivation rank in the Canterbury DHB was 2972, 0.1% (8 ranks) better than the NZ median. In Christchurch City, there were many data zones with Q5 education deprivation, especially in the Wigram GED. On the edge of the city, there was a large semi-rural data zone with Q5 education deprivation that included Christchurch International Airport, Christchurch Women's Prison and Christchurch Men's Prison. Beyond the city, there were three large rural data zones with Q5 education deprivation (one in Selwyn District and two in Hurunui) and 11 urban data zones in smaller centres. The Chatham Islands also had Q5 education deprivation.

The Access Domain measures the distance from the centre of each neighbourhood to the nearest 3 GPs, supermarkets, service stations, schools and early childhood education centres. In the Canterbury DHB, 18.0% (124/688) of data zones were among NZ's 20% most access deprived, and 23.4% (161/688) were in NZ's 20% least deprived. The median access deprivation rank in the Canterbury DHB was 2679, 5.0% (301 ranks) better than the NZ median. Predictably, the entire rural part of the CDHB and the Chatham Islands were Q5 access deprived. Access to services was good in and around Ashburton, Rangiora, Kaiapoi and Hornby, and was excellent in most parts of the Christchurch Central and Christchurch East GEDs.

Age profile of the Canterbury DHB

According to the 2013 census, the Canterbury DHB (CDHB) had a total population of 482,709 people living in 688 data zones, with a mean of 702 people each (range: 498 to 1101).

Mean data zone proportions for five age groups in the CDHB					
Age group	0-14	15-24	25-44	45-64	65+
Canterbury DHB	18.7%	13.8%	25.8%	26.7%	15.0%
New Zealand[2]	20.4%	13.8%	25.6%	25.8%	14.3%
Difference	-1.7%	0.0%	0.2%	0.9%	0.7%

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

Table 2 shows that the age profile of the CDHB differs most from the national age profile in that it has 1.7% fewer children aged 0-14 and 0.9% more people aged 45-64. Figure 7 shows the distribution of people in these two age groups.
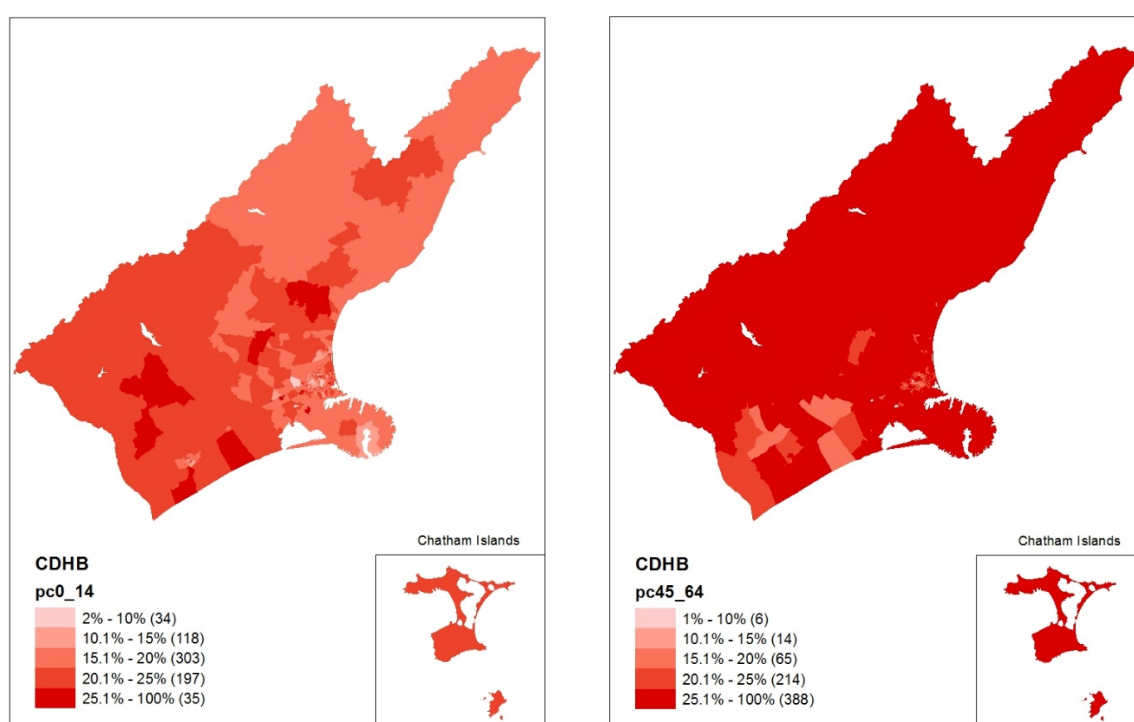
**Figure 7. Distribution of children aged 0-14 and people aged 45-64 in the CDHB**

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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 Canterbury 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 CDHB ranged from 1.0% to 59.3%. The overall proportion of Māori in the CDHB was 8.3%, much lower than the national proportion of 14.9%. The proportion of Māori per data zone was the greatest in the Chatham Islands (59.3%).

The proportion of Pacific ethnicity living in data zones within the CDHB in 2013 ranged from 0.0% to 27.4%. The overall proportion of Pacific ethnicity in the CDHB was 2.5%, much lower than the national proportion of 7.3%. A data zone in Hoon Hay (27.4%) had the highest proportion of Pacific ethnicity.

The proportion of New Zealand European and Other ethnicities (NZEO) living in data zones within the CDHB ranged from 66.7% to 100%. The overall proportion of NZEO in the CDHB was 95.5%, which is greater than the national proportion of 87.5%. The lowest proportions of NZEO residents lived in a Hoon Hay data zone (66.7%) and in a cluster of Aranui data zones
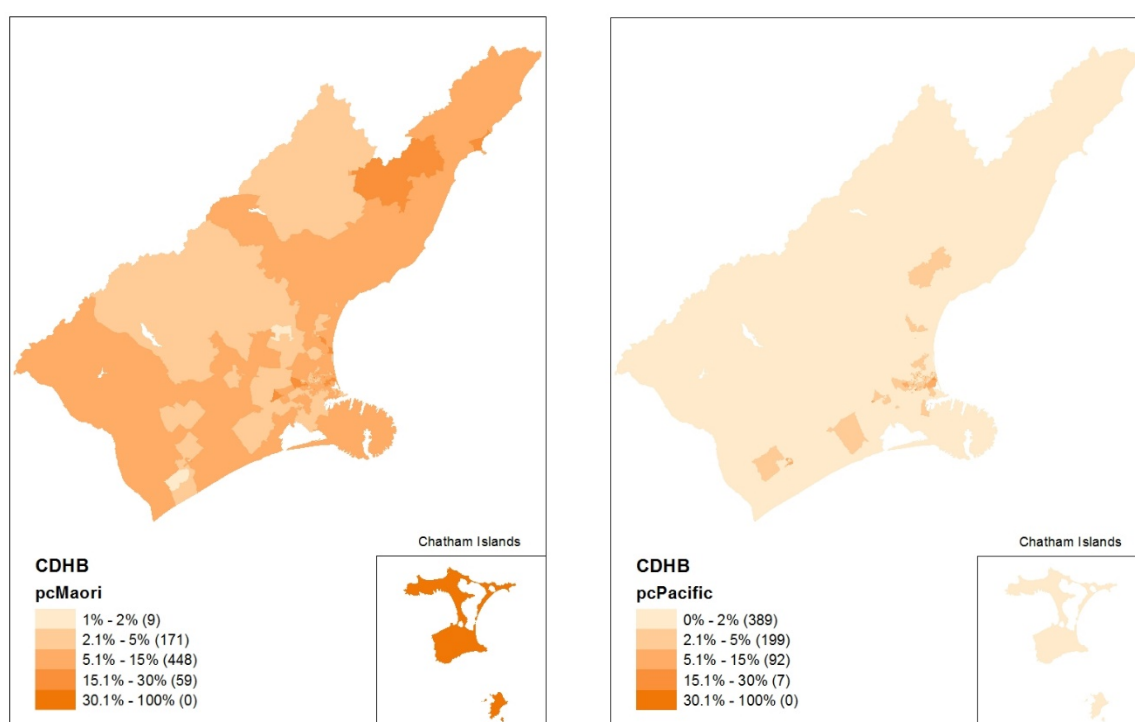
Figure 8. Distribution of Māori and Pacific people in the CDHB

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.