Residential Locality Profiles for Counties Manukau DHB

CMDHB Overview

Foreword

Enrolled population, service localities

The population of CMDHB can be mapped according to the locality in which people live (their residential locality). In addition to residential localities, the population can also be mapped according to where they are enrolled for primary care services. This can be termed an 'enrolled population' view of CMDHB. For the development of localities for health service provision, the CMDHB enrolled population will be divided into four localities. The boundaries for these localities take into account primary care provider affiliations and networks of interest as well as the physical address of primary care services. As at December 2011, the enrolled population service localities will essentially comprise of Mangere/Otara (including northern Papatoetoe), Eastern (Howick plus the Maraetai/Beachlands and Clevedon), Manukau (Manurewa, Papakura and the majority of Papatoetoe) and Franklin. For intersectoral activities, the Mangere/Otara and Manukau localities taken together will align with the Auckland Council's proposed Southern Initiative.

Analysis of the demography and health service utilisation of these service locality populations will be available in the first part of 2012.

Residential localities

The DHB can also be divided into residential locality boundaries, where people are mapped according to where they live. This document summarises the demography, health indicators and health service utilisation of the population of CMDHB mapped according to their residential locality. Compiled in October 2011, it is a 'work in progress' as these analyses are being developed by CMDHB as part of a wider localities information set to support health planning in localities and will be shaped further in that process.

In particular at present this document does not include primary care utilisation information as this information is not available to the DHB in a form that could be disaggregated to residential localities. There is also limited information in relation to child health in this document. These are significant gaps and there will be opportunities to address this as enrolled and residential population profiles are further developed going forward.

Care has been taken care to ensure that the information contained in this document is complete and accurate, however CMDHB accepts no responsibility or liability for any acts or omissions, done or committed in reliance, in whole or in part, on the information.

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List of Abbreviations

CAU   Census Area Unit
CMDHB   Counties Manukau District Health Board
CHD   Coronary Heart Disease
COPD   Chronic Obstructive Pulmonary Disease
CPD   Chronic Pulmonary Disease
DPB   Domestic Purposes Benefit
Labs   Laboratory Claims Collection
NMDS   National Minimum Dataset
NNPAC   National Non-admitted Patient Collection
NZDep   New Zealand Deprivation Index
Pharms   Pharmaceutical Collection

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1   Background

The health status of the population of CMDHB is under constant review. From time to time themes are drawn together into specific pieces of work, many of which are formally published on the CMDHB website (www.cmdhb.org.nz, under publications/health status). These reviews concentrate on CMDHB as a whole, usually comparing with the rest of Auckland and/or New Zealand as a whole, and examining inequalities by ethnicity and deprivation. Recent reviews include:

- The Health of Children and Young People with Chronic Conditions and Disabilities in Counties Manukau, 2010
- Survey of Persons Living with Diabetes in Counties Manukau, 2010
- Let's Beat Diabetes 2009 Tracking Survey, 2010
- CMDHB: Changes in Primary Health Care between 2001 and 2009, 2010
- The Determinants of Health for Children and Young People in Counties Manukau, 2009
- The Prevalence and Care of Mental Disorders in Counties Manukau District Health Board from Linked Health Data, 2009
- CMDHB Health Needs Assessment, 2008
- The Health Needs of Asian People in CMDHB (June 2008)
- The Health of Children and Young People in Counties Manukau (March 2008)
- The Changing Demography of Counties Manukau DHB (Jan 2008)
- Information to Support Maaori Health Planning in Counties Manukau (Sept 2007)
- Mental Health and Addiction in Counties Manukau: Health Needs Assessment (July 2007)
- CMDHB: Improving Access to Elective Surgery 1996/97 – 2005/06 (June 2007)
- Ethnic-specific Health Needs Assessment for Pacific People in Counties Manukau (May 2007)
- Health of Older People (April 2006) .

This document is the overarching report in a series of reports which describe populations and health status at a locality level. Not all indicators are able to be examined at this level, but a reasonable picture can be created. Each area has its own distinct social geography and health experience. This document summarises the demography and various health indicators for the CMDHB population, with a focus on differences by locality. Accompanying this document will be seven reports each pertaining to a particular locality in the CMDHB region: Franklin, Howick, Mangere, Manurewa, Otara, Papakura, and Papatoetoe.

It is likely the material presented in this document will generate as many questions as it will answer; it is intended as a starting point and further analyses will be undertaken in collaboration with stakeholders.

Defining localities

Counties Manukau covers an area of 55,200 hectares and includes parts of the local authorities of Auckland, Waikato District and Hauraki District. In considering the demography and health status of the CMDHB resident population in this paper, the DHB residential locality boundaries have been aligned to the Auckland Council boundaries where possible, as the determination of the number and boundaries of the wards and local board by the Local Government Commission took into account work on communities of interest. Exceptions to this have occurred when a Census Area Unit (CAU) sits across more than one Ward or Board, in which case the CAU is 'forced' to aggregate into one Ward or Board only. Exceptions have also occurred when the DHB boundaries do not match the Council ones. For example, the CMDHB southern boundary did not change when Auckland City was formed, at which time the southern parts of Franklin were assigned to the Waikato District and Hauraki District rather than incorporated into Auckland City. This means the DHB boundary now extends beyond the Auckland Council boundary, and the CMDHB Franklin area includes parts of the Waikato District and Hauraki District. The Otahuhu part of the Mangere-Otahuhu local board is in the Auckland DHB region and the Otara-Papatoetoe Board has been divided using the natural (and historical for the DHB) boundary of State Highway 1.

These divisions give seven CMDHB residential localities: Mangere, Otara, Papatoetoe, Howick, Manurewa, Papakura and Franklin. When earlier localities work was done in CMDHB in 2008/09, Botany-Clevedon was a separate area. Now some of that area is in the Howick local board and some in Franklin. In addition the Drury area was part of Papakura, but is now classified as part of Franklin. Figure 1 shows the CMDHB residential localities and their relative population densities at the time of the 2006 Census.

Defining residential locality boundaries in this way does present a challenge in relation to providing relevant information for those working across the health system in Counties Manukau, in that many primary health care and community providers do not have formal defined geographical boundaries, and even where they are more geographically aligned, the areas do not necessarily match the local authority boundaries (see further below). The relationship between these residential localities and the localities of service interest being developed by the DHB needs further exploration and definition.

Figure 1 Map of CMDHB residential localities
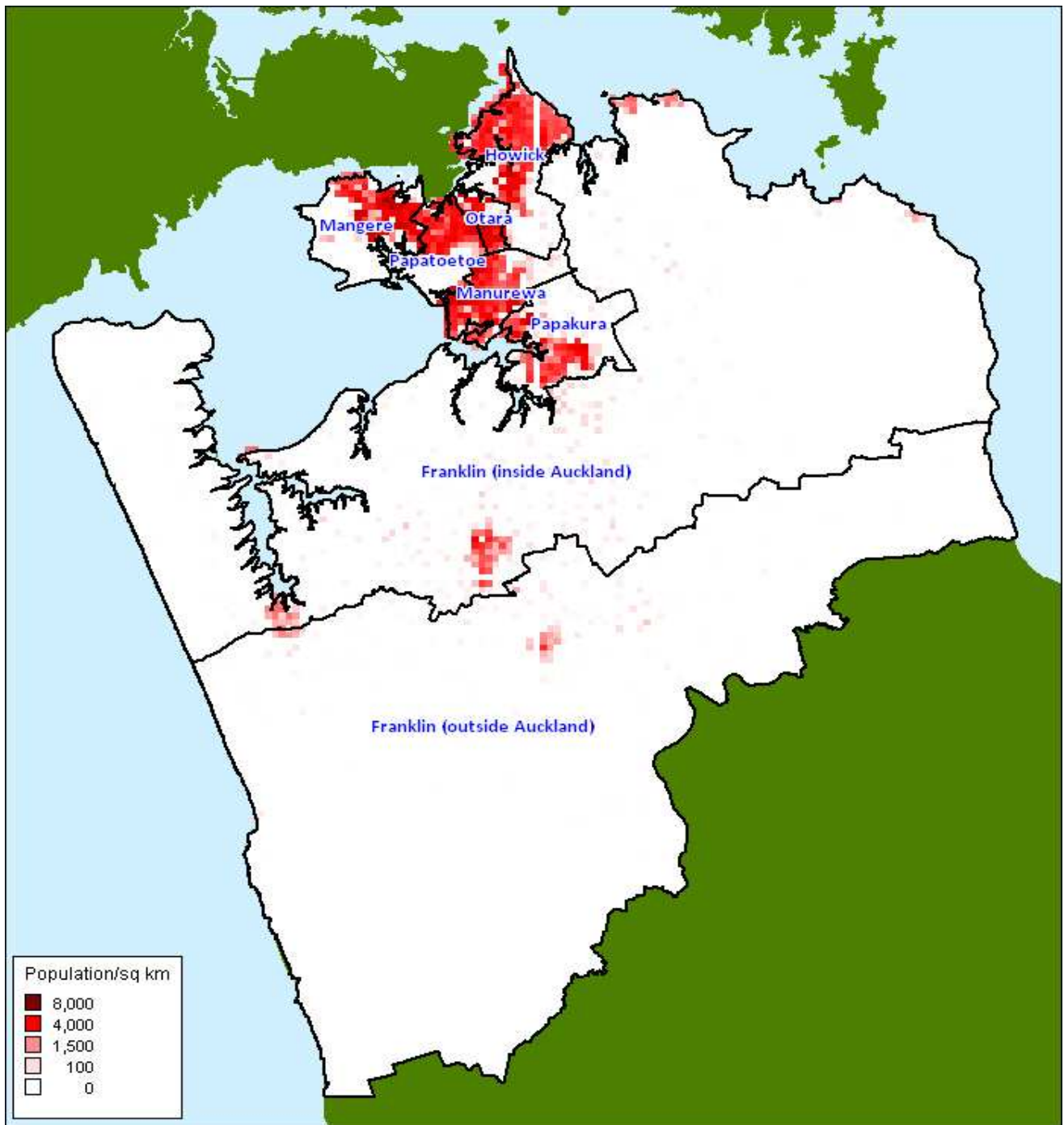
Locality analysis areas are outlined in black.
Usually resident population density as at 2006 Census is shown.

Population of domicile or residential population, and enrolled population

If the population is mapped according to both where they live, and where they are enrolled for primary care, the extent to which the resident population and enrolled populations differ varies across the residential localities of CMDHB, both in size and the actual people in each. For example, in 2010 the estimated resident population of Otara was approximately 37,000 people, while in the order of 65 to

75,000 people were enrolled in practices associated with the Otara area (depending on how that is defined). The enrolled population of Otara comes from a variety of localities, both in the CMDHB area and also beyond the CMDHB area.

For some residential localities the situation is the other way round, with the practice enrolled populations 15-30% less than the size of the domiciled populations. Even where the total number is similar (e.g. in Mangere about 65,000 people are resident in the area and a similar number are enrolled in practices located in the area), the people actually in those populations are not all the same (e.g. just under 60% of those enrolled in practices in Mangere in 2010 were residents of Mangere, and a similar percentage of residents of Mangere were enrolled in practices located in Mangere. So between half and two thirds of each population group – resident and enrolled - are the same, but the others are different – either living in Mangere but enrolled in practices outside of Mangere including outside of CMDHB, or enrolled in practices Mangere but living outside of Mangere). How the enrolled populations are defined, alongside the residential populations, will be important in considering who the catchment populations are for new initiatives such as Integrated Family Health Centres and Whaanau Ora Centres.

Also important for health services planning are the implications that a significant proportion of CMDHB residents will be missed if there is only consideration of the CMDHB enrolled patients group, and at the same time the enrolled patients group will include a significant number from outside the CMDHB population. Both resident and enrolled user views will be important, and each view may be more or less relevant depending on the issue in question. For instance a residential view will be particularly relevant for intersectoral work such as housing and working with Council Local Boards, while an enrolled population view will be more relevant for quality improvement initiatives driven by general practices in a locality. Projections of service need will also have to try to take into consideration how utilisation by the population may change over time as a result of the location and type of services provided.

This document provides the population of domicile or residential locality view of the CMDHB population, i.e. the people who live in CMDHB (as distinguished from the population who are enrolled with primary care providers in the CMDHB area and the various localities).

2 Demography

2.1 Population size and composition

Information on population size and composition is obtained from the New Zealand Census. For the purposes of DHB planning, CMDHB uses the Estimated Resident Population counts. These figures include adjustment for residents who were temporarily elsewhere in NZ or overseas at the time of the Census, along with an adjustment for net census undercount of residents, determined by post census survey. These figures are higher than Usually Resident Population counts which only include residents present or temporarily elsewhere in New Zealand at the time of the Census.

Between the years of the New Zealand Census, projections are available for the estimated resident population. The following information is based on projections from the 2006 Census. Until the next Census (2013) estimated population numbers indicate the expected growth in the size of the population, but where people are actually living and the proportions of different age groups and ethnicities can only be assumed based on historical patterns.

Table 1 summarises the estimates for 2011 for the CMDHB localities. Of the areas under analysis Howick is the largest with an estimated population of just over 133,700 residents in 2011. There is a slight preponderance of females over males in all areas, mirroring the New Zealand pattern.

Table 1 2011 CMDHB Estimated Resident Population by residential locality

Locality	Female	Male	Total	% of CM	Rank by size
Howick	68,300	65,400	133,700	27%	1
Mangere	33,400	32,300	65,700	13%	4
Otara	18,800	18,100	36,900	7%	7
Papatoetoe	26,400	25,500	51,900	10%	5
Manurewa	46,400	44,100	90,500	18%	2
Papakura	23,000	21,700	44,700	9%	6
Franklin	38,800	38,400	77,200	15%	3
CMDHB	255,100	245,500	500,600	100%	
	51%	49%			

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

Manurewa and Howick are estimated to have the largest number of children of all the areas in CMDHB (Table 2 and Figure 2). Otara, Mangere and Manurewa have the highest percentages of children in their populations, but even the areas with lower child percentages are above the New Zealand average of 20%, except Howick. Howick has the highest number and percentage of adults aged 15-64 years and is the only area to exceed the CMDHB average of 66%. Papatoetoe and Franklin also reach the average. One third of the CMDHB population aged ≥ 65 years reside in Howick. Howick and Franklin have the highest percentages of residents aged ≥ 65 years – approaching the New Zealand average of 13%.

Table 2 2011 CMDHB Estimated Resident Population by age and residential locality

Locality	0-14 years	% of locality	% of CM this age	15-64 years	% of locality	% of CM this age	65+ years	% of locality	% of CM this age
Howick	25,300	19%	21%	91,800	69%	28%	16,600	12%	34%
Mangere	19,100	29%	16%	41,800	64%	13%	4,800	7%	10%
Otara	11,200	30%	9%	23,500	64%	7%	2,100	6%	4%
Papatoetoe	12,500	24%	10%	34,300	66%	10%	5,100	10%	10%
Manurewa	25,500	28%	21%	58,100	64%	18%	7,000	8%	14%
Papakura	11,500	26%	9%	28,700	64%	9%	4,500	10%	9%
Franklin	17,600	23%	14%	50,800	66%	15%	8,800	11%	18%
CMDHB	122,700	25%	100%	329,000	66%	100%	48,900	10%	100%

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

Figure 2 2011 CMDHB Estimated Resident Population by age and residential locality
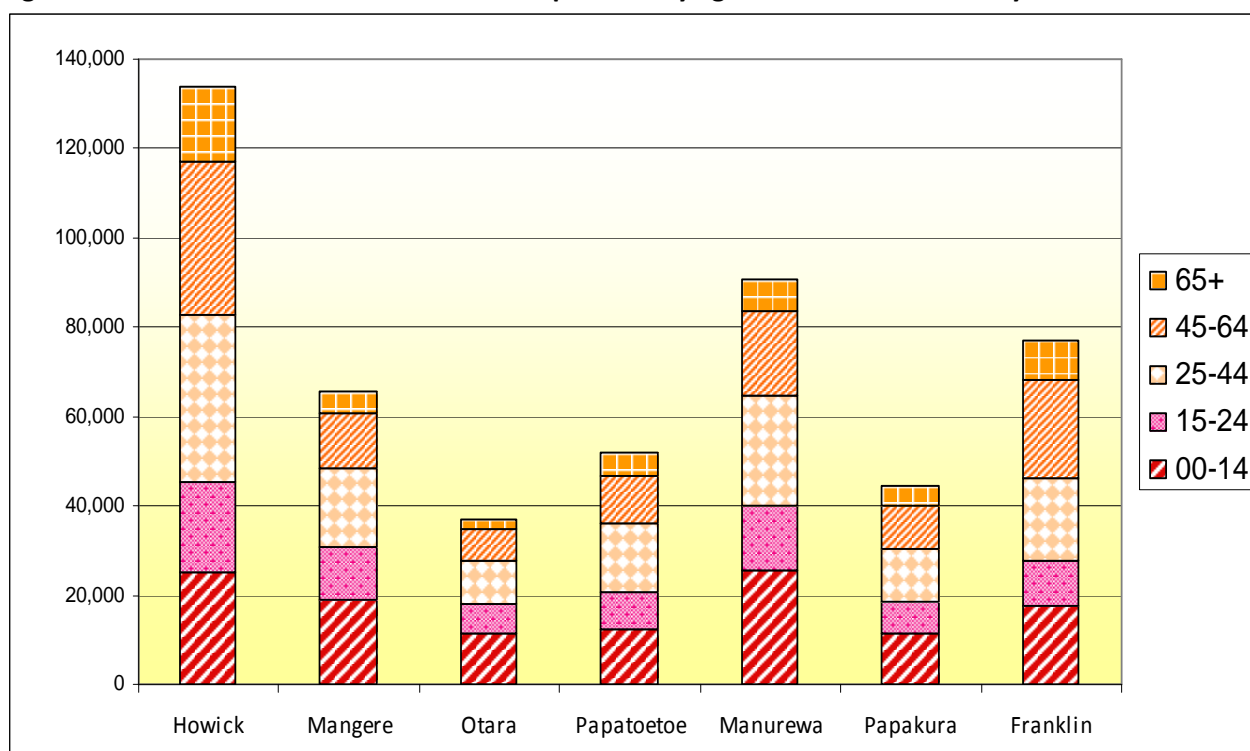
Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

There are various ways ethnic groups are reported in health documents in New Zealand. Ethnicity is usually prioritised in health data, from multiple ethnic codes, in the following order: Maaori, Pacific peoples, Asian, European and 'Other' New Zealanders[1]. It is increasingly recognised that the Asian population is a very heterogeneous group, with quite different health profiles and needs. One separation that recognises these different health profiles is South Asian and Other Asian groups. Current ethnicity coding makes it challenging to separate out all of the South Asian ethnic groups; also in the Counties Manukau population

the South Asian group is predominantly Indian. Within the Other Asian group, just under 60% in Counties Manukau identify as Chinese. This report uses the categories of Maaori, Pacific, Indian, Other Asian and Others (predominantly European/Paakehaa).

Locality of residence within CMDHB varies dramatically by ethnicity (Table 3). Manurewa and Papakura are the localities of residence for 46% of CMDHB Maaori residents. Seventy-seven percent of all Pacific Peoples in CMDHB reside in Mangere, Otara or Manurewa. Howick and Papatoetoe have 56% of the Indian residents of CMDHB, with a further 19% residing in Manurewa. For the Other Asian population, 64% reside in Howick, particularly those who identify as Chinese (75% of the CMDHB Chinese population live in Howick). For the 'Other' group, two thirds live in Howick and Franklin.

More detail on the projected future growth of each ethnicity is given in section 2.3.

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[1] This means if a person identifies with more than one ethnicity, if any of those ethnicities is Maaori, they will be counted in the Maaori group and so on down the list of prioritisation

Table 3 2011 CMDHB Estimated Resident Population by ethnicity and residential locality

Locality	Maaori	% of locality	% of CM Maaori	Pacific	% of locality	% of CM Pacific	Indian	% of locality	% of CM Indian	Other Asian	% of locality	% of CM Other Asian	Other	% of locality	% of CM Other	Total
Howick	6,700	5%	8%	6,100	5%	5%	11,900	9%	28%	38,200	29%	64%	70,900	53%	35%	**133,800**
Mangere	11,400	17%	14%	38,300	58%	34%	4,600	7%	11%	3,200	5%	5%	8,300	13%	4%	**65,800**
Otara	7,200	20%	9%	24,000	65%	22%	1,300	4%	3%	1,800	5%	3%	2,600	7%	1%	**36,900**
Papatoetoe	8,300	16%	10%	13,300	26%	12%	11,500	22%	28%	5,900	11%	10%	12,800	25%	6%	**51,800**
Manurewa	25,100	28%	30%	23,300	26%	21%	7,900	9%	19%	6,400	7%	11%	27,900	31%	14%	**90,600**
Papakura	13,300	30%	16%	4,400	10%	4%	2,500	6%	6%	1,800	4%	3%	22,800	51%	11%	**44,800**
Franklin	12,000	16%	14%	2,100	3%	2%	2,100	3%	5%	2,100	3%	4%	58,900	76%	29%	**77,200**
CMDHB	**84,000**	17%	100%	**111,500**	22%	100%	**41,800**	8%	100%	**59,400**	12%	100%	**204,200**	41%	100%	**500,900***

*Number slightly different from Table One because of rounding.
Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

2.2 Historical population growth

In this section median projections from the 2006 Census are used to review expected population growth to 2011. Features such as number of dwellings cannot be projected in the same way as population growth so only changes to 2006 are noted.

CMDHB has had the fastest growing population of any DHB with an annual growth rate of 3.2% since 2001, twice the NZ average (1.6%). Based on median projections from the 2006 Census, an additional 107,000 people became CMDHB residents in the decade from 2001 to 2011, representing 21% of all new New Zealand residents (Table 4). The fastest growing area was Howick, particularly the areas of Botany and Dannemora. An extensive description of the changing demography of CMDHB was provided in a 2008 CMDHB report[2]. The delay of the 2011 Census until 2013 means the DHB will need to continue to use that information and projected trends until approximately 2015.

Table 4 CMDHB population growth 1996 to 2011 (estimated) by residential locality

	CMDHB population				Change 2001-2011		Change 1996-2011	
Locality	1996	2001	2006	2011	n	%	n	%
Howick	80,700	95,200	118,000	133,800	38,600	41%	53,100	66%
Mangere	48,500	53,400	58,000	65,600	12,200	23%	17,100	35%
Otara	32,000	33,400	33,200	36,900	3,500	10%	4,900	15%
Papatoetoe	39,900	43,200	45,400	52,100	8,900	21%	12,200	31%
Manurewa	59,300	69,700	82,300	90,700	21,000	30%	31,400	53%
Papakura	36,700	37,300	42,700	44,600	7,300	20%	7,900	22%
Franklin	59,400	61,500	75,000	76,800	15,300	25%	17,400	29%
CMDHB	356,600	393,600	454,700	500,600	**107,000**	**27%**	**144,000**	**40%**

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

On average, growth in private dwellings in CMDHB has been approximately 2% per year, rising from 102,900 in 1996 to 130,200 in 2006 (Figure 3). The largest growth in the five years from 2001 to 2006 was in Howick with more than 5,850 dwellings added, an increase of 19%. Franklin (3300, 15%) and Manurewa (2784, 14%) were the next highest. The lowest growth was in Otara (222, 3%) and Papatoetoe (750, 6%).

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[2] The changing demography of Counties Manukau DHB. CMDHB, January 2008. Available on www.cmdhb.org.nz

Figure 3 CMDHB growth in private dwellings 1996 to 2006 by residential locality
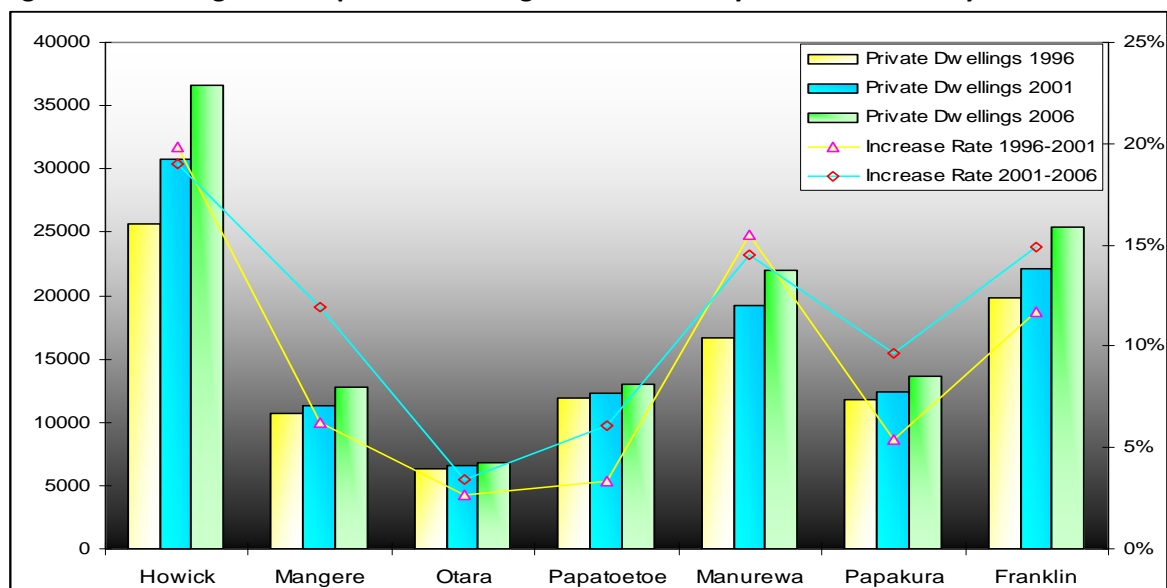
Source: SNZ Census data, analysed by CMDHB

Maaori

The Maaori population of CMDHB is estimated to have grown at a similar rate to the overall population, rising from 60,490 in 1996 to an estimated 83,890 people in 2011 to consistently comprise 17% of the CMDHB population. This overall growth conceals movement within CMDHB. Otara is estimated to have had a slight decline in Maaori numbers from 1996 to 2011, and a significant decline in the percentage Maaori, while Manurewa and Papakura are estimated to have had significant increases. Over a quarter of the populations of Manurewa and Papakura are estimated to be of Maaori ethnicity.

Table 5 CMDHB Maaori population growth 1996 to 2011 by residential locality

	Maaori Population				Change 1996-2011		% in locality		% of CMDHB	
Locality	1996	2001	2006	2011	n	%	1996	2011	1996	2011
Howick	2,530	3,520	5,680	6,650	4,120	163%	3%	5%	4%	8%
Mangere	10,730	10,730	10,400	11,360	630	6%	22%	17%	18%	14%
Otara	7,930	6,960	6,700	7,190	- 740	-9%	25%	19%	13%	9%
Papatoetoe	6,170	7,510	7,380	8,320	2,150	35%	15%	16%	10%	10%
Manurewa	16,160	20,610	22,870	25,060	8,900	55%	27%	28%	27%	30%
Papakura	8,760	10,550	12,140	13,260	4,500	51%	24%	30%	14%	16%
Franklin	8,220	9,030	10,880	12,040	3,820	46%	14%	16%	14%	14%
CMDHB	**60,490**	**68,900**	**76,040**	**83,890**	**23,400**	**39%**	**17%**	**17%**	**100%**	**100%**

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

Pacific

The Pacific population[3] of CMDHB is estimated to have risen from 58,660 in 1996 to an estimated 111,360 in 2011, a significant 90% increase. This represents an increase from 16% to 22% of the CMDHB population. The largest absolute growth is estimated to have occurred in Mangere and Manurewa. Over a half of the populations of Otara and Mangere are estimated to be of Pacific ethnicity, together making up 56% of all the Pacific people living in CMDHB, while a quarter of Manurewa and Papatoetoe are estimated to be Pacific.

Table 6 CMDHB Pacific population growth 1996 to 2011 by residential locality

	Pacific Population				Change 1996-2011		% in locality		% of CMDHB	
Locality	1996	2001	2006	2011	n	%	1996	2011	1996	2011
Howick	620	1,530	4,360	6,060	5,440	877%	1%	5%	1%	5%
Mangere	22,900	30,550	33,130	38,300	15,400	67%	47%	58%	39%	34%
Otara	18,210	20,740	21,150	23,990	5,780	32%	57%	65%	31%	22%
Papatoetoe	5,850	9,120	11,230	13,320	7,470	128%	15%	26%	10%	12%
Manurewa	9,230	13,930	20,040	23,260	14,030	152%	16%	26%	16%	21%
Papakura	1,520	1,940	3,740	4,350	2,830	186%	4%	10%	3%	4%
Franklin	340	570	1,730	2,090	1,750	515%	1%	3%	1%	2%
CMDHB	58,660	78,350	95,370	111,360	52,700	90%	16%	22%	100%	100%

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

Indian

The Indian population[2] of CMDHB is estimated to have grown at a very fast rate from 7,310 in 1996 to 41,110 in 2011. This would move the Indian ethnic group from 2% to 8% of the CMDHB population. The largest absolute growth was estimated to have been in Howick, followed by Papatoetoe and Manurewa.

Table 7 CMDHB Indian population growth 1996 to 2011 by residential locality

	Indian Population				Change 1996-2011		% in locality		% of CMDHB	
Locality	1996	2001	2006	2011	n	%	1996	2011	1996	2011
Howick	770	3,450	8,280	11,700	10,930	1419%	1%	9%	11%	28%
Mangere	550	1,320	3,490	4,490	3,940	716%	1%	7%	8%	11%
Otara	300	730	1,050	1,270	970	323%	1%	3%	4%	3%
Papatoetoe	3,960	6,570	9,110	11,470	7,510	190%	10%	22%	54%	28%
Manurewa	730	2,700	6,240	7,800	7,070	968%	1%	9%	10%	19%
Papakura	250	560	1,950	2,450	2,200	880%	1%	6%	3%	6%
Franklin	760	860	1,430	1,950	1,190	157%	1%	3%	10%	5%
CMDHB	7,310	16,180	31,530	41,110	33,800	462%	2%	8%	100%	100%

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

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[3] Based on prioritised ethnicity

Other Asian

The Other Asian population[2] of CMDHB is also estimated to have grown at a very fast rate from 20,190 in 1996 to 57,900 in 2011 – nearly tripling. This would move the Other Asian ethnic group from 6% to 12% of the CMDHB population. The largest growth was estimated for Howick, then Manurewa and Papatoetoe. Two thirds of the Other Asian population (especially those who are Chinese) is estimated to live in Howick.

Table 8 CMDHB Other Asian population growth 1996 to 2011 by residential locality

Locality	Other Asian Population				Change 1996-2011		% in locality		% of CMDHB	
	1996	2001	2006	2011	n	%	1996	2011	1996	2011
Howick	13,920	22,560	29,200	37,990	24,070	173%	17%	28%	69%	66%
Mangere	1,500	1,170	2,170	2,940	1,440	96%	3%	4%	7%	5%
Otara	1,220	1,300	1,380	1,680	460	38%	4%	5%	6%	3%
Papatoetoe	2,430	3,620	4,600	5,870	3,440	142%	6%	11%	12%	10%
Manurewa	870	2,050	4,700	6,160	5,290	608%	1%	7%	4%	11%
Papakura	210	400	1,090	1,600	1,390	662%	1%	4%	1%	3%
Franklin	60	80	1,000	1,680	1,620	2700%	0%	2%	0%	3%
CMDHB	20,190	31,150	44,120	57,900	37,710	187%	6%	12%	100%	100%

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

European and Other

The European and Other population of CMDHB is estimated to have declined by approximately 5,000 people over the 1996 to 2011 period. The lack of overall growth conceals significant movements within CMDHB. There are estimated to have been significant increases in the population in Howick and Franklin who identify as European and Other, and large proportionate decreases in Papatoetoe, Mangere and Otara. Franklin is estimated to have the highest proportion of European and Other ethnic groups (three quarters), followed by Howick and Papakura (approximately half). Otara and Mangere have low percentages of these ethnic groups (7% and 13% respectively).

Table 9 CMDHB European and Other population change 1996 to 2011 by residential locality

Locality	European and Other Population				Change 1996-2011		% in locality		% of CMDHB	
	1996	2001	2006	2011	n	%	1996	2011	1996	2011
Howick	62,750	63,930	69,840	70,920	8,170	13%	78%	53%	30%	35%
Mangere	12,760	9,480	8,290	8,260	- 4,500	-35%	26%	13%	6%	4%
Otara	4,310	3,580	2,670	2,600	- 1,710	-40%	13%	7%	2%	1%
Papatoetoe	21,400	16,270	12,640	12,810	- 8,590	-40%	54%	25%	10%	6%
Manurewa	32,180	30,250	27,740	27,950	- 4,230	-13%	54%	31%	15%	14%
Papakura	25,870	23,830	23,460	22,760	- 3,110	-12%	71%	51%	12%	11%
Franklin	49,920	50,840	59,590	58,890	8,970	18%	84%	76%	24%	29%
CMDHB	209,170	198,170	204,230	204,180	- 4,990	-2%	59%	41%	100%	100%

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

2.3 Future population growth

The Counties Manukau population has been estimated to have been growing at a rate of approximately two percent per year, and this is projected to continue for the foreseeable future. This rapid growth mirrors that being experienced across the Auckland region and places a significant load on health service provision. Overall the Counties Manukau population is expected to grow by approximately 9,000 residents each year for the next 20 years[4] (Table 10). From 2006 to 2026 the number of new residents in Counties Manukau at medium projection rates will be 182,100. This growth is the equivalent of the current population of Wellington arriving in CMDHB over that 20-year period.

Between 2006 and 2026 Howick's population is expected to increase by approximately 67,000 residents. This is largely driven by the development of the Flat Bush area. The other major greenfield sites, at Takanini and Hingaia, make smaller contributions to Papakura's growth. While the greenfield urban area growth is the most noticeable, the larger growth is with infill and higher density housing in more established areas, such as Papatoetoe.

Franklin has the lowest level of predicted growth with only 4,700 additional residents expected from 2006 to 2026.

Table 10 CMDHB population growth 2006 to 2026 by residential locality

	CMDHB population			Change 2006-2011		Change 2006-2026	
Locality	2006	2011	2026	n	%	n	%
Howick	117,900	133,700	184,800	15,800	13%	66,900	57%
Mangere	58,000	65,700	85,700	7,700	13%	27,700	48%
Otara	33,100	36,900	44,600	3,800	11%	11,500	35%
Papatoetoe	45,100	51,900	84,700	6,800	15%	39,600	88%
Manurewa	82,200	90,600	106,800	8,400	10%	24,600	30%
Papakura	42,800	44,700	49,800	1,900	4%	7,000	16%
Franklin	75,500	77,200	80,200	1,700	2%	4,700	6%
CMDHB	454,600	500,600	636,700	46,000	10%	182,100	40%

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

Maaori

Compared with other DHBs, CMDHB has the largest number (76,000 in 2006) of Maaori residents, just ahead of Waikato DHB (75,000). The Maaori population within CMDHB is expected to grow at a similar rate to the overall population growth, with growth of 41% from 2006 to 2026 (Table 11). This will take the Maaori population from 76,000 in 2006 to more than 107,000 in 2026.

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[4] Typically population projections by Statistics NZ, especially projections for high growth areas, tend to be conservative and actual growth rates have been higher than the medium projections in the past.

Manurewa currently has the largest population of Maaori (estimated 25,100 in 2011, at least 90% more than any other locality). If growth is assumed to occur evenly across localities, Manurewa is predicted to have the greatest absolute Maaori population growth. However, it is quite likely that growth will not occur evenly across localities, and if the trend for Maaori to move away from Mangere and Otara to Manurewa, Papakura and Franklin continues, the estimated population growth of 5000 persons expected for Mangere and Otara might well be re-distributed in the southern areas.

Table 11 CMDHB Maaori population growth 2006 to 2026 by residential locality

	Maaori population			Change 2006-2011		Change 2006-2026	
Locality	2006	2011	2026	n	%	n	%
Howick	5,700	6,700	10,900	1,000	18%	5,200	91%
Mangere	10,400	11,400	14,200	1,000	10%	3,800	37%
Otara	6,700	7,200	8,200	500	7%	1,500	22%
Papatoetoe	7,400	8,300	13,500	900	12%	6,100	82%
Manurewa	22,900	25,100	29,700	2,200	10%	6,800	30%
Papakura	12,100	13,300	16,000	1,200	10%	3,900	32%
Franklin	10,900	12,000	14,700	1,100	10%	3,800	35%
CMDHB	76,000	83,900	107,100	7,900	10%	31,100	41%

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

Pacific

CMDHB has a very high number and proportion of Pacific people with almost twice as many Pacific peoples than any other DHB. Thirty nine percent of the NZ Pacific population live in CMDHB. The number of Pacific people in Counties Manukau is projected to grow at a much faster rate than the rest of the general population. There is predicted to be 66% more Pacific peoples in 2026 compared to an average of 40% more for all ethnicities (Table 12). This equates to an increase from 95,400 Pacific peoples in 2006 to 158,300 in 2026.

Mangere is the most 'Pacific' locality with the highest number, the largest future proportion of Pacific, and the largest predicted absolute growth. Otara and Manurewa are also very Pacific neighbourhoods with high numbers and proportions of Pacific peoples and growth in residents. Growth projections by locality are uncertain at best, but the Pacific population is expected to continue to concentrate in Otara, Mangere and Manurewa.

Table 12 CMDHB Pacific population growth 2006 to 2026 residential locality

Locality	Pacific population			Change 2006-2011		Change 2006-2026	
	2006	2011	2026	n	%	n	%
Howick	4,400	6,100	13,800	1,700	39%	9,400	214%
Mangere	33,100	38,300	52,200	5,200	16%	19,100	58%
Otara	21,100	24,000	29,800	2,900	14%	8,700	41%
Papatoetoe	11,200	13,300	23,600	2,100	19%	12,400	111%
Manurewa	20,000	23,300	30,500	3,300	17%	10,500	53%
Papakura	3,700	4,400	5,700	700	19%	2,000	54%
Franklin	1,700	2,100	2,800	400	24%	1,100	65%
CMDHB	95,400	111,400	158,300	16,000	17%	62,900	66%

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

Indian

The number of people of Indian ethnicity in Counties Manukau is predicted to grow at a much faster rate than the rest of the general population, possibly more than doubling by 2026. This equates to an increase from 32,500 Indian people in 2006 to 69,600 in 2026 (Table 13).

Howick has the largest predicted growth of the Indian population, followed by Papatoetoe. The exact growth rates per locality are speculative – as noted above decisions of individuals and families about where to take up residence will distort the 'aging in place' demographic projections.

Table 13 CMDHB Indian population growth 2006 to 2026 by residential locality

Locality	Indian population			Change 2006-2011		Change 2006-2026	
	2006	2011	2026	n	%	n	%
Howick	8,600	11,900	22,900	3,300	38%	14,300	166%
Mangere	3,600	4,600	6,400	1,000	28%	2,800	78%
Otara	1,100	1,300	1,800	200	18%	700	64%
Papatoetoe	9,100	11,500	20,600	2,400	26%	11,500	126%
Manurewa	6,400	7,900	11,000	1,500	23%	4,600	72%
Papakura	2,000	2,500	3,400	500	25%	1,400	70%
Franklin	1,700	2,100	3,300	400	24%	1,600	94%
CMDHB	32,500	41,800	69,600	9,300	29%	37,100	114%

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

Other Asian

Those who identify with ethnicities grouped as Other Asian (58% Chinese in CMDBH in 2006) is predicted to grow at a much faster rate than the rest of the population, possibly doubling by 2026. This equates to an increase from 46,400 in 2006 to 96,800 in 2026 (Table 14). When considering absolute numbers of residents, Howick is predicted to have the largest growth in the Other Asian population, followed by Papatoetoe and Manurewa. Adding the number of people in the Indian ethnic group, the Asian population is predicted to overtake the Maaori and Pacific populations in 2026, becoming the second largest ethnic group.

Table 14 CMDHB Other Asian population growth 2006 to 2026 by residential locality

Locality	Other Asian Population			Change 2006-2011		Change 2006-2026	
	2006	**2011**	**2026**	**N**	**%**	**n**	**%**
Howick	29,400	38,200	63,500	8,800	30%	34,100	116%
Mangere	2,500	3,200	4,700	700	28%	2,200	88%
Otara	1,500	1,800	2,400	300	20%	900	60%
Papatoetoe	4,700	5,900	11,200	1,200	26%	6,500	138%
Manurewa	5,100	6,400	9,200	1,300	25%	4,100	80%
Papakura	1,500	1,800	2,700	300	20%	1,200	80%
Franklin	1,600	2,100	3,000	500	31%	1,400	88%
CMDHB	46,400	59,400	96,800	13,000	28%	50,400	109%

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

European and Other

The number of European and Other people in Counties Manukau is predicted to grow at quite a modest rate compared to the other population groups, possibly not gaining at all by 2026 (Table 15). The greenfields areas in Howick are where the largest predicted growth in the European and Other population is expected, while in many localities this population is expected to decline.

Table 15 CMDHB European and Other population growth 2006 to 2026 by residential localilty

Locality	European and Other population			Change 2006-2011		Change 2006-2026	
	2006	**2011**	**2026**	**N**	**%**	**n**	**%**
Howick	69,800	70,900	73,600	1,100	2%	3,800	5%
Mangere	8,300	8,300	8,200	0	0%	- 100	-1%
Otara	2,700	2,600	2,400	- 100	-4%	- 300	-11%
Papatoetoe	12,600	12,800	15,800	200	2%	3,200	25%
Manurewa	27,700	27,900	26,500	200	1%	- 1,200	-4%
Papakura	23,500	22,800	21,900	- 700	-3%	- 1,600	-7%
Franklin	59,600	58,900	56,400	- 700	-1%	- 3,200	-5%
CMDHB	204,200	204,200	204,900	0	0%	700	0%

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

Growth by Age

A high proportion of the growth in the CMDHB forecast is from migration. This is a mixture of people from overseas as well as internal migration, and provides the most volatile portion of the population projections. Changes in migration policy or in New Zealand's position in the world economies could have dramatic effects on these figures. During the 1990s Statistics NZ consistently underestimated the proportion of growth in Counties Manukau, and the Auckland Region generally. With the opening up of the large Flatbush subdivision there is some concern that the medium migration assumptions may be too low.

CMDHB currently has the youngest population of any DHB with high numbers and proportions of the child and youth population and low proportions of those over 65 years of age. But as a proportion the CMDHB population is getting much older. In 2006, 8.3% of our population was under 5 years of age. In 2026 this is predicted to reduce to 7.5%. However, it is estimated the number in the under five year age group will increase over the 20-year period 2006 to 2026 by approximately 9,800 children from a base of 38,000 children. The population aged 0-14 years is projected to increase by an additional 27,000 children by 2026 (Table 16), an increase of 23%. Papatoetoe and Howick are anticipated to have the largest growth of the child population, whilst this population is expected to decrease in Franklin.

Table 16 CMDHB child (0-14) population growth 2006 to 2026 by residential locality

	0-14 year olds			Change 2006-2011		Change 2006-2026	
Locality	2006	2011	2026	n	%	n	%
Howick	23,800	25,300	32,900	1,500	6%	9,100	38%
Mangere	17,400	19,100	22,000	1,700	10%	4,600	26%
Otara	10,700	11,200	11,700	500	5%	1,000	9%
Papatoetoe	10,900	12,500	20,200	1,600	15%	9,300	85%
Manurewa	23,500	25,500	27,400	2,000	9%	3,900	17%
Papakura	10,800	11,500	12,600	700	6%	1,800	17%
Franklin	18,400	17,600	15,500	- 800	-4%	- 2,900	-16%
CMDHB	115,400	122,700	142,400	7,300	6%	27,000	23%

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

Howick and Papatoetoe are predicted to have the greatest increases in the number of residents aged 15 to 64 years (Table 17).

Table 17 CMDHB adult (15-64) population growth 2006 to 2026 by residential locality

Locality	15-64 year olds			Change 2006-2011		Change 2006-2026	
	2006	2011	2026	n	%	n	%
Howick	80,900	91,800	118,900	10,900	13%	38,000	47%
Mangere	37,000	41,800	54,100	4,800	13%	17,100	46%
Otara	20,900	23,500	28,600	2,600	12%	7,700	37%
Papatoetoe	29,800	34,300	54,800	4,500	15%	25,000	84%
Manurewa	53,000	58,100	66,000	5,100	10%	13,000	25%
Papakura	27,900	28,700	31,000	800	3%	3,100	11%
Franklin	49,700	50,800	49,700	1,100	2%	0	0%
CMDHB	299,100	329,100	403,200	30,000	10%	104,100	35%

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

Those aged 65 years and over are projected to rise from 8.7% of the population in 2006 to 14.6% by 2026, which equates to more than doubling from 40,000 in 2006 to 91,000 in 2026 (Table 18). For every two adults that will be added to the CMDHB population there will be one older adult. All areas of CMDHB are expected to show strong growth in older adults, with the largest increase in numbers projected for Howick.

Table 18 CMDHB older adults (age 65+) population growth 2006 to 2026 by residential locality

Locality	65+ year olds			Change 2006-2011		Change 2006-2026	
	2006	2011	2026	n	%	n	%
Howick	13,200	16,600	32,900	3,400	26%	19,700	149%
Mangere	3,600	4,800	9,600	1,200	33%	6,000	167%
Otara	1,600	2,100	4,300	500	31%	2,700	169%
Papatoetoe	4,500	5,100	9,700	600	13%	5,200	116%
Manurewa	5,600	7,000	13,400	1,400	25%	7,800	139%
Papakura	4,100	4,500	6,200	400	10%	2,100	51%
Franklin	7,300	8,800	15,000	1,500	21%	7,700	105%
CMDHB	40,000	48,800	91,100	8,800	22%	51,100	128%

Source: SNZ population projections (2006 Census Based) analysed by CMDHB, February 2011

2.4 Social characteristics

A variety of measures of socio-economic status are available from the New Zealand Census. These provide complementary views of living standards across CMDHB. These figures are not projected between the years of the New Zealand Census so the latest information from the 2006 Census is reported below. Some of the measures are based on household analysis. There were 129,000 households in CMDHB at the 2006 census. After this section on social characteristics follows an analysis by the NZ Deprivation Index (see Section 2.5) which summarises these socio-economic indicators.

2.4.1 Income

Relative poverty, and hence income, is a key determinant of health[5]. Throughout the 1980s and 1990s income inequalities in New Zealand increased, leading to greater health inequalities. A significant gap remains in income distribution, and the following information does not quantify the impact of the recent recession.

Shown here is the distribution of personal income for those aged 15 years and over in CMDHB (Table 19, Figure 4); this includes all adults regardless of whether they were in paid employment. The areas with the lowest incomes were Otara and Mangere, while the areas with the highest incomes were Howick and Franklin.

Table 19 CMDHB percentage of adults with income <$20,000, 1996 to 2006 by residential locality

	Proportion of adults with personal income <$20,000		
Locality	1996	2001	2006
Howick	51%	47%	41%
Mangere	66%	60%	49%
Otara	70%	62%	52%
Papatoetoe	58%	55%	47%
Manurewa	55%	50%	43%
Papakura	56%	49%	41%
Franklin	53%	47%	38%
CMDHB	56%	51%	43%

Source: SNZ 2006 Census data, analysed by CMDHB

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[5] National Health Committee. 1998. *The social, cultural and economic determinants of health in New Zealand: Action to improve health.* Wellington: National Advisory Committee on Health and Disability.

Figure 4 CMDHB adults' personal income 2006 by residential locality
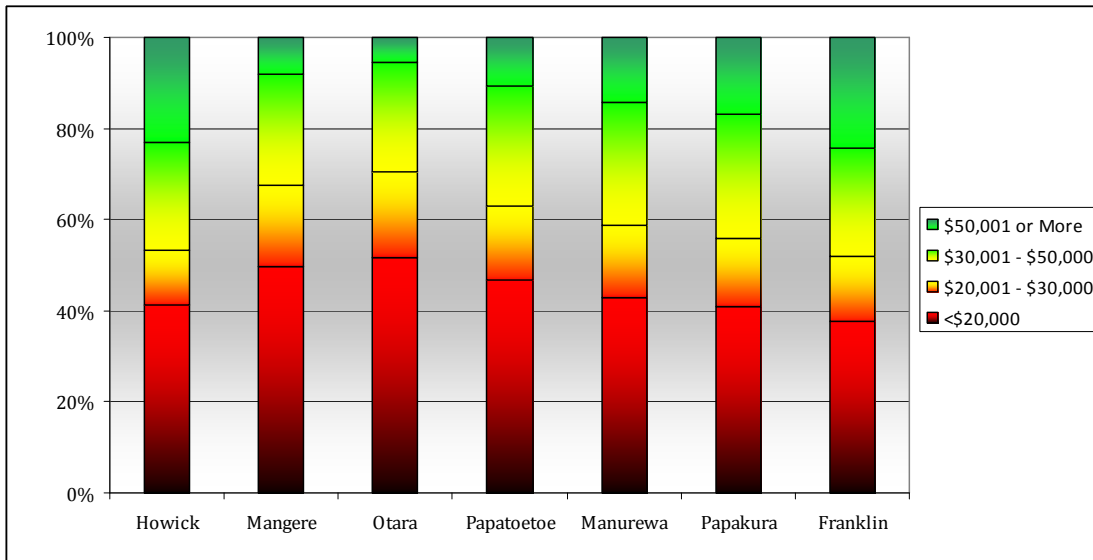
Source: SNZ 2006 Census data, analysed by CMDHB

2.4.2 Motor vehicle ownership

Currently in CMDHB it is difficult to transport oneself or one's family without a private motor vehicle. As public transport options improve this may become less of problem in future years. Lack of a private motor vehicle in a household is a useful proxy for transportation difficulties, with its potential for reducing socialisation and family support, although the size of a household and the consequent demand on the vehicle(s) available are also important. Overall only 6% of CMDHB households (7,800 in total) who responded to the Census question about travel methods did not have access to a motor vehicle in 2006, a drop from 9% in 2001 and 11% in 1996 (Figure 5). The areas with the largest gains were Otara and Mangere – all areas now have non-ownership rates less than 12%. It is unclear what impact the recent recession will have had on this indicator.

Figure 5 CMDHB proportion of households with no access to a car 1996 to 2006 by residential locality
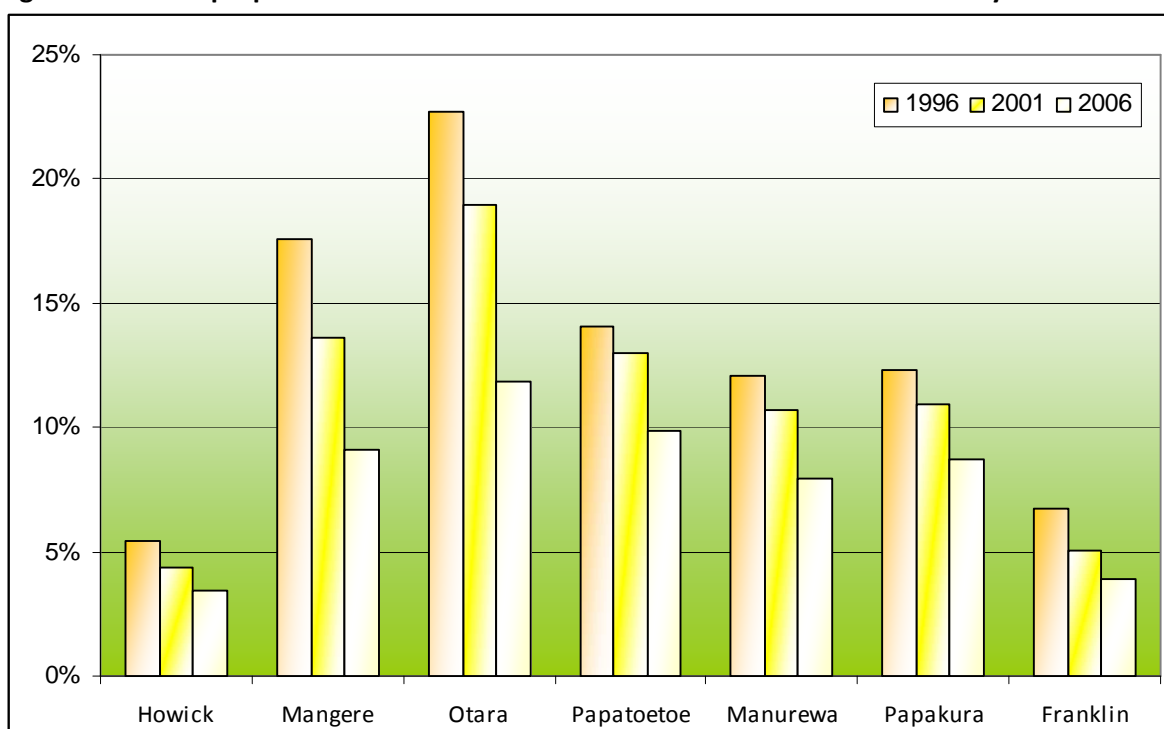
Source: SNZ Census data, analysed by CMDHB

2.4.3 Access to telecommunications

Social connectedness and cohesion are important to the health of individuals and families. Access to a telephone or other telecommunication device is an important component of being able to communicate with others. Although rates of access are very high there remain households who do not have access to such a basic commodity, and having access to a mobile phone does not mean that the owner has sufficient credit to enable adequate use of the phone. Overall three percent of CMDHB households who responded to the Census question about communications did not have access to a telephone (including mobile-only), fax or internet in 2006, a drop from five percent in 2001 and six percent in 1996 (Figure 6). This still represents 3100 households, so the problem has not disappeared completely. The areas with the lowest access rates were Otara (7%) and Mangere (5%) – both areas have had marked gains over the past 10 years.

Figure 6 CMDHB proportion of households with no access to telecommunications 1996 to 2006 by residential locality
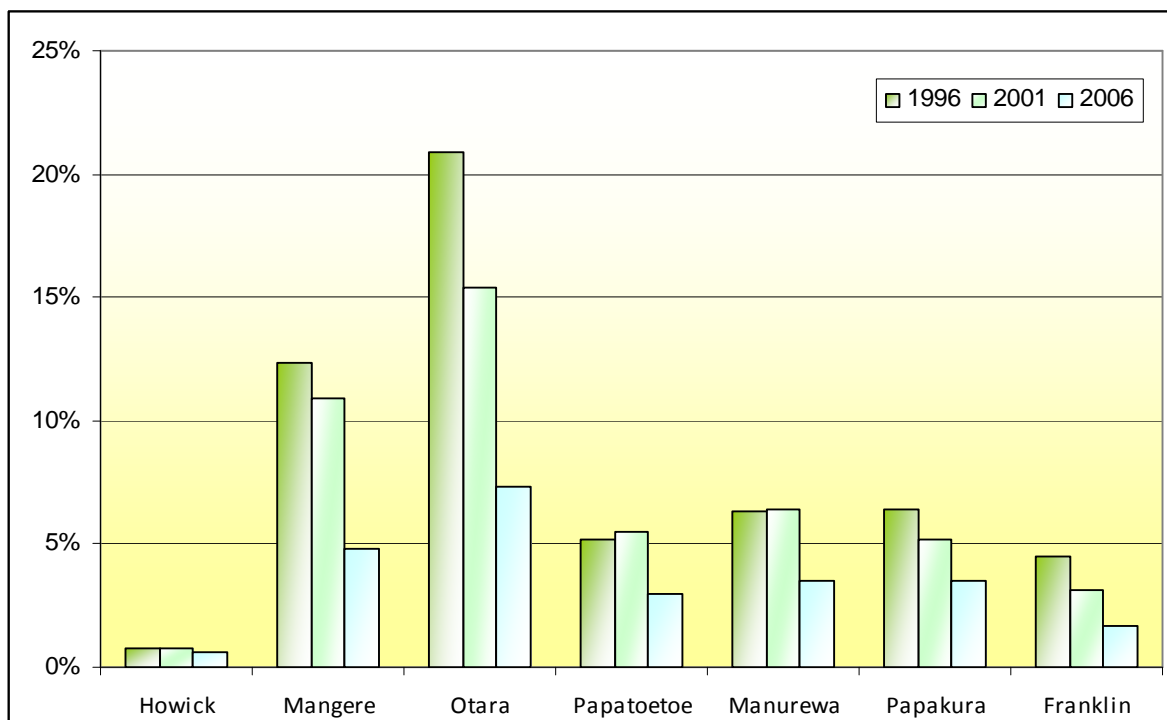
Source: SNZ Census data, analysed by CMDHB

2.4.4 Unemployment

Employment is the main contributor to an adequate income. Employment also enhances social status, improves self-esteem, provides social contact and enhances opportunities for participation and activity. There are many different measures of unemployment. In this analysis two different definitions are shown, firstly being in receipt of the unemployment benefit, and secondly adults defining themselves as unemployed.

Overall six percent of CMDHB families who responded to the Census question about employment had at least one member receiving an unemployment benefit at the time of the 2006 Census (Table 20). This was down from eight percent in 2001 and 11% in 1996. This still represents more than 6000 households, and the recent recession is likely to have increased this number. The areas with the highest unemployment numbers were Manurewa and Mangere, while Mangere (10%) and Otara (11%) had the highest percentage but also showed the largest decreases over the past 10 years.

Table 20 CMDHB families receiving unemployment benefit 1996 to 2006 residential locality

Locality	Number of families			% of families		
	1996	2001	2006	1996	2001	2006
Howick	1,130	1,110	850	5%	4%	3%
Mangere	2,120	1,440	1,210	21%	14%	10%
Otara	1,790	1,010	720	27%	17%	11%
Papatoetoe	1,130	970	770	12%	10%	7%
Manurewa	1,860	1,650	1,460	13%	10%	8%
Papakura	990	760	540	10%	8%	5%
Franklin	1,040	780	500	6%	5%	2%
Grand Total	10,060	7,720	6,050	11%	8%	6%

Source: SNZ Census data, analysed by CMDHB

Figure 7   CMDHB percentage of persons aged 15+ unemployed and seeking work 1996 to 2006 by residential locality
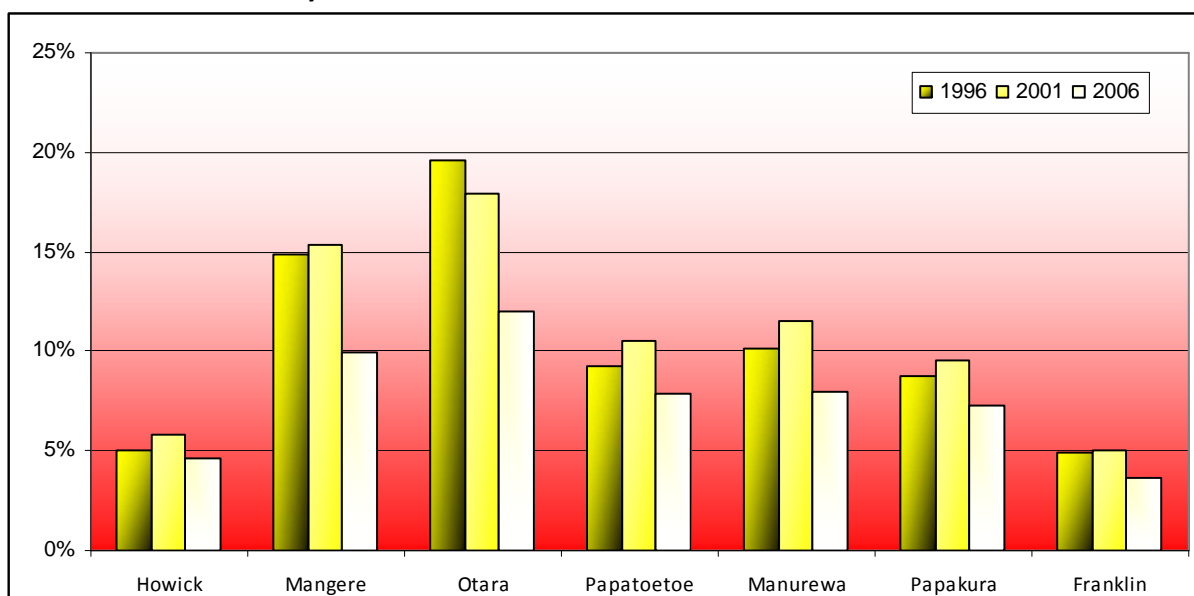
Source: SNZ Census data, analysed by CMDHB

2.4.5 Single parent families

Being a single parent family has a major impact on an adequate income. Difficulties also arise with self-esteem and social cohesion - opportunities for participation and activity. In this analysis receipt of the Domestic Purposes Benefit (DPB) is used as a measure of single parent families in need of income support. Overall nine percent of CMDHB families who responded to the Census question were in receipt of a DPB at the time of the 2006 Census (Table 21). This was down from 11% in 2001 and 12% in 1996, but still represents over 10,000 households. The areas with the highest numbers were Manurewa (2,670) and Mangere (1,630), while Otara (18%) had the highest percentage of single parent families in need of income support. Over the past 10 years in CMDHB the number of families receiving a DPB has remained fairly constant despite the large population increases seen – hence the reducing percentages.

Table 21 CMDHB families receiving domestic purposes benefit 1996 to 2006 by residential locality

	Number of families			% of families		
Locality	1996	2001	2006	1996	2001	2006
Howick	750	1,000	1,040	3%	4%	3%
Mangere	1,770	1,700	1,630	18%	17%	14%
Otara	1,440	1,150	1,160	21%	19%	18%
Papatoetoe	1,050	1,120	1,070	11%	12%	10%
Manurewa	2,360	2,490	2,670	16%	16%	14%
Papakura	1,350	1,310	1,450	14%	14%	14%
Franklin	1,380	1,230	1,270	9%	7%	6%
Grand Total	10,100	9,990	10,290	12%	11%	9%

Source: SNZ Census data, analysed by CMDHB

2.4.6 Invalid and sickness benefits

People too unwell to work represent the some of the most vulnerable adults in our communities. Adequate income support is vital. Overall, seven percent of CMDHB families who responded to the Census question about benefits were in receipt of either a sickness or invalid benefit at the time of the 2006 Census (Table 22). The proportion of families receiving a sickness or invalid benefit has remained reasonably constant since 1996. The areas with the highest numbers of families were Manurewa (1,580) and Mangere (1,340), while Otara (13%) and Mangere (11%) had the highest percentage of families receiving the sickness or invalid benefit. Over the 10 years from 1996 until 2006, the number of families in CMDHB receiving a sickness or invalid benefit increased at about the same rate as overall population growth, reaching 7,180 by 2006.

Table 22 CMDHB families receiving sickness or invalids benefit 1996 to 2006 by residential locality

Locality	Number of families			% of families		
	1996	2001	2006	1996	2001	2006
Howick	490	650	950	2%	3%	3%
Mangere	990	1,180	1,340	10%	12%	11%
Otara	770	740	850	11%	12%	13%
Papatoetoe	540	670	910	6%	7%	9%
Manurewa	990	1,130	1,580	7%	7%	8%
Papakura	540	560	770	6%	6%	7%
Franklin	610	610	770	4%	4%	4%
Grand Total	4,920	5,550	7,180	6%	6%	7%

Source: SNZ Census data, analysed by CMDHB

2.4.7 Home ownership

Housing tenure is an important part of personal and community stability and security. Housing tenure has been linked to mortality and ill-health, with people who own their home having better health than those who rent their homes[6]. As house prices rise, house ownership is becoming increasingly difficult within the urban areas.

Overall 65% of CMDHB adults who responded to the Census question about home ownership were living in a house owned or partly owned by a member of their household at the time of the 2006 Census (Table 23). This represented a drop of six percent from the 1996 Census. The only areas with rates of over 70% were Franklin and Howick. Otara (42%) and Mangere (50%) had significantly lower percentage of home ownership than other localities, reflecting their past history of large Housing New Zealand investment. Of all the areas, only Franklin has not seen a drop in housing ownership in the 10 years from 1996 to 2006 (Figure 8).

Table 23 CMDHB house ownership 1996 to 2006 by residential locality

Locality	1996		2001		2006		%Owner-occupier		
	Owner-occupier	Rental	Owner-occupier	Rental	Owner-occupier	Rental	1996	2001	2006
Howick	20,530	4,390	22,510	6,980	25,730	9,270	82%	76%	74%
Mangere	5,670	4,100	5,360	4,850	5,480	5,460	58%	53%	50%
Otara	2,980	3,010	2,560	3,220	2,440	3,350	50%	44%	42%
Papatoetoe	7,700	3,570	6,910	4,580	6,460	5,180	68%	60%	56%
Manurewa	10,960	4,710	11,030	6,650	11,810	7,950	70%	62%	60%
Papakura	7,650	3,550	7,580	4,110	7,740	4,780	68%	65%	62%
Franklin	14,070	4,730	15,260	5,200	17,330	6,140	75%	75%	74%
CMDHB	69,550	28,050	71,210	35,570	76,970	42,140	71%	67%	65%

Owner-occupier = member of a household which owns or partly owns usual residence; rental = all other forms of housing tenure
Source: SNZ Census data, analysed by CMDHB

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[6] Cairney J & Boyle M. Home ownership, mortgages and psychological distress. Housing Studies 2004: 19(2): 161-174

Figure 8 CMDHB owner-occupiers 1996 to 2006 by residential locality
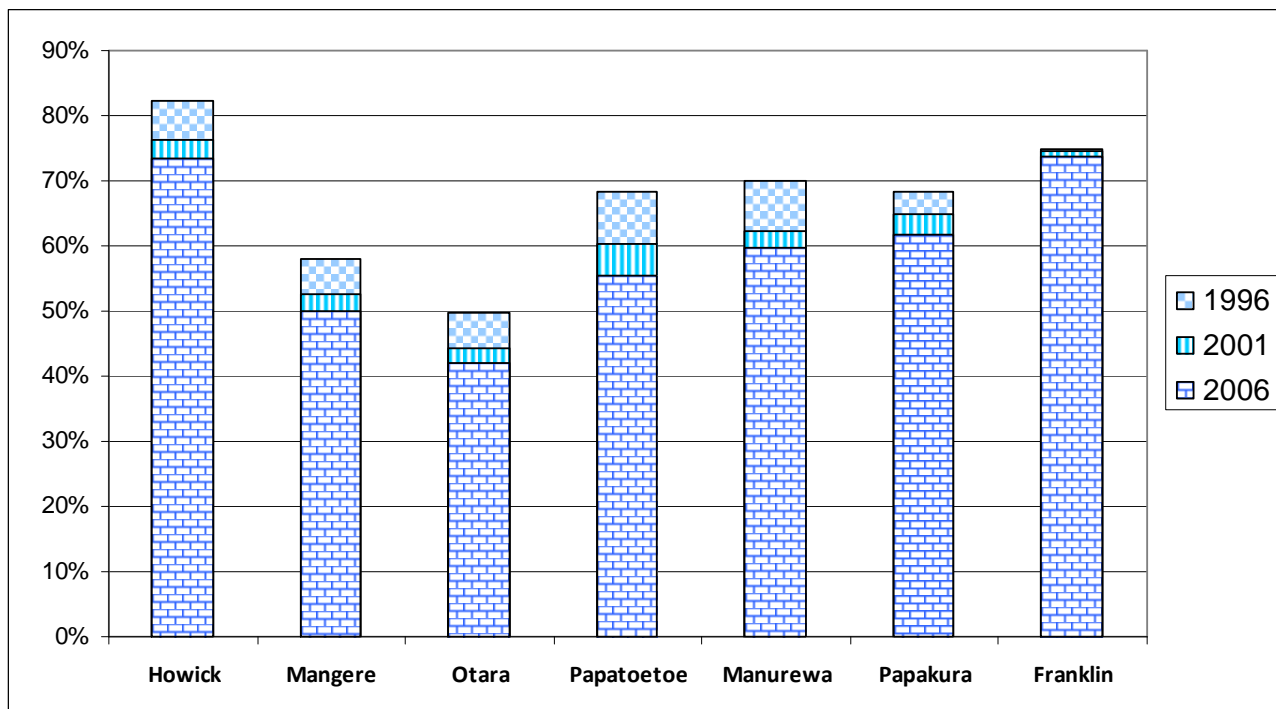
Source: SNZ Census data, analysed by CMDHB

2.4.8 Educational qualifications

Coupled with employment and income, educational attainment is a critical element of a person's social and economic status. Low educational attainment is strongly linked to poor health status[7]. There are a number of ways of analysing educational attainment. In this analysis two methods are used, firstly the number of adults with no formal education qualification, and secondly the number of adults participating in study.

Overall, 28% of CMDHB adults who responded to the Census question about qualification held no qualification at the time of the 2006 Census (Table 24). This represented a decrease from 43% in 1996, but only a 2% decrease from 2001. Howick had a low percentage (16%) of people without qualifications (i.e. the population in this locality had high educational attainment). Otara had the highest percentage (42%) of the population aged ≥15 years with no qualification, with Mangere, Manurewa, and Papakura following.

Table 24 CMDHB persons aged 15+ with no educational qualification 1996 to 2006 by residential localtiy

Locality	Number of people without a qualification			% people without a qualification		
	1996	2001	2006	1996	2001	2006
Howick	14,020	11,270	12,940	27%	17%	16%
Mangere	14,020	10,100	11,390	58%	40%	38%
Otara	9,500	6,280	6,880	63%	43%	42%
Papatoetoe	10,220	7,820	8,130	46%	33%	30%
Manurewa	15,870	13,700	15,640	48%	36%	34%
Papakura	10,160	8,070	8,890	45%	35%	33%
Franklin	14,840	11,920	13,140	40%	29%	26%
CMDHB	88,610	69,150	76,990	43%	30%	28%

Source: SNZ Census data, analysed by CMDHB

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[7] National Health Committee. 1998. *The social, cultural and economic determinants of health in New Zealand: Action to improve health.* Wellington: National Advisory Committee on Health and Disability.

Howick had more than twice the number of adults in full-time or part-time study compared with other localities, making up 36% of all such adults in CMDHB. The further localities are located from the tertiary institutions the higher the proportions in part-time rather than full-time study, with Franklin having the lowest percentage (61%), of those engaged in study , studying full-time.

Table 25 CMDHB persons aged 15+ participating in study in 2006 by residential locality

Locality	Study participation		% Full-time	As % of all adults	As % of 15-29 yr olds
	Full-time	Part-time			
Howick	11,370	4,970	70%	36%	69%
Mangere	3,760	1,580	70%	13%	41%
Otara	2,070	880	70%	7%	39%
Papatoetoe	3,200	1,520	68%	12%	48%
Manurewa	4,720	2,590	65%	20%	42%
Papakura	2,390	1,370	64%	12%	43%
Franklin	3,630	2,310	61%	21%	52%
CMDHB	27,510	12,910	68%	100%	44%

Note - study participation is of all ages 15+; 15-29 year olds merely used as a comparator
Source: SNZ 2006 Census data, analysed by CMDHB

2.4.9 Immigration

Long-term benefits of immigration on society are normally very positive, particularly with business migrants with good employment and income prospects. Such migrants tend to be healthier than average; however language and system knowledge barriers may make the use of health services more difficult.

At the time of the 2006 Census, over a third of CMDHB residents were born outside New Zealand (Table 26). This represented a significant increase from 27% in 1996, and is a marker of the significant migration flows fuelling growth in CMDHB over the past 10 years. Howick had the largest percentage of residents born outside New Zealand (48%), followed closely by Papatoetoe (44%), Mangere (41%) and Otara (41%). The area with the highest absolute increase over the 10 years was Howick (28,400), followed by Manurewa (12,200). Overall a net additional 66,000 people who were born outside New Zealand resided in CMDHB in 2006 compared with 1996, a net change of more than 6,600 per year. The lowest percentage changes were in Franklin (18%) and Papakura (20%). Even in Papakura, the locality with the slowest growth, a net additional 240 overseas-born people settled per year.

Table 26 CMDHB residents born outside New Zealand 1996 to 2006 by residential locality

Locality	1996 New Zealand born	Overseas born	2001 New Zealand born	Overseas born	2006 New Zealand born	Overseas born	Percentage born overseas 1996	2001	2006
Howick	51,500	28,300	56,000	39,700	60,500	56,700	35%	41%	48%
Mangere	31,300	17,000	31,400	19,800	34,200	23,800	35%	39%	41%
Otara	19,800	11,400	18,900	12,600	19,500	13,600	37%	40%	41%
Papatoetoe	27,000	10,500	26,300	14,000	25,500	19,700	28%	35%	44%
Manurewa	47,100	13,200	52,100	17,400	56,800	25,400	22%	25%	31%
Papakura	31,600	6,300	32,100	6,800	34,000	8,700	17%	17%	20%
Franklin	52,400	9,100	56,100	10,400	62,600	13,600	15%	16%	18%
CMDHB	260,900	95,600	273,000	120,600	293,000	161,600	27%	31%	36%

Source: SNZ Census data, analysed by CMDHB

2.5 New Zealand Deprivation Index (NZDep06)

NZDep06 is a census based small area index of socioeconomic deprivation, with a relative deprivation score assigned to each meshblock in New Zealand. It combines nine variables from the 2006 census reflecting eight dimensions of socioeconomic deprivation. Meshblocks are geographical units, defined by Statistics New Zealand, containing a median of approximately 87 people in 2006. The variables that make up NZDep06 are listed in the table below.

Table 27 NZDep06 variables

Dimension of deprivation	Variable description (in order of decreasing weight)
Income	People aged 18-64 receiving a means tested benefit
Income	People living in equivalised* households with income below an income threshold
Owned home	People not living in own home
Support	People aged <65 living in a single parent family
Employment	People aged 18-64 unemployed
Qualifications	People aged 18-64 without any qualifications
Living space	People living in equivalised* households below a bedroom occupancy threshold
Communication	People with no access to a telephone
Transport	People with no access to a car

*Equivalisation: method used to control for household composition.
Source: NZDep2006 Index of Deprivation (Vol 2007), University of Otago, Wellington

The deprivation index applies to areas, not individual people, and is therefore useful in illustrating the neighbourhood effect, as well as combining variables affecting socio-economic status. The area index is also used as a proxy for individual socio-economic status when individual level data for income, education and occupation are not available. However, caution must be exercised as the mix of people within meshblocks, and certainly within larger census area units, means that any socio-economic gradient present will be under-estimated. Not everyone living in a poor area will be poor themselves, and living in a wealthy area does not automatically mean a person is wealthy.

The NZ Deprivation index is often analysed by decile, where decile 1 represents the 10% of meshblocks least socioeconomically deprived in NZ and decile 10 the most socioeconomically deprived.

Figure 9 shows the NZDep06 deciles for each CMDHB locality. Three main patterns are evident:

1. Low socioeconomic deprivation: Howick and Franklin have relatively wealthy populations with very low rates of socioeconomic deprivation.

2. High socioeconomic deprivation: Otara, Mangere and Manurewa have very high rates of deprivation, particularly skewed to the most socioeconomically deprived.

3. More mixed – Papakura shows a much more moderate pattern, with residents spread across the deprivation deciles. Papatoetoe has moderate skewing towards higher deprivation deciles.

I.e. Significant sorting of the population by socioeconomic status appears to occur at the locality level.

Figure 9 CMDHB 2006 population by NZDep06 (by meshblock), by residential locality
*The bars of each are to the same scale; each grid line = 5,000 people.
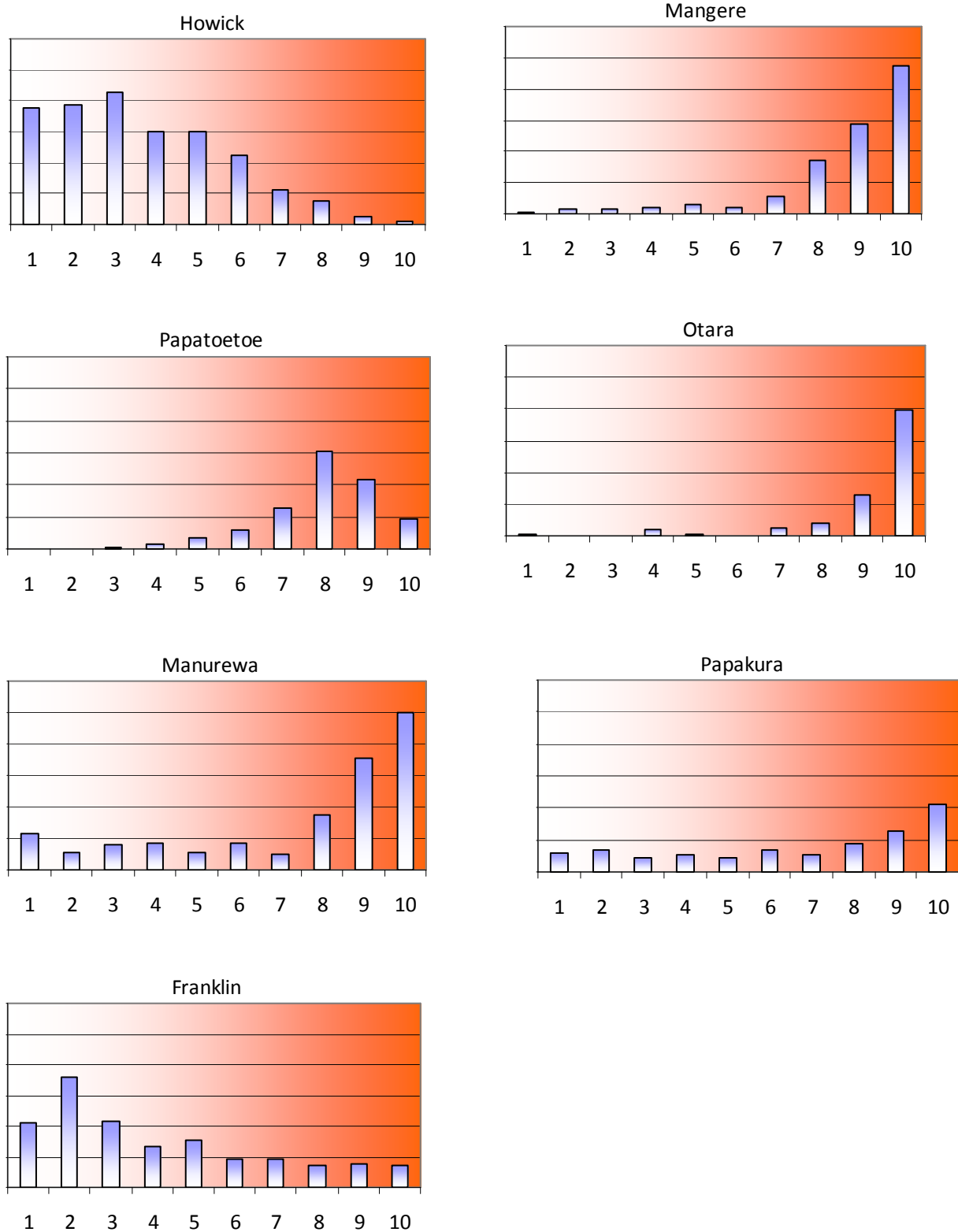
Howick

Mangere

Papatoetoe

Otara

Manurewa

Papakura

Franklin

Source: NZDep2006 Index of Deprivation (Vol 2007), University of Otago, Wellington, analysed by CMDHB

Health inequalities are particularly evident at the higher end of the socioeconomic deprivation scale. A summary measure of an area's socioeconomic deprivation is the percentage of the population living in decile 9 and 10 deprivation meshblocks. Overall, 34% of CMDHB's population live in NZDep06 decile 9 and 10 areas (Table 28). Otara (85%) and Mangere (70%) have extraordinarily high rates of socioeconomic deprivation, and Manurewa has more than half its population living in decile 9/10 areas. Children are more likely to live in high deprivation areas (43%), compared with adults aged 15 to 64 years (33%) and adults aged ≥65 years (24%). Nearly three-quarters of the Pacific and more than half the Maaori populations live in high deprivation areas, compared to 21% for Asian and 16% for Other ethnic groups.

Table 28 CMDHB 2006 NZDep06 deciles 9 & 10 by residential locality & age, analysis by meshblocks

Locality	Proportion of each population in each area living in NZDep06 deciles 9 & 10							
	Total	0-14 y	15-64 y	65+ y	Maaori	Pacific	Asian	Other
Howick	1%	2%	1%	2%	5%	9%	1%	1%
Mangere	70%	75%	68%	61%	70%	80%	55%	38%
Otara	85%	88%	83%	83%	87%	90%	58%	55%
Papatoetoe	36%	40%	35%	30%	41%	47%	33%	28%
Manurewa	55%	63%	53%	41%	70%	78%	41%	36%
Papakura	42%	50%	41%	26%	64%	70%	33%	28%
Franklin	10%	12%	9%	10%	30%	34%	11%	5%
CMDHB	34%	43%	33%	24%	57%	73%	21%	16%

Source: NZDep2006 Index of Deprivation (Vol 2007), University of Otago, Wellington, analysed by CMDHB

Looking at it from a different angle, of all people living in decile 9 and 10 areas in CMDHB, 29% live in Manurewa (Table 29). A high percentage of people living in areas of high socioeconomic deprivation also live in Mangere (26%) and Otara (18%). More of the high deprivation Maaori population live in Manurewa (36%) and Papakura (19%) than Mangere (16%) or Otara (13%). For the Pacific population, the localities of highest socioeconomic deprivation are Mangere (36%), followed by Otara (27%) and Manurewa (23%).

Table 29 Population proportions in 2006 for CMDHB's NZDep06 deciles 9 & 10 by residential locality & age, analysis by meshblocks

Locality	As proportion of CMDHB's NZDep06 deciles 9 & 10 population							
	Total	0-14 y	15-64 y	65+ y	Maaori	Pacific	Asian	Other
Howick	1%	1%	1%	3%	1%	1%	3%	2%
Mangere	26%	26%	25%	25%	16%	36%	21%	11%
Otara	18%	19%	17%	15%	13%	27%	10%	6%
Papatoetoe	10%	9%	11%	13%	7%	8%	28%	13%
Manurewa	29%	30%	29%	24%	36%	23%	30%	39%
Papakura	11%	11%	12%	12%	19%	4%	7%	21%
Franklin	5%	5%	5%	8%	8%	1%	2%	8%
CMDHB	100%	100%	100%	100%	100%	100%	100%	100%

Source: NZDep2006 Index of Deprivation (Vol 2007), University of Otago, Wellington, analysed by CMDHB

3 Health Indicators

3.1 Mortality

This section provides information about numbers of deaths and mortality rates in the CMDHB region for the four-year period 2005 to 2008. This time period is presented for two reasons:

(a) While the provisional total number of deaths in the DHB for 2010 is reported by the Ministry of Health early in 2011, confirmation of the numbers of deaths due to various causes takes considerably longer, and hence 2008 was the most recent year available at the time of analysis.

(b) Because the number of deaths each year in each locality can be quite small when considering categories such as premature and amenable deaths (see further below), there can be considerable variation between years. Grouping four years together means the numbers and rates are more reliable for comparison between localities.

Numbers and rates for total deaths, premature deaths (i.e. deaths occurring in people less than 75 years of age), and amenable deaths are described. Premature deaths can be categorised as non-amenable and amenable, where amenable mortality is defined as deaths from those conditions for which differences in mortality rates (over time or across populations) are thought to reflect variation in the coverage and quality of health care (i.e. preventive or treatment services delivered to individuals or families)[8]. Data on the number of deaths was sourced from the Ministry of Health Mortality Collection[9]. Mortality rates are annual death rates per 100,000 population, calculated by CMDHB, and were age-standardised[10] to the 2006 NZ population. The denominators used for calculating rates were derived from Statistics NZ estimated resident population data for the relevant years.

For the four-year period 2005 to 2008 there were approximately 9000 deaths in CMDHB, an average of approximately 2250 deaths/year, and an annual mortality rate of 660 per 100,000 population (95% CI 646.2-673.9). An estimated 4485 (50%) deaths were premature (i.e. deaths occurring in those under age 75 years), an annual premature mortality rate of 291 per 100,000 population (95% CI 282.8-300.0). Of the premature deaths in CMDHB, approximately 2180 (49%) were amenable to preventive or treatment services, an annual amenable mortality rate of 141 per 100,000 population (95% CI 135.4-147.4).

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[8] Ministry of Health. 2010. *Saving Lives: Amenable Mortality in New Zealand, 1996-2006*. Wellington: Ministry of Health

[9] Ministry of Health Mortality Collection www.moh.govt.nz/moh.nsf/indexmh/dataandstatistics-collections-mortality

[10] Age-standardisation is a way of accounting for the different age structures of different population groups so that they can be more reliably compared. For instance because the Maaori population is younger (because of both higher birth rates and lower average age of death), there are likely to be many less people in the older age groups. Age standardisation means the rate given is as if all the populations being compared had the same age structure.

Premature mortality rates varied significantly by ethnic group (Figure 10). Maaori had extremely high rates of premature mortality (626 per 100,000 population, 95% CI 585.1- 668.5) and amenable mortality (301 per 100,000 population, 95% CI 273.0- 330.7), approximately three times higher than the premature and amenable mortality rates for the "Other" ethnic group. The premature mortality rate for Pacific Peoples was also high (466 per 100,000 population, 96% CI 436.7 – 496.7), as was the amenable mortality rate (254 per 100,000 population, 95% CI 232.4- 277.0).

The percentage of all premature deaths considered amenable to preventive or therapeutic services varied between ethnic groups from a low of 45% (Other ethnic group) to a high of 62% (Indian group). Males had a higher premature mortality rate than females.

By locality, the highest premature mortality rates occurred in Otara and Mangere, followed by Papakura, Manurewa, and Papatoetoe, with the lowest rates occurring in Franklin and Howick (Figure 11). The highest premature mortality rate (Otara) was more than three times higher than the lowest premature mortality rate (Howick). Otara also had the highest percentage of deaths amenable to preventive or treatment services (53%) and Howick had the lowest percentage (46%). The average numbers of premature and amenable deaths for each locality are shown in Table 30.

Figure 10 CMDHB annual premature mortality rates by ethnic groups and gender, 2005-2008
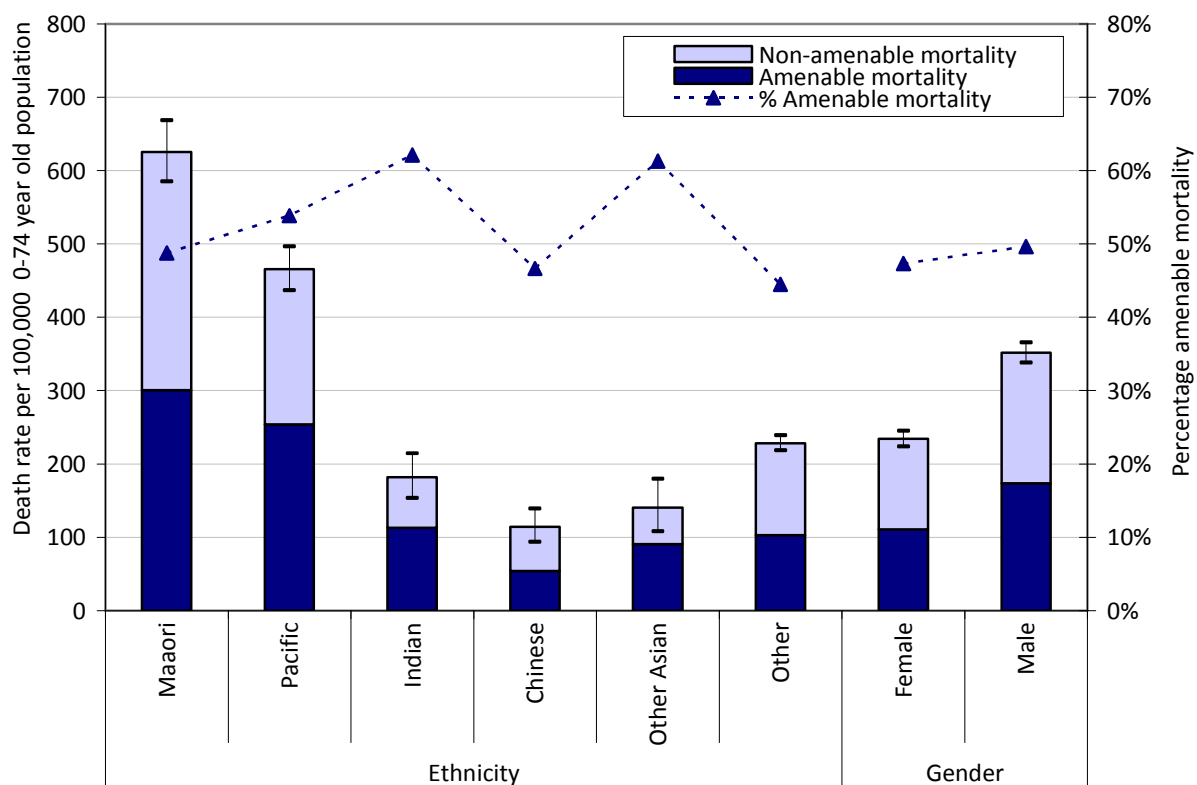
Source: Ministry of Health Mortality Collection, analysed by CMDHB

Figure 11 CMDHB annual premature mortality rate by area, 2005-2008
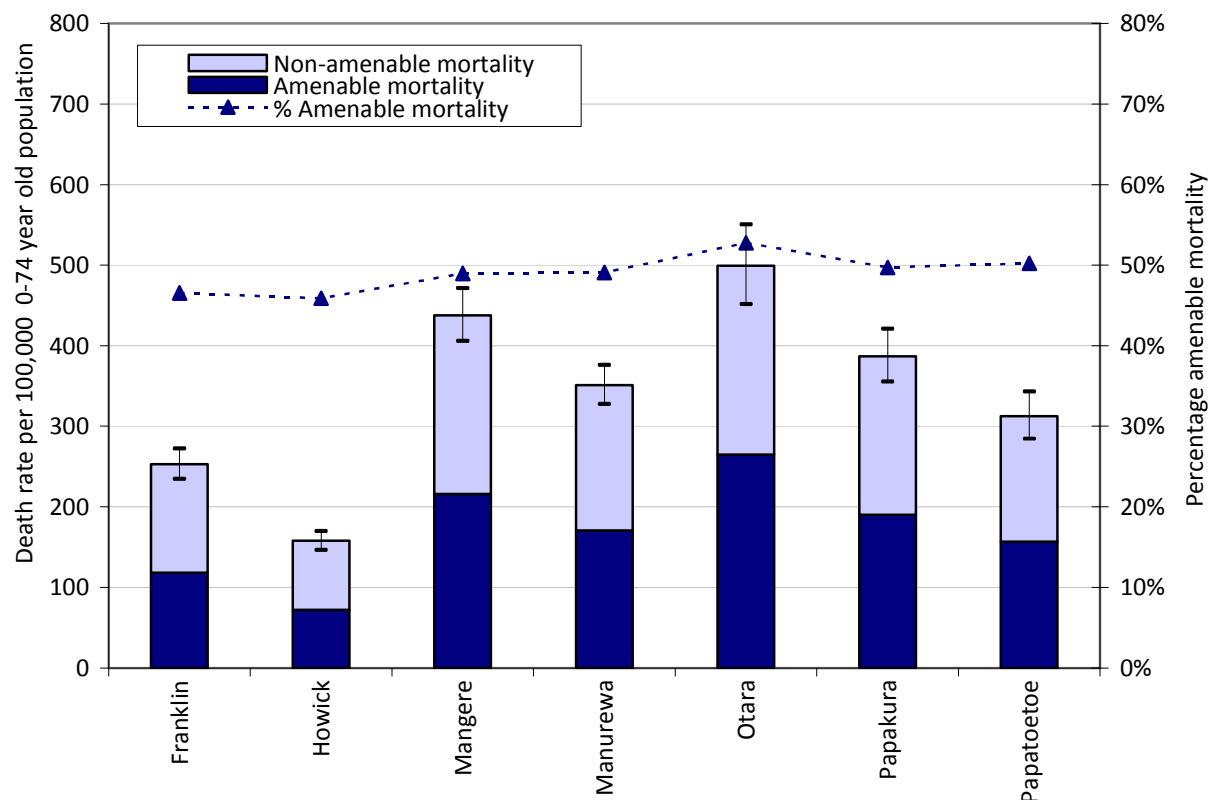
*Error bars indicate 95% confidence intervals
Source: Ministry of Health Mortality Collection, analysed by CMDHB

Table 30 Average numbers of deaths/year by residential locality for the 4-year period 2005-2008

Locality	Total deaths (n)	Premature deaths* (n)	Amenable deaths† (n)
Franklin	384	177	83
Howick	477	179	82
Mangere	283	185	91
Manurewa	405	217	106
Otara	141	109	58
Papakura	310	139	69
Papatoetoe	251	114	57

* Premature deaths are deaths occurring in people aged 0-74 years.
†Amenable deaths are deaths occurring in people aged 0-74 years which are amenable to preventive or treatment services.
Source: Ministry of Health Mortality Collection, analysed by CMDHB

Amenable causes of death are categorised into six groups: infections, maternal and infant conditions, injuries, cancers, cardiovascular diseases and diabetes, and other chronic diseases[11]. Figures 3 and 4 show the contribution these groups make to the absolute (Figure 12) and relative (Figure 13) composition of

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[11] Ministry of Health. 2010. *Saving Lives: Amenable Mortality in New Zealand, 1996-2006*. Wellington: Ministry of Health

amenable mortality rates. In this analysis, as the "other chronic diseases" group[12] was very small, it has been combined with cardiovascular diseases and diabetes to make a "chronic disorders" group. It is clear that, across all localities, non-cancer chronic diseases (mainly cardiovascular diseases and diabetes) are the major contributors to amenable mortality, in both absolute and relative terms.

Figure 12 Amenable mortality rate by cause group, CMDHB residential localities, 2005-2008
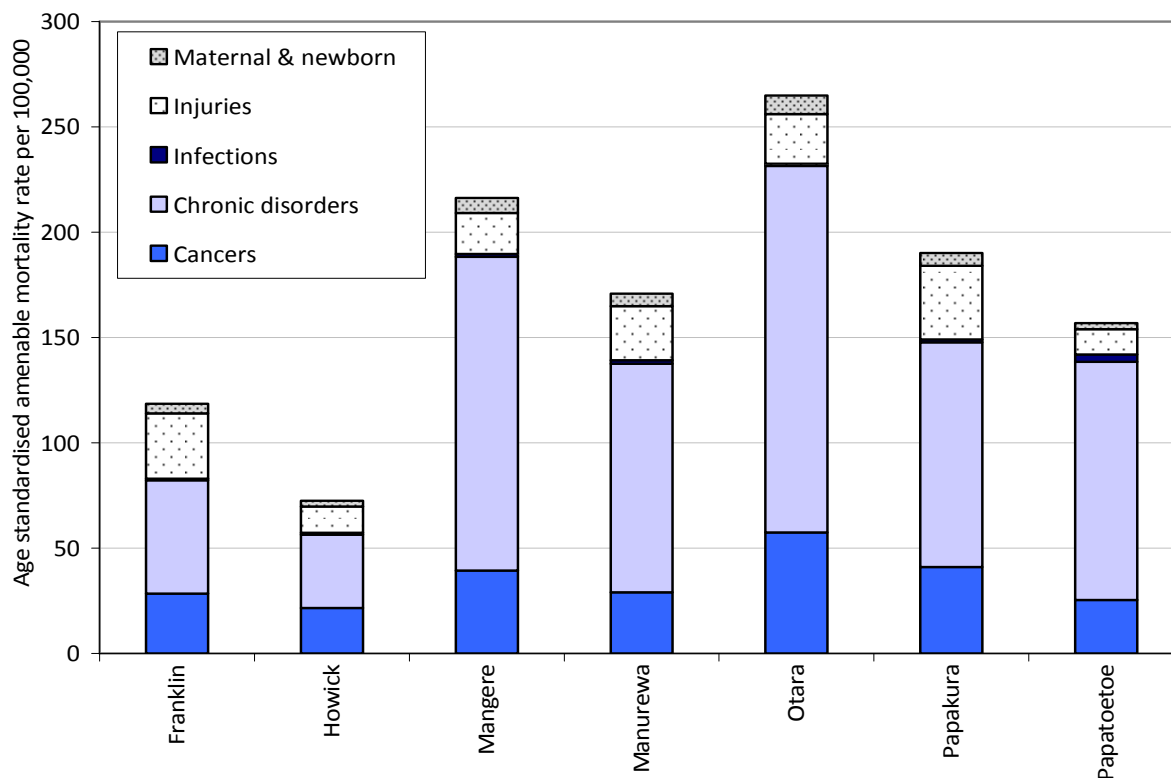
Source: Ministry of Health Mortality Collection, analysed by CMDHB

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[12] The "other chronic diseases" group includes asthma, cholelithiasis, COPD, peptic ulcer disease, pulmonary embolism, renal failure.

Figure 13 Relative composition of cause groups to amenable mortality rate, CMDHB residential localities, 2005-2008
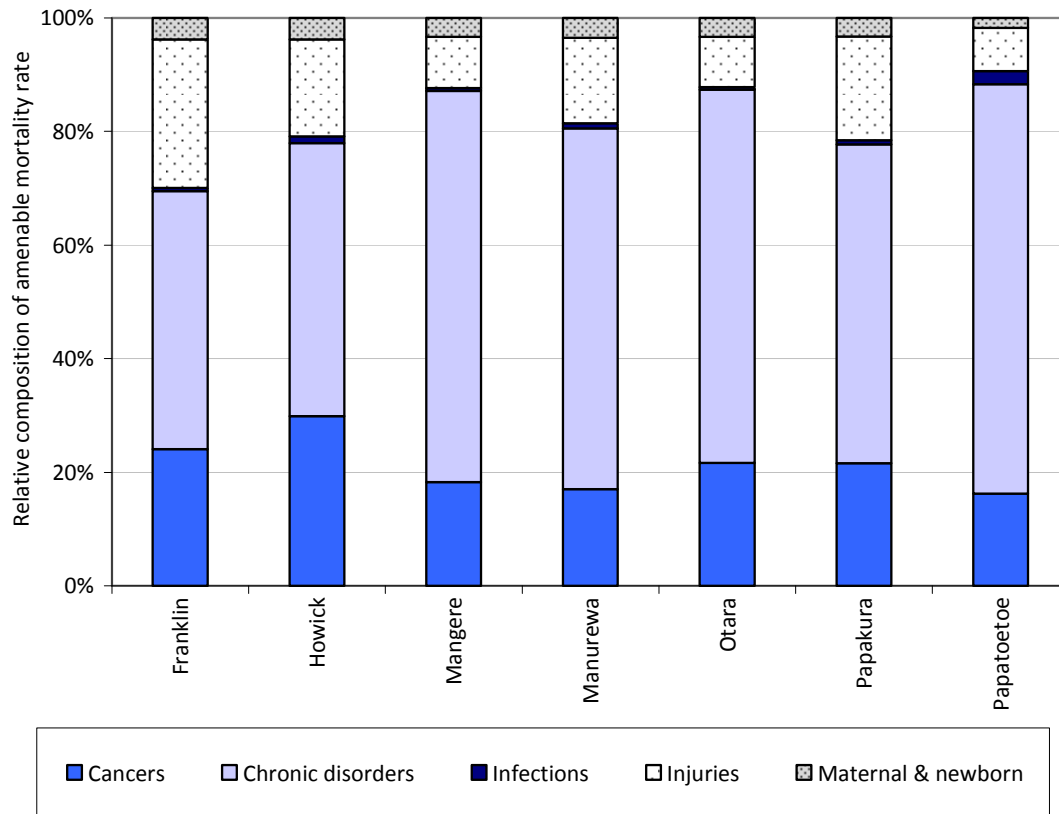
Source: Ministry of Health Mortality Collection, analysed by CMDHB

3.2 Disease prevalence rates

Prevalence is the number of cases of a disease or condition in a given population at a specific time. In New Zealand, for most conditions, there is no registry or list providing information about prevalence of conditions for the various DHB populations (the national Cancer Registry is one of the exceptions). One way to estimate the number of people with a specific condition is to collate relevant information from a number of national datasets such as hospital admissions, pharmaceutical dispensing, and laboratory information about whether relevant tests have been requested, to produce an estimated number of people with the condition. The number calculated depends on the definition for each of those pieces of information for each condition – which blood tests, which medications, which admissions, how many of them, over what period of time, etc.

The conditions for which prevalence can be calculated using this methodology are limited to those which are associated with hospitalisation and/or use of medications and laboratory testing. It is important to note there will be people with such conditions who have not been diagnosed or who have had a diagnosis made but for various reasons are not taking medication or having the recommended laboratory tests, and who therefore will not be counted in these analyses. For example, some people with mild diabetes managed by diet alone may not be identified. The following analyses are an attempt to describe the disease burden of certain conditions, and should be viewed as conservative estimates of disease prevalence. With the exception of diabetes[13], the algorithms used have not been formally validated. People can and often will have more than one of the conditions being reported, so may be counted in a number of the populations identified.

Currently the main other method of estimating prevalence of specified conditions is from surveys such as the New Zealand Health Survey, the results of which are not available at small area level.

It is known that 80% of deaths, and a substantial proportion of illness and reduced quality of life in our communities, along with a substantial portion of the health inequalities between Counties Manukau populations, are due to a 'package' of conditions – diabetes, cardiovascular disease, chronic respiratory conditions and cancer[14]. These conditions are recognised locally and internationally as linked by virtue of being largely preventable and sharing common risk factors (smoking, unhealthy nutrition, lack of physical activity and harmful use of alcohol), underlying determinants and opportunities for intervention[15]. Estimates of prevalences for these conditions are included below. It is also recognised that the other major

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[13] Thornley S, Marshall R, Jackson G, et al. Estimating diabetes prevalence in South Auckland: how accurate is a method that combines lists of linked health datasets? NZMJ 2010;123(1327):76-86

[14] CMDHB. 2010. *Creating a Better Future 2010 – 2016. Supporting a long term approach for healthier communities.* Auckland: CMDHB

[15] World Health Organization. 2008. *2008-2013 Action Plan for the global strategy for the prevention and control of non-communicable diseases.* Geneva: World Health Organization

group of conditions with significant and increasing impact in our communities is mental health conditions. An algorithm was developed to estimate the prevalence of serious mental health conditions, in particular psychosis, schizophrenia, major mood and anxiety disorders, substance use disorders and eating disorders; however initial results were not consistent with current understanding from a national survey of the distribution of these conditions in the population. Hence these results are not included, but comment is included on what might be anticipated from the national survey. Further work is being undertaken to refine the mental health conditions algorithm.

These prevalence analyses also largely capture conditions which are common in adults, but for many the opportunities to prevent them rely on a 'life course approach', which recognises the importance of the in utero environment and early years of childhood in laying the foundations for future health.

3.2.1 Methodology

All New Zealand residents are assigned a unique alphanumeric code at the time of their first contact with the health care system, the National Health Index (NHI), which is linked to most routinely collected national health databases. Estimates of number and prevalence of conditions presented in this document were derived from record linkage of Ministry of Health routinely collected datasets by encrypted (anonymised) NHI. This means the number of people affected can be identified for health service planning, but the identity of those people remains protected. The source data is based on hospitalisation data (National Minimum Dataset years 2000-2009), pharmaceutical information (years 2005-2009), laboratory test data (years 2005-2009), outpatient visits data (National Non-admitted Patient Collection - NNPAC) and Mental Health Information National Collection (MHINC) data.

The CMDHB population in this analysis is called a constructed population which is based on any person who had a contact with a publicly funded health service in 2009. The constructed population was derived from entries in any of these datasets above or the cancer registry, PHO enrolment or attendance, GMS claims, and no entry in the mortality dataset. Ethnicity was determined by the prioritised method (i.e. a single ethnic group is allocated to each person using a priority system: Maaori, Pacific Peoples, Asian, Other groups except NZ European)[16] using the most recently recorded ethnicity. The separate CMDHB localities were determined using CAU boundaries and the information presented for each locality is based on the population resident in the locality. The same demographic variables (e.g. age groups, ethnicity groups) were used for both numerator and denominator figures, thus reducing numerator/denominator biases when calculating proportions.

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[16] Ministry of Health. 2004. *Ethnicity Data Protocols for the Health and Disability Sector*. Wellington: Ministry of Health.

This analysis represents a snapshot of each condition in time. For example, the volumes and prevalence of asthma in CMDHB provided in this document are the volumes and prevalences for 2009 based on asthma diagnoses in hospitalisation data for the years 2000 to 2009 and/or pharmaceutical information indicating dispensing of two or more scripts for asthma medications for the years 2005 to 2009. This information can change over time, so if the volumes and prevalences for 2008 or 2010 had been presented, these would have provided different snapshots of information. The current residential locality boundaries weren't actually put in place until the formation of Auckland City in November 2010; the figures presented are for people who were living in the areas in 2009 that are now categorised into these particular localities to give an indication of the volumes and rates likely to apply to those localities.

3.2.2 Diabetes

In 2009 there were approximately 29,600 adults identified as having diabetes[17] living in the CMDHB region. The age-standardised prevalence for adults with diabetes in CMDHB was 90 per 1,000 population (95% CI 88.6-90.7). As shown in Figure 14, prevalences were highest amongst Pacific Peoples, Indian, and Maaori ethnic groups. Prevalence of diabetes increased with increasing age (numbers for children are very small, hence this narrative concentrates on the adult population) and was higher for males compared with females amongst people aged ≥45 years.

The prevalence of diabetes was significantly higher in Otara and Mangere, followed by Papatoetoe and Manurewa, then Papakura. Howick and Franklin had the lowest prevalence of diabetes (Figure 15). By volume, the largest percentages of adults identified as having diabetes were resident in Howick, Manurewa, and Mangere (Table 31).

Figure 14 Age standardised prevalence of diabetes in CMDHB by ethnic groups, gender and age, 2009
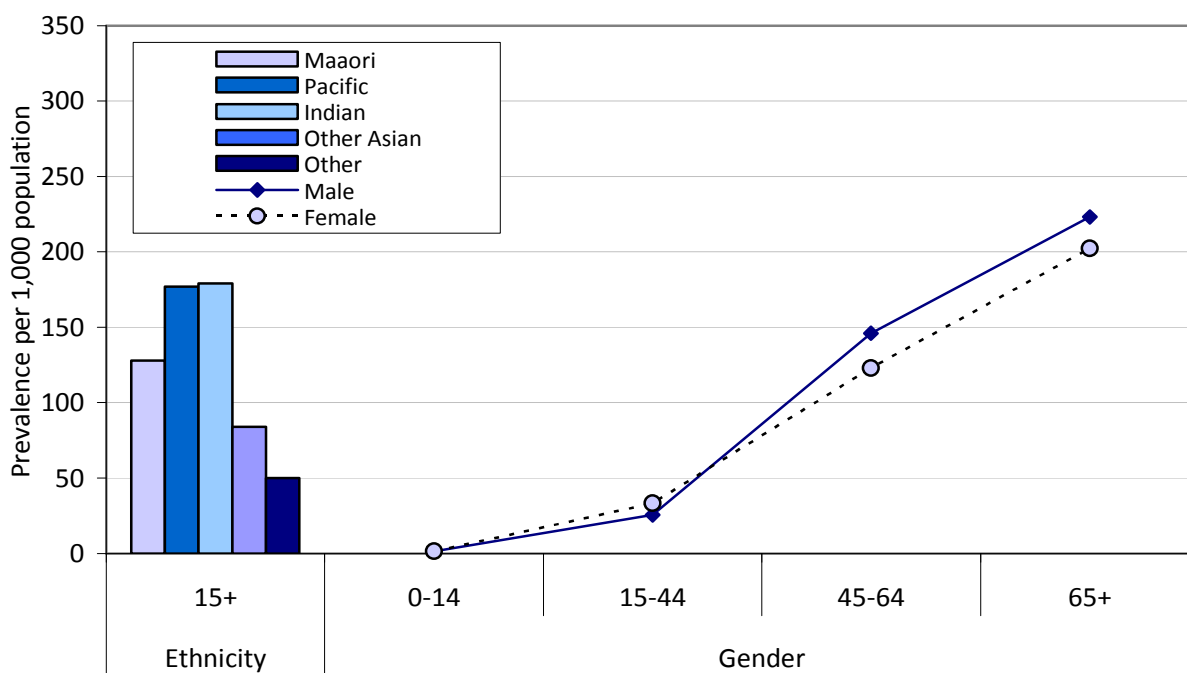
Sources: Ministry of Health National Collections (NMDS, Pharms, Labs, NNPAC), analysed by CMDHB

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[17] Estimates of number and prevalence of diabetes are derived from an algorithm based on a diagnosis of diabetes in hospital data (years 2000-2009), pharmaceutical information indicating dispensing of diabetes-specific medications (years 2005-2009), ≥4 HbA1c tests in the past 2 years, and NNPAC diabetes clinics and retinopathy/fundus screening in the past 2 years.
Note, some of the details of this algorithm differ from that currently used by the Ministry of Health to estimate diabetes prevalence; that algorithm has been modified recently.

Figure 15 Age standardised prevalence of diabetes in CMDHB by residential locality, 2009
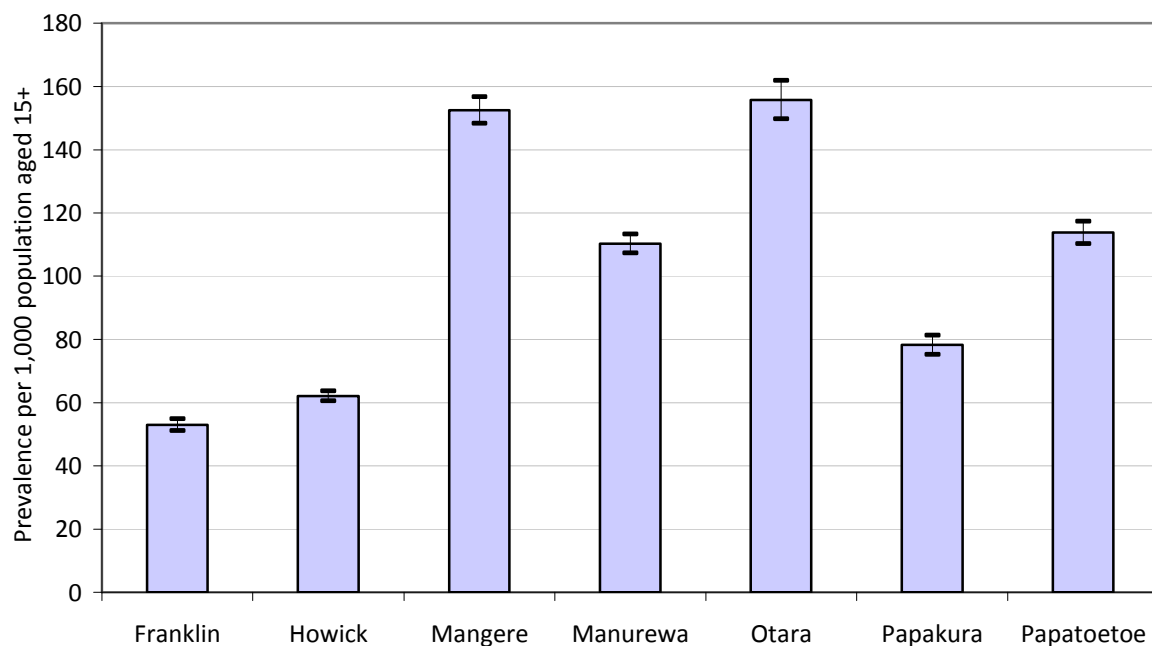
*Error bars indicate 95% confidence intervals
Sources: Ministry of Health National Collections (NMDS, Pharms, Labs, NNPAC), analysed by CMDHB

Table 31 Estimates of number of adults with diabetes and age standardised prevalence in CMDHB by residential locality, 2009

Locality	Prevalence per 1,000 population aged ≥15 years	Number of adult residents with diabetes	Percentage of all CMDHB adult residents with diabetes living in this locality
Franklin	53.03	3190	10.8%
Howick	62.11	5925	20.0%
Mangere	152.53	5395	18.3%
Manurewa	110.36	5600	18.9%
Otara	155.70	2865	9.7%
Papakura	78.24	2575	8.7%
Papatoetoe	113.82	4000	13.5%

Sources: Ministry of Health National Collections (NMDS, Pharms, Labs, NNPAC), analysed by CMDHB

Table 32 Estimates of number of people with diabetes and age standardised prevalence by ethnic group, gender and age, CMDHB 2009

Ethnic group	Gender	Number of people with diabetes*						Diabetes prevalence per 1,000 population (95% CI)					
		0-14y	15-44y	45-64y	65+y	Total	15+y	0-14y	15-44y	45-64y	65+y	Total	15+y
Maaori	Female	15	645	1120	470	2250	2235	1.21 (0.68-2.01)	37.84 (34.95-40.91)	176.06 (165.81-186.79)	304.4 (275.21-336.25)	95.64 (91.1-100.44)	121.14 (115.38-127.23)
	Male	10	460	1135	405	2010	2000	0.8 (0.38-1.47)	35.06 (31.92-38.43)	213.8 (201.44-226.74)	344.19 (306.41-386.14)	108.24 (102.54-114.34)	137.25 (130.01-145)
	Both	25	1105	2255	875	4255	4230	1 (0.64-1.48)	36.63 (34.48-38.87)	193.04 (185.08-201.25)	320.81 (297.55-345.67)	101.14 (97.58-104.86)	128.18 (123.66-132.9)
Pacific Peoples	Female	25	1465	2530	1330	5345	5320	1.23 (0.78-1.85)	57.76 (54.81-60.82)	278.91 (268.1-290.04)	419.74 (396.79-443.79)	142.8 (138.77-146.95)	181.03 (175.91-186.29)
	Male	25	800	2505	1060	4390	4365	1.27 (0.82-1.88)	37.39 (34.83-40.09)	288.46 (277.22-300.04)	411.22 (384.99-438.99)	135.35 (131-139.85)	171.55 (166.04-177.26)
	Both	50	2260	5035	2390	9735	9690	1.25 (0.92-1.66)	48.32 (46.33-50.37)	283.58 (275.77-291.56)	416.08 (398.76-434.02)	139.44 (136.48-142.46)	176.75 (173-180.59)
Indian	Female	5	450	920	445	1815	1815	0.83 (0.17-2.42)	49.94 (45.36-54.88)	259.43 (242.88-276.83)	420.59 (379.95-464.89)	134.83 (128.13-141.9)	171.01 (162.5-179.98)
	Male	5	395	1120	395	1915	1910	1.42 (0.52-3.12)	48.82 (44.12-53.9)	315.71 (297.38-334.91)	418.97 (374.32-468.28)	147.71 (140.36-155.52)	187.21 (177.88-197.11)
	Both	10	845	2040	835	3730	3720	1.14 (0.52-2.17)	49.83 (46.51-53.34)	287.65 (275.24-300.48)	420.19 (389.91-452.49)	141.54 (136.55-146.72)	179.45 (173.12-186.02)
Other Asian	Female	5	245	550	475	1270	1265	1.07 (0.35-2.49)	20.52 (18.02-23.3)	92.11 (84.52-100.21)	250.62 (227.7-275.41)	61.61 (58.07-65.35)	77.96 (73.47-82.7)
	Male	-	135	660	405	1200	1200	-	17.53 (14.67-20.79)	139.36 (128.91-150.45)	253.92 (228.84-281.22)	71.83 (67.65-76.24)	91.17 (85.86-96.77)
	Both	5	375	1210	880	2470	2465	0.62 (0.23-1.35)	19.31 (17.4-21.36)	112.66 (106.37-119.23)	252.13 (235.09-270.18)	66.08 (63.37-68.91)	83.76 (80.32-87.34)
Other	Female	40	715	1540	2280	4575	4535	2.21 (1.58-3.01)	17.29 (16.05-18.62)	52.93 (50.32-55.65)	132.96 (127.56-138.54)	36.74 (35.67-37.84)	46.07 (44.72-47.45)
	Male	45	505	2045	2370	4960	4915	2.27 (1.64-3.05)	13.11 (11.99-14.32)	70.41 (67.39-73.54)	165.53 (158.9-172.37)	43.12 (41.92-44.35)	54.15 (52.64-55.71)
	Both	85	1220	3580	4650	9535	9455	2.24 (1.78-2.78)	15.31 (14.46-16.21)	61.66 (59.65-63.72)	148 (143.77-152.31)	39.82 (39.02-40.64)	49.97 (48.96-51)
Total	Female	85	3515	6655	5000	15255	15170	1.49 (1.2-1.85)	33.24 (32.15-34.35)	122.86 (119.92-125.84)	202.28 (196.7-207.97)	68.56 (67.47-69.66)	86.67 (85.29-88.06)
	Male	85	2290	7465	4635	14475	14390	1.39 (1.11-1.72)	25.67 (24.63-26.75)	145.94 (142.65-149.29)	223.14 (216.65-229.78)	73.37 (72.16-74.59)	92.8 (91.27-94.35)
	Both	170	5810	14120	9630	29730	29560	1.44 (1.23-1.68)	29.78 (29.02-30.56)	134.04 (131.84-136.27)	211.68 (207.45-215.98)	70.89 (70.08-71.71)	89.64 (88.62-90.68)

*The number of people with diabetes is rounded to the nearest 5. A dash is used where numbers are too small to give an accurate estimate and to protect confidentiality of individuals.

Estimates of number and prevalence of diabetes are derived from an algorithm based on a diagnosis of diabetes in hospital data (years 2000-2009), pharmaceutical information indicating dispensing of diabetes-specific medications (years 2005-2009), ≥4 HbA1c tests in the past 2 years, and NNPAC diabetes clinics and retinopathy/fundus screening in the past 2 years.

Note, some of the details of this algorithm differ from that currently used by the Ministry of Health to estimate diabetes prevalence; that algorithm has been modified recently.

3.2.3 Coronary heart disease

In 2009 there were approximately 12,000 people aged ≥15 years identified as having coronary heart disease (CHD)[18] living in the CMDHB region. The age-standardised prevalence for CHD in CMDHB was 39 per 1,000 population (95% CI 38.6-40.0). As shown in Figure 16, prevalences were highest amongst Indian and Maaori ethnic groups, at more than 50 per 1,000 population. Prevalence of CHD increased with increasing age and was higher for males compared with females.

By locality, CHD prevalences were similar in Mangere, Manurewa, Otara, Papakura, and Papatoetoe, all more than 40 per 1,000 population (Figure 17). Howick had the lowest prevalence of identified CHD (approximately 30 per 1,000 population), but in contrast, had the largest volume of people with CHD (Table 33).

Figure 16 Age standardised prevalence of CHD in CMDHB by ethnic groups, gender and age, 2009
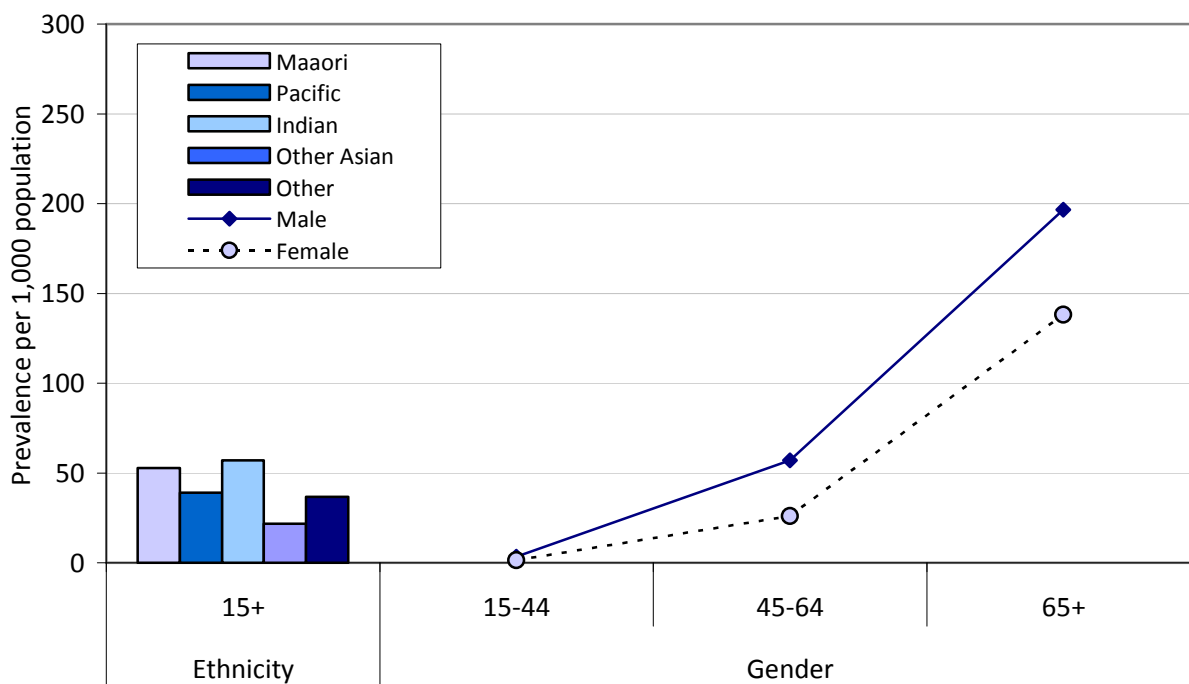
Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

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[18] Estimates of number and prevalence of CHD are derived from an algorithm based on a diagnosis or procedure related to CHD in hospital data (years 2000-2009), and pharmaceutical information indicating dispensing of CHD-specific medications (years 2005-2009). Data are for ages 15 years and over.

Figure 17 Age standardised prevalence of CHD in CMDHB by residential locality, 2009
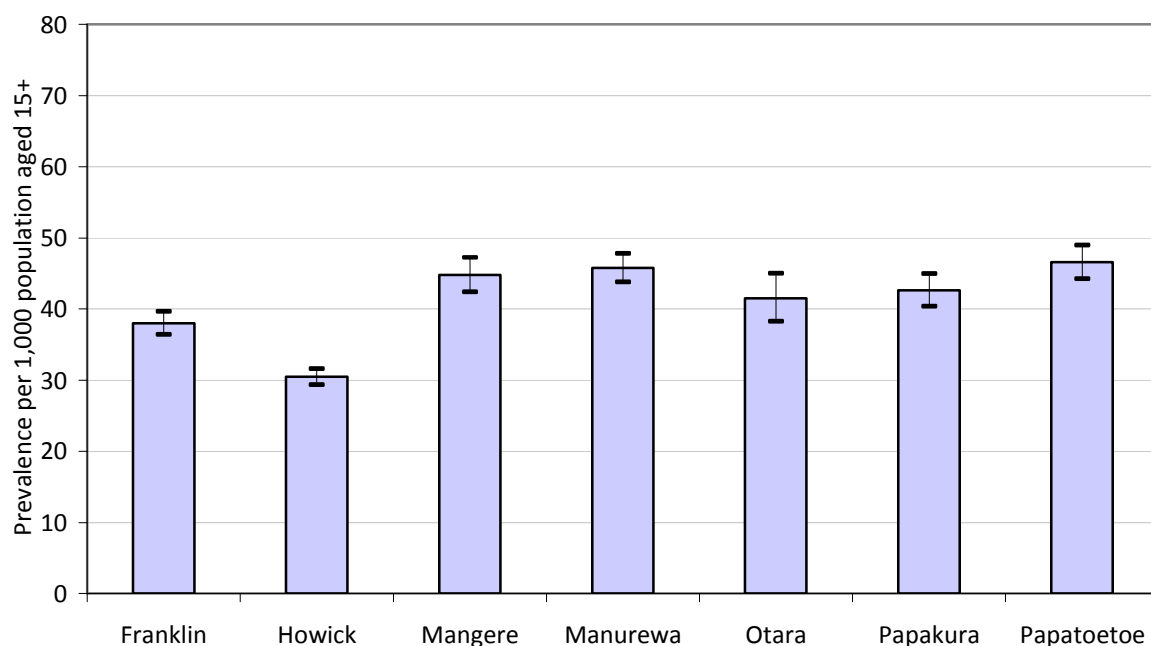
*Error bars indicate 95% confidence intervals
Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

Table 33 Estimates of number of adults with CHD and age standardised prevalence in CMDHB by residential locality, 2009

Locality	Prevalence per 1,000 population	Number of residents with CHD	Percentage of all CMDHB residents with CHD living in this locality
Franklin	37.99	2180	18.2%
Howick	30.45	2800	23.4%
Mangere	44.76	1405	11.7%
Manurewa	45.77	2055	17.2%
Otara	41.49	675	5.6%
Papakura	42.62	1360	11.4%
Papatoetoe	46.55	1510	12.6%

Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

Table 34 Estimates of number of adults with CHD and age standardised prevalence by ethnic group, gender and age, CMDHB 2009

Ethnic group	Gender	Number of people with CHD*				CHD prevalence per 1,000 population (95% CI)			
		15-44y	45-64y	65+y	15+y	15-44y	45-64y	65+y	15+y
Maaori	Female	55	390	270	720	3.44 (2.6-4.47)	62.4 (56.32-68.97)	188.99 (165.28-215.51)	50.12 (45.94-54.68)
	Male	70	400	215	685	5.63 (4.4-7.1)	75.53 (68.24-83.41)	194.41 (165.53-227.65)	56.13 (51.02-61.8)
	Both	130	790	485	1405	4.41 (3.68-5.25)	68.29 (63.58-73.28)	191.59 (173.07-211.78)	52.84 (49.58-56.32)
Pacific Peoples	Female	50	305	355	710	2.04 (1.51-2.7)	33.94 (30.21-38.01)	117.75 (105.45-131.19)	29.67 (27.42-32.09)
	Male	80	615	405	1100	3.85 (3.05-4.79)	71.4 (65.84-77.32)	165.94 (148.98-184.5)	49.49 (46.31-52.89)
	Both	130	915	760	1810	2.88 (2.41-3.43)	52.26 (48.92-55.78)	138.9 (128.73-149.73)	38.97 (37.07-40.96)
Indian	Female	10	125	170	300	1.06 (0.48-2.07)	35.98 (29.89-42.96)	180.73 (153-212.4)	39.54 (34.8-44.84)
	Male	45	365	230	640	5.4 (3.91-7.29)	105.78 (95.16-117.29)	260.46 (224.42-301.37)	75.43 (68.85-82.65)
	Both	50	490	400	940	3.22 (2.41-4.24)	70.7 (64.55-77.29)	218.01 (195.46-242.7)	57.03 (53-61.34)
Other Asian	Female	5	55	160	225	0.58 (0.23-1.23)	9.42 (7.08-12.29)	92.37 (78.16-108.55)	17.51 (15.16-20.14)
	Male	5	145	165	310	0.65 (0.21-1.54)	30.99 (26.1-36.52)	111.13 (94.13-130.49)	27 (23.93-30.41)
	Both	10	200	325	535	0.61 (0.32-1.08)	18.96 (16.4-21.81)	100.94 (89.86-113.09)	21.75 (19.84-23.81)
Other	Female	30	530	2385	2945	0.75 (0.51-1.06)	17.92 (16.42-19.52)	136.04 (130.63-141.63)	26.96 (25.99-27.96)
	Male	95	1390	2840	4325	2.45 (1.99-3)	47.51 (45.04-50.08)	203.36 (195.91-211.02)	47.3 (45.9-48.75)
	Both	130	1920	5220	7270	1.56 (1.3-1.85)	32.69 (31.24-34.19)	166.8 (162.31-171.39)	36.65 (35.81-37.5)
Total	Female	155	1400	3340	4895	1.48 (1.25-1.73)	25.98 (24.63-27.37)	138.14 (133.49-142.91)	30.12 (29.28-30.98)
	Male	295	2910	3855	7065	3.34 (2.97-3.74)	57 (54.94-59.11)	196.62 (190.36-203.04)	49.61 (48.44-50.81)
	Both	450	4310	7195	11960	2.34 (2.13-2.56)	41.05 (39.83-42.29)	164.54 (160.74-168.41)	39.25 (38.55-39.97)

*The number of people with CHD is rounded to the nearest 5.

Estimates of number and prevalence of CHD are derived from an algorithm based on a diagnosis or procedure related to CHD in hospital data (years 2000-2009), and pharmaceutical information indicating dispensing of CHD-specific medications (years 2005-2009). Data are for ages 15 years and over.

3.2.4 Cerebrovascular disease

Cerebrovascular disease refers to a group of conditions related to disease of the blood vessels supplying the brain, the most common condition in this group being stroke. In 2009 there were approximately 5100 people aged ≥15 years identified as having cerebrovascular disease[19] living in the CMDHB region. The age-standardised prevalence for cerebrovascular disease in CMDHB was 17 per 1,000 population (95% CI 16.4-17.4). As shown in Figure 18, prevalences were highest amongst Maaori and Pacific ethnic groups. Prevalence of cerebrovascular disease increased with increasing age and was higher for males compared with females.

By locality, cerebrovascular disease prevalence was similar in Mangere, Manurewa, Otara, Papakura, and Papatoetoe, at approximately 20 per 1,000 population (Figure 19). The lowest prevalence occurred in Howick (approximately 13 per 1,000 population). By volume (see Table 35), the largest percentages of people identified as having cerebrovascular disease were resident in Howick (22.5%), followed by Manurewa (17.5%), and Franklin (16%).

Figure 18 Age standardised prevalence of cerebrovascular disease in CMDHB by ethnic groups, gender and age, 2009
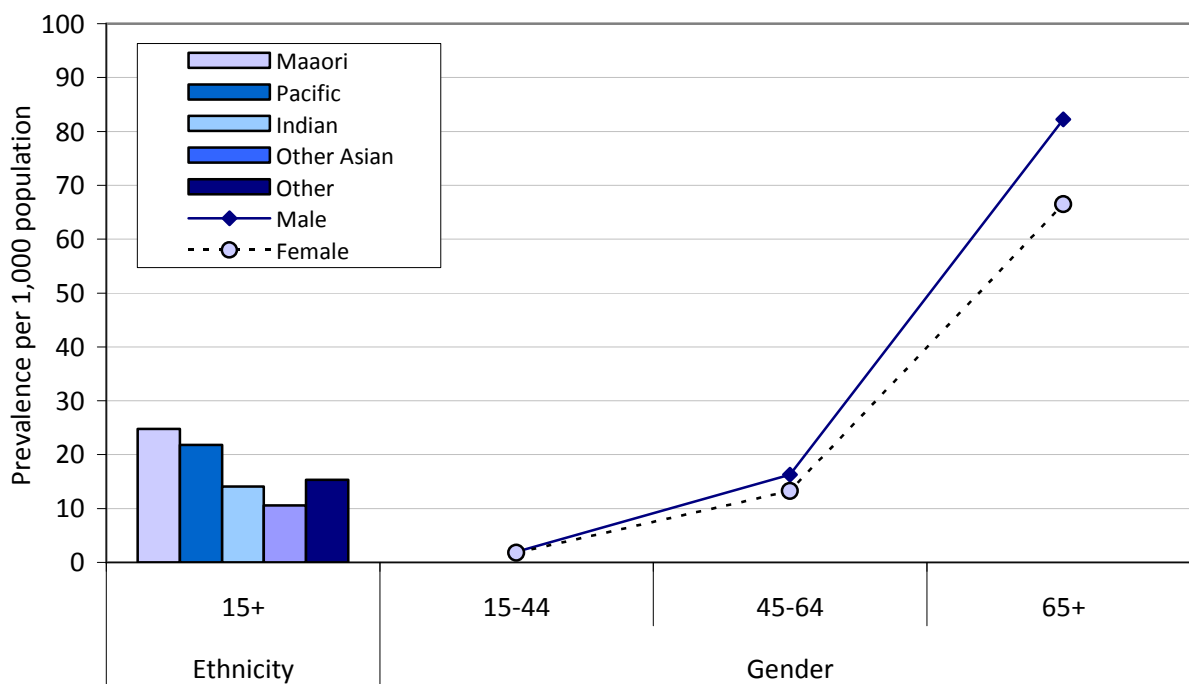
Sources: Ministry of Health NMDS, analysed by CMDHB

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[19] Estimates of number and prevalence of cerebrovascular disease are derived from an algorithm based on a diagnosis (ICD10 codes I60-I69 Stroke/cerebrovascular disease, G45-G46 TIA) or procedure (e.g. carotid bypass, percutaneous transluminal angioplasty of carotid artery) related to cerebrovascular disease in hospital data (years 2000-2009). Data are for ages 15 years and over.

Figure 19 Age standardised prevalence of cerebrovascular disease in CMDHB by residential locality, 2009
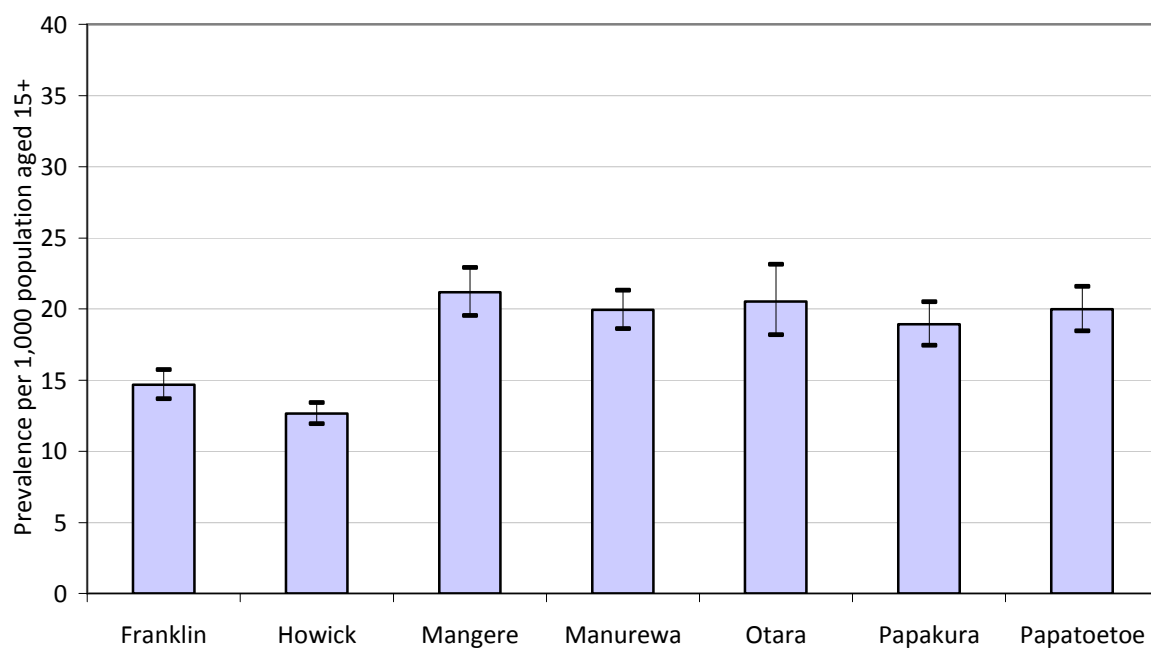
*Error bars indicate 95% confidence intervals
Sources: Ministry of Health NMDS, analysed by CMDHB

Table 35 Estimates of number of adults with cerebrovascular disease and age standardised prevalence in CMDHB by residential locality, 2009

Locality	Prevalence per 1,000 population	Number of residents with cerebrovascular disease	Percentage of all CMDHB residents with cerebrovascular disease living in this locality
Franklin	14.67	830	16.3%
Howick	12.66	1145	22.5%
Mangere	21.16	660	13.0%
Manurewa	19.93	890	17.5%
Otara	20.52	320	6.3%
Papakura	18.92	600	11.8%
Papatoetoe	19.97	645	12.7%

Sources: Ministry of Health NMDS, analysed by CMDHB

Table 36 Estimates of number of people with cerebrovascular disease and age standardised prevalence by ethnic group, gender and age, CMDHB 2009

| Ethnic group | Gender | Number of people with CVD* | | | | CVD prevalence per 1,000 population (95% CI) | | | |
		15-44y	45-64y	65+y	15+y	15-44y	45-64y	65+y	15+y
Maaori	Female	55	180	130	360	3.19 (2.38-4.19)	28.05 (24.07-32.52)	97.27 (79.86-117.64)	25.33 (22.3-28.76)
	Male	45	125	95	265	3.22 (2.32-4.35)	24.06 (20.01-28.7)	96.78 (75.66-122.58)	24.06 (20.46-28.28)
	Both	95	305	225	625	3.19 (2.58-3.9)	26.25 (23.37-29.4)	97.15 (83.51-112.57)	24.77 (22.43-27.34)
Pacific Peoples	Female	60	210	235	510	2.37 (1.8-3.06)	23.48 (20.41-26.89)	81.32 (70.99-92.81)	21.03 (19.13-23.09)
	Male	50	205	210	470	2.13 (1.57-2.83)	24.27 (21.06-27.83)	91.97 (79.11-106.5)	22.79 (20.52-25.28)
	Both	110	420	450	975	2.25 (1.85-2.72)	23.86 (21.62-26.28)	85.99 (77.85-94.8)	21.8 (20.34-23.36)
Indian	Female	10	40	45	90	1.01 (0.46-1.98)	11.13 (7.87-15.3)	49.35 (35.26-67.58)	11.58 (9.1-14.64)
	Male	15	65	50	130	2.06 (1.2-3.32)	18.63 (14.33-23.85)	65.28 (46.89-89.07)	16.9 (13.64-20.87)
	Both	25	100	95	225	1.51 (0.98-2.23)	14.87 (12.12-18.08)	56.46 (44.89-70.32)	14.09 (12.06-16.44)
Other Asian	Female	10	30	75	115	0.66 (0.29-1.34)	4.96 (3.32-7.16)	44.59 (34.82-56.41)	8.79 (7.15-10.72)
	Male	10	50	85	145	1.05 (0.45-2.08)	10.49 (7.76-13.9)	58.43 (46.35-72.9)	12.82 (10.7-15.28)
	Both	15	80	165	255	0.82 (0.47-1.33)	7.39 (5.84-9.24)	50.94 (43.14-59.82)	10.59 (9.27-12.08)
Other	Female	60	260	1115	1435	1.42 (1.08-1.83)	8.86 (7.81-10.01)	63.6 (59.92-67.45)	13.33 (12.64-14.04)
	Male	60	385	1135	1575	1.5 (1.14-1.94)	13.17 (11.89-14.56)	82.14 (77.41-87.09)	17.56 (16.7-18.46)
	Both	115	645	2250	3010	1.46 (1.2-1.75)	11.01 (10.18-11.9)	71.97 (69.02-75)	15.3 (14.76-15.86)
Total	Female	190	715	1605	2510	1.79 (1.55-2.07)	13.26 (12.31-14.27)	66.5 (63.28-69.84)	15.32 (14.72-15.93)
	Male	175	830	1575	2585	1.94 (1.66-2.25)	16.29 (15.2-17.44)	82.25 (78.18-86.48)	18.76 (18.03-19.51)
	Both	365	1550	3180	5095	1.86 (1.67-2.06)	14.74 (14.02-15.49)	73.53 (70.98-76.15)	16.89 (16.43-17.37)

*The number of people with cerebrovascular disease is rounded to the nearest 5.

Estimates of number and prevalence of cerebrovascular disease are derived from an algorithm based on a diagnosis (ICD10 codes I60-I69 Stroke/cerebrovascular disease, G45-G46 TIA) or procedure (e.g. carotid bypass, percutaneous transluminal angioplasty of carotid artery) related to cerebrovascular disease in hospital data (years 2000-2009). Data are for ages 15 years and over+.

3.2.5 Hypertension

Hypertension is a significant risk factor for cardiovascular disease (e.g. coronary heart disease and cerebrovascular disease). The medications used as part of identifying those people with hypertension for this indicator do overlap with medications for other heart and vascular conditions so some of those included in the number may have related heart disease rather than hypertension. In 2009 there were approximately 68,000 people aged ≥15 years identified as having hypertension[20] living in the CMDHB region. The age-standardised prevalence for hypertension in CMDHB was 213 per 1,000 population (95% CI 211.0-214.2). In 2009, approximately one in five CMDHB residents aged ≥15 years had hypertension. As shown in Figure 20, prevalences were highest amongst Maaori, Pacific, and Indian ethnic groups. Prevalence of hypertension increased steeply with increasing age. Male and female proportions were similar.

The prevalence of hypertension was significantly higher in Otara and Mangere (approximately one in four adult residents had hypertension), followed by Papatoetoe and Manurewa, then Papakura. Howick and Franklin had the lowest prevalence of hypertension (Figure 21). By volume, one quarter of adults identified as having hypertension were resident in Howick (Table 37).

Figure 20 Age standardised prevalence of hypertension in CMDHB by ethnic groups, gender and age, 2009
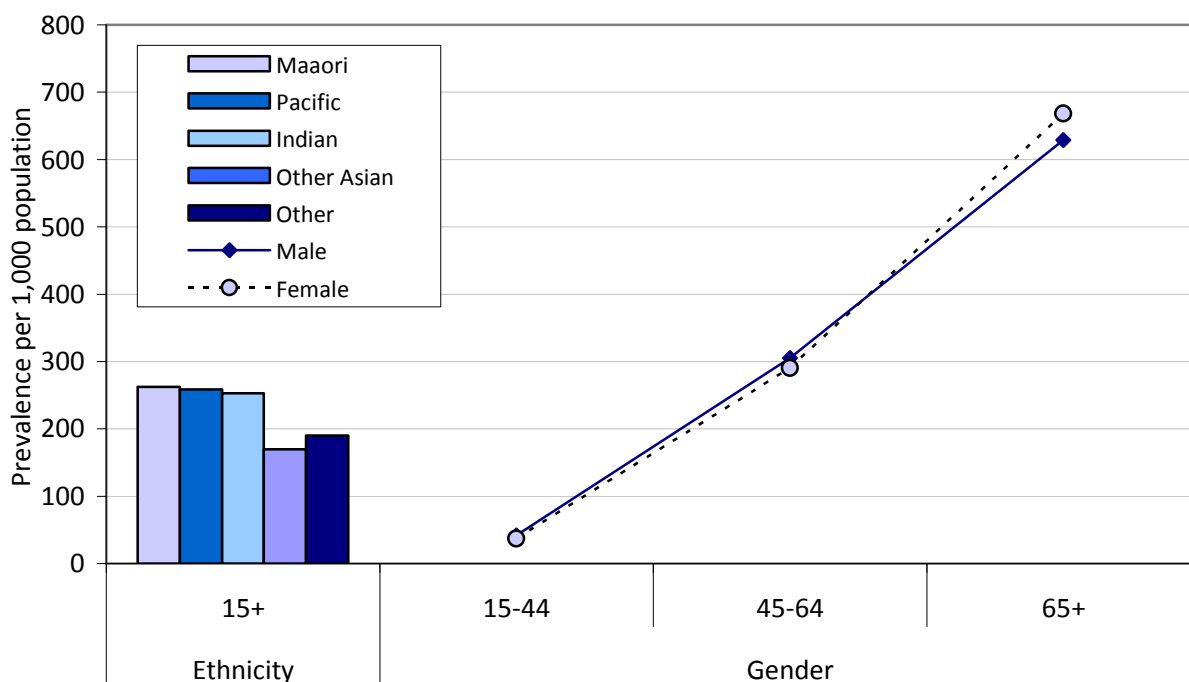
Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

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[20] Estimates of number and prevalence of hypertension are derived from an algorithm based on age ≥15 years and one or more of the following: a diagnosis of hypertension (ICD10 codes I10-I15) in hospital data (years 2000-2009), pharmaceutical information indicating dispensing of two or more scripts for hypertension-specific medications (years 2005-2009).

Figure 21 Age standardised prevalence of hypertension in CMDHB by residential locality, 2009
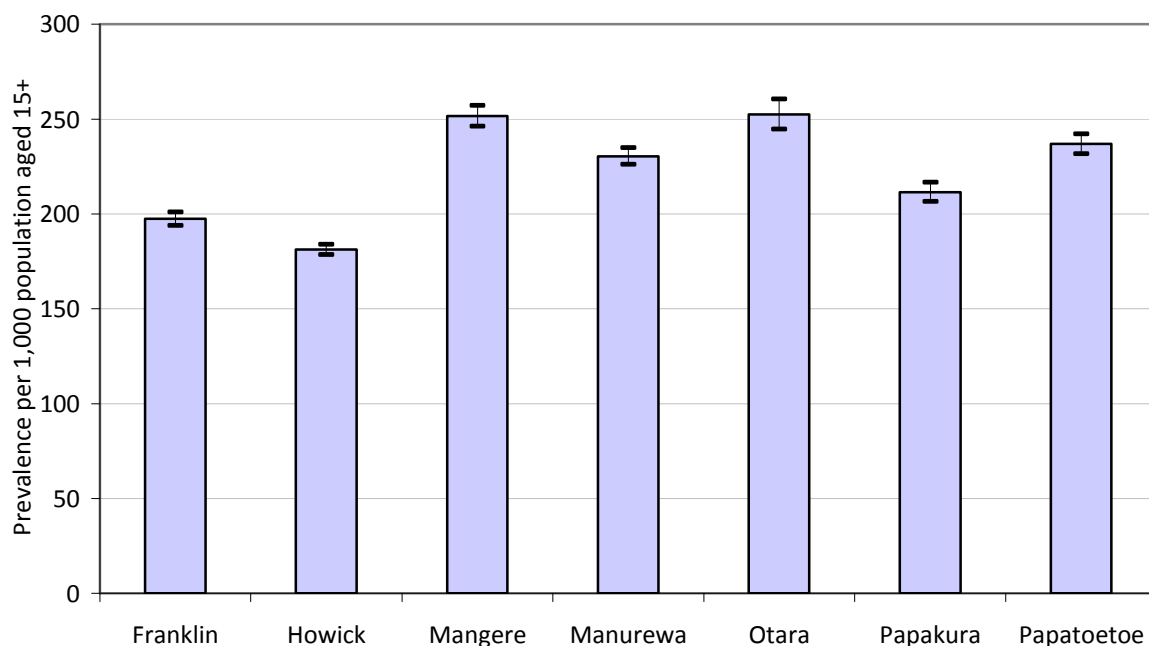
*Error bars indicate 95% confidence intervals
Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

Table 37 Estimates of number of adults with hypertension and age standardised prevalence in CMDHB by residential locality, 2009

Locality	Prevalence per 1,000 population	Number of residents with hypertension	Percentage of all CMDHB residents with hypertension living in this locality
Franklin	197.49	11850	17.4%
Howick	181.34	17135	25.2%
Mangere	251.63	8500	12.5%
Manurewa	230.45	11140	16.4%
Otara	252.47	4445	6.5%
Papakura	211.58	6855	10.1%
Papatoetoe	236.9	8030	11.8%

Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

Table 38 Estimates of number of adults with hypertension and age standardised prevalence by ethnic group, gender and age, CMDHB 2009

| Ethnic group | Gender | Number of people with hypertension* | | | | Hypertension prevalence per 1,000 population (95% CI) | | | |
		15-44y	45-64y	65+y	15+y	15-44y	45-64y	65+y	15+y
Maaori	Female	740	2495	1130	4365	45.43 (42.2-48.84)	390.5 (375.2-406.29)	769.05 (720.97-819.85)	262.4 (253.39-271.75)
	Male	715	2070	825	3610	54.42 (50.48-58.59)	393.06 (376.19-410.51)	730.66 (674.1-791.43)	262.09 (251.63-273.06)
	Both	1455	4565	1955	7980	49.39 (46.87-52.01)	391.63 (380.26-403.26)	753.83 (717.02-792.27)	262.52 (255.68-269.56)
Pacific Peoples	Female	1290	3730	2210	7230	52.25 (49.42-55.2)	412.02 (398.86-425.52)	712.76 (682.4-744.22)	263.88 (257.49-270.41)
	Male	1110	3450	1660	6220	51.27 (48.28-54.41)	397.97 (384.74-411.54)	666.13 (632.04-701.79)	251.85 (244.99-258.91)
	Both	2395	7180	3870	13450	51.79 (49.72-53.92)	405.14 (395.78-414.66)	692.56 (669.85-715.92)	258.41 (253.73-263.16)
Indian	Female	320	1275	720	2315	37.74 (33.69-42.16)	360.65 (341.07-381.08)	705.62 (651.67-763.28)	239.33 (228.76-250.38)
	Male	505	1505	600	2610	62.19 (56.87-67.88)	426.56 (405.17-448.82)	665.72 (607.79-728.39)	266.37 (254.82-278.5)
	Both	825	2780	1315	4925	49.66 (46.31-53.19)	393.69 (379.13-408.67)	688.08 (648.34-729.88)	253.08 (245.25-261.18)
Other Asian	Female	240	1270	1075	2585	20.71 (18.17-23.52)	211.05 (199.52-223.09)	578.35 (542.96-615.62)	164.99 (158.3-171.94)
	Male	240	1160	855	2250	31.88 (27.97-36.19)	245.12 (231.17-259.7)	546.02 (508.48-585.82)	176.36 (168.8-184.22)
	Both	480	2430	1925	4835	24.94 (22.76-27.27)	225.85 (216.91-235.07)	563.5 (537.62-590.4)	169.47 (164.46-174.61)
Other	Female	1310	6940	11230	19480	30.76 (29.11-32.48)	237.84 (232.27-243.52)	651.59 (639.58-663.77)	189.93 (187.26-192.64)
	Male	1155	7415	8755	17325	29.79 (28.09-31.57)	255.39 (249.6-261.28)	616.7 (603.79-629.82)	189.31 (186.48-192.17)
	Both	2465	14355	19985	36805	30.29 (29.11-31.52)	246.58 (242.55-250.65)	636.57 (627.78-645.46)	190 (188.05-191.96)
Total	Female	3905	15710	16360	35975	37.24 (36.08-38.43)	290.34 (285.81-294.92)	668.25 (658.04-678.59)	211.95 (209.76-214.16)
	Male	3720	15600	12695	32020	41.75 (40.41-43.11)	305.22 (300.45-310.05)	628.93 (617.85-640.16)	212.8 (210.43-215.18)
	Both	7625	31315	29055	67995	39.31 (38.43-40.2)	297.54 (294.25-300.86)	651.11 (643.6-658.68)	212.59 (210.98-214.21)

*The number of people with hypertension is rounded to the nearest 5.

Estimates of number and prevalence of hypertension are derived from an algorithm based on age ≥15 years and one or more of the following: a diagnosis of hypertension (ICD10 codes I10-I15) in hospital data (years 2000-2009), pharmaceutical information indicating dispensing of two or more scripts for hypertension-specific medications (years 2005-2009).

3.2.6 Gout

Gout is a common inflammatory arthritis which can result in significant work and social disability. It is also associated with an increased risk of hypertension, diabetes and cardiovascular disease and so the onset of gouty arthritis can identify a clinical population who are likely to benefit from assessment and intervention to prevent or improve management of these other health conditions.

In 2009 there were approximately 11,000 adults identified as having gout[21] living in the CMDHB region. The age-standardised prevalence for gout in CMDHB was 33 per 1,000 population (95% CI 33.0-34.3). As shown in Figure 22, prevalences were much higher amongst Pacific Peoples and Maaori, compared with other ethnic groups. Prevalence of gout increased with increasing age and was much higher for males compared with females.

Large differences in prevalence of gout were evident by locality (Figure 23). The prevalences in Otara and Mangere (64 and 60 per 1,000 population, respectively) were three-times higher than the prevalence for Howick (20 per 1,000 population.) By volume, the largest percentages of adults identified as having gout were resident in Mangere and Manurewa (Table 39).

Figure 22 Age standardised prevalence of gout in CMDHB by ethnic groups, gender and age, 2009
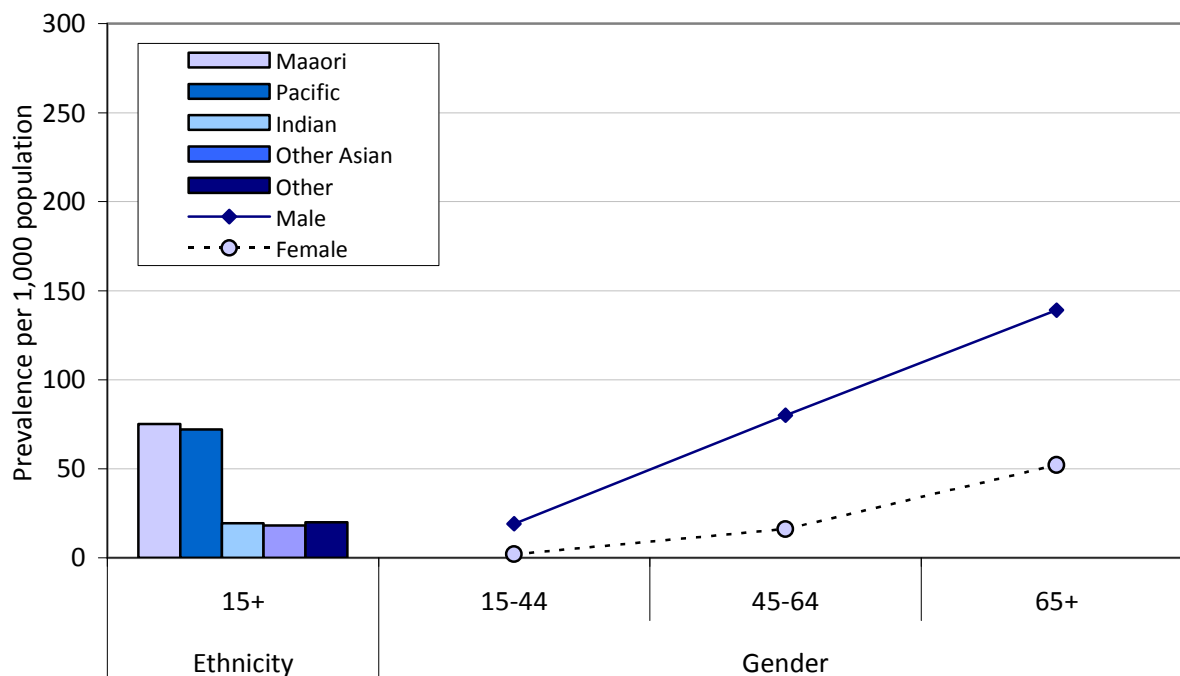
Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

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[21] Estimates of number and prevalence of gout are derived from an algorithm based on a diagnosis of gout (ICD-10 code M10) in hospitalisation data (years 2000-2009), and/or pharmaceutical information indicating dispensing of two or more scripts for allopurinol or colchicine (years 2005-2009) excluding people with leukaemia or lymphoma (ICD-10 codes C80-C96), in people aged ≥15 years

Figure 23 Age standardised prevalence of gout in CMDHB by residential locality, 2009
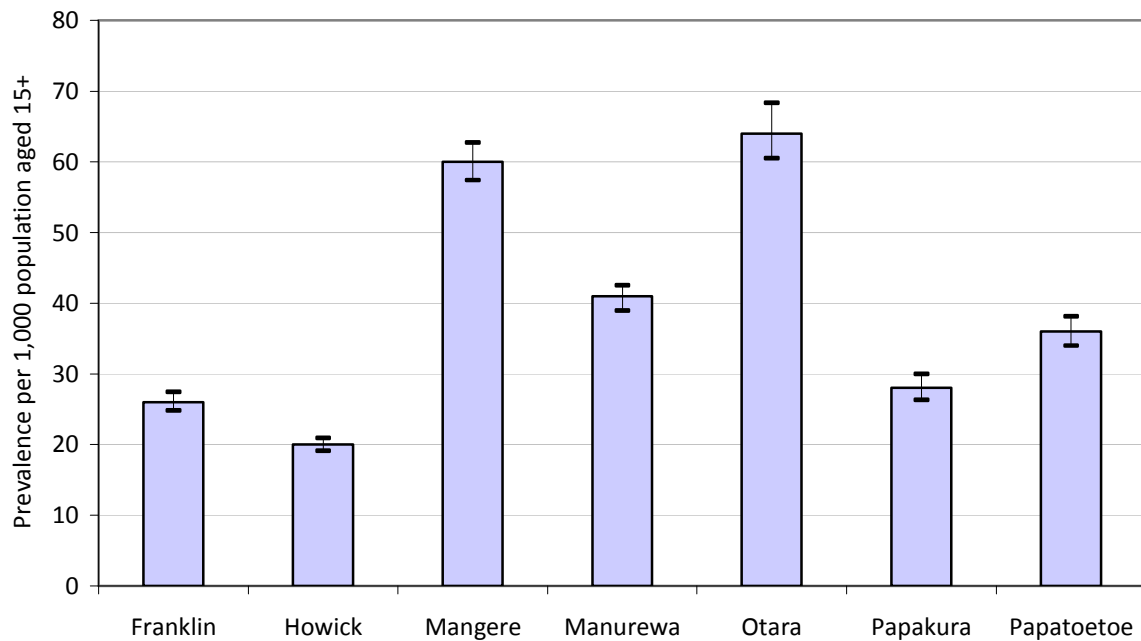
*Error bars indicate 95% confidence intervals
Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

Table 39 Esimates of number of adults with gout and prevalence in CMDHB by residential locality, 2009

Locality	Prevalence per 1,000 population	Number of residents with gout	Percentage of all CMDHB residents with gout living in this locality
Franklin	26.08	1560	14.1%
Howick	20.00	1920	17.4%
Mangere	60.02	2130	19.3%
Manurewa	40.68	2060	18.6%
Otara	64.30	1205	10.9%
Papakura	28.12	920	8.3%
Papatoetoe	30.00	1255	11.4%

Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

Table 40 Estimates of number of adults with gout and age standardised prevalence by ethnic group, gender and age, CMDHB 2009

Ethnic group	Gender	Number of people with gout*				Gout prevalence per 1,000 population (95% CI)			
		15-44y	45-64y	65+y	15+y	15-44y	45-64y	65+y	15+y
Maaori	Female	45	280	235	555	2.52 (1.82-3.41)	45.4 (40.2-51.09)	162.73 (140.67-187.64)	40.39 (36.57-44.6)
	Male	395	890	390	1675	29.19 (26.37-32.24)	166.48 (155.63-177.91)	343.24 (304.88-385.8)	119.58 (112.53-127.14)
	Both	440	1170	620	2230	14.34 (13.02-15.75)	100.36 (94.64-106.34)	239.11 (218.54-261.33)	75.32 (71.59-79.26)
Pacific Peoples	Female	105	375	395	875	3.98 (3.25-4.84)	41.08 (37.01-45.48)	125.9 (113.43-139.46)	34.16 (31.81-36.66)
	Male	985	1590	630	3205	42.83 (40.18-45.61)	174.69 (166.17-183.54)	247.82 (227.41-269.76)	114.65 (110.28-119.2)
	Both	1085	1965	1025	4080	22.1 (20.79-23.46)	106.8 (102.11-111.65)	179.12 (167.8-191.07)	72.16 (69.78-74.62)
Indian	Female	-	25	35	60	-	7.9 (5.2-11.52)	35.09 (23.56-50.68)	7.96 (5.94-10.55)
	Male	70	170	70	310	8.94 (6.99-11.27)	47.4 (40.48-55.2)	80.96 (61.49-105.41)	31.78 (27.86-36.32)
	Both	75	195	105	375	4.5 (3.53-5.66)	27.61 (23.86-31.8)	56.02 (44.99-69.2)	19.5 (17.34-21.94)
Other Asian	Female	5	30	60	100	0.51 (0.19-1.14)	5.52 (3.77-7.81)	34.04 (25.68-44.4)	7.23 (5.79-8.96)
	Male	65	200	155	425	8.17 (6.33-10.39)	41.23 (35.72-47.36)	98.32 (82.84-116.05)	32.19 (29.05-35.64)
	Both	75	235	215	520	3.57 (2.8-4.5)	21.35 (18.68-24.29)	63.55 (55.01-73.13)	18.27 (16.65-20.04)
Other	Female	20	145	550	710	0.47 (0.29-0.74)	4.84 (4.07-5.7)	31.54 (28.95-34.3)	6.62 (6.14-7.13)
	Male	240	1300	1595	3130	5.98 (5.24-6.79)	44.45 (42.06-46.94)	113.14 (107.63-118.87)	34.28 (33.08-35.51)
	Both	260	1440	2145	3845	3.11 (2.74-3.52)	24.67 (23.41-25.98)	68.54 (65.67-71.51)	19.81 (19.18-20.45)
Total	Female	175	860	1270	2305	1.63 (1.4-1.89)	15.8 (14.76-16.89)	51.81 (49-54.74)	13.72 (13.16-14.29)
	Male	1755	4150	2840	8745	19.01 (18.13-19.92)	79.73 (77.32-82.19)	139.41 (134.25-144.74)	56.12 (54.93-57.33)
	Both	1930	5010	4110	11050	9.67 (9.24-10.11)	46.96 (45.66-48.28)	91.24 (88.45-94.09)	33.64 (33.01-34.28)

*The number of people with gout is rounded to the nearest 5. A dash is used where numbers are too small to give an accurate estimate and to protect confidentiality of individuals.

Estimates of number and prevalence of gout are derived from an algorithm based on a diagnosis of gout (ICD-10 code M10) in hospitalisation data (years 2000-2009), and/or pharmaceutical information indicating dispensing of two or more scripts for allopurinol or colchicine (years 2005-2009) excluding people with leukaemia or lymphoma (ICD-10 codes C80-C96), in people aged ≥15 years.

3.2.7 Cancer (excluding skin, in situ, and benign cancers)

In 2009 there were approximately 7725 adults and 240 children identified as having cancer[22] living in the CMDHB region. The age-standardised prevalence for cancer amongst CMDHB adults was 26 per 1,000 population (95% CI 24.5-27.5), and the prevalence for children was 2 per 1,000 population (95% CI 1.7-2.3). As shown in Figure 24, prevalences were highest amongst Maaori and Other ethnic groups, both with prevalences greater than 25 per 1,000 population. Prevalence of cancer increased with increasing age and showed a mixed pattern by gender with higher proportions for females aged 45-64 years, and then higher proportions for males aged 65 years and over.

Differences in the prevalence of cancer by locality were not large (Figure 25). Prevalence of cancer amongst adults ranged from a high of approximately 26 per 1,000 population in Franklin to a low of just under 20 per 1,000 population in Otara. By volume, more than one quarter of adults identified as having cancer were resident in Howick and one fifth were resident in Franklin (Table 41).

Figure 24 Age standardised prevalence of cancer in CMDHB by ethnic groups, gender and age, 2009
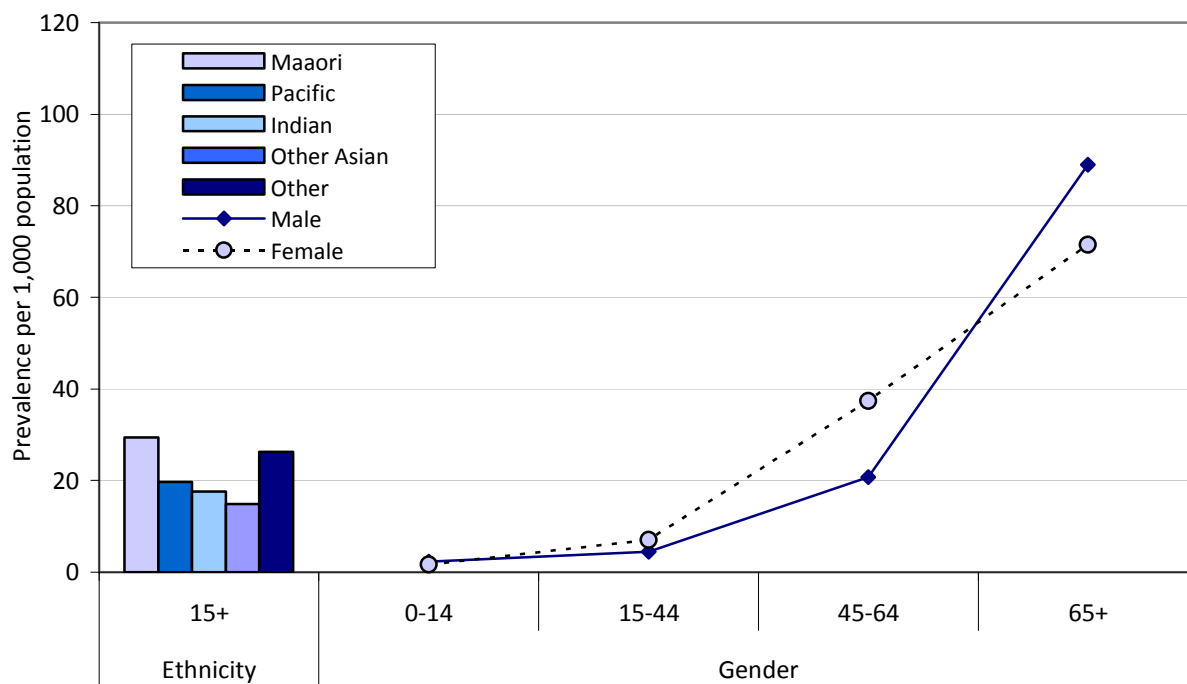
Sources: Ministry of Health National Collections (NMDS, Pharms, NNPAC), analysed by CMDHB

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[22] Estimates of number and prevalence of cancer are derived from an algorithm based on diagnosis or treatment for cancer in the last 5 years, utilising the following Ministry of Health datasets: NMDS, Pharms, and NNPAC.

Figure 25 Age standardised prevalence of cancer in CMDHB by residential locality, 2009
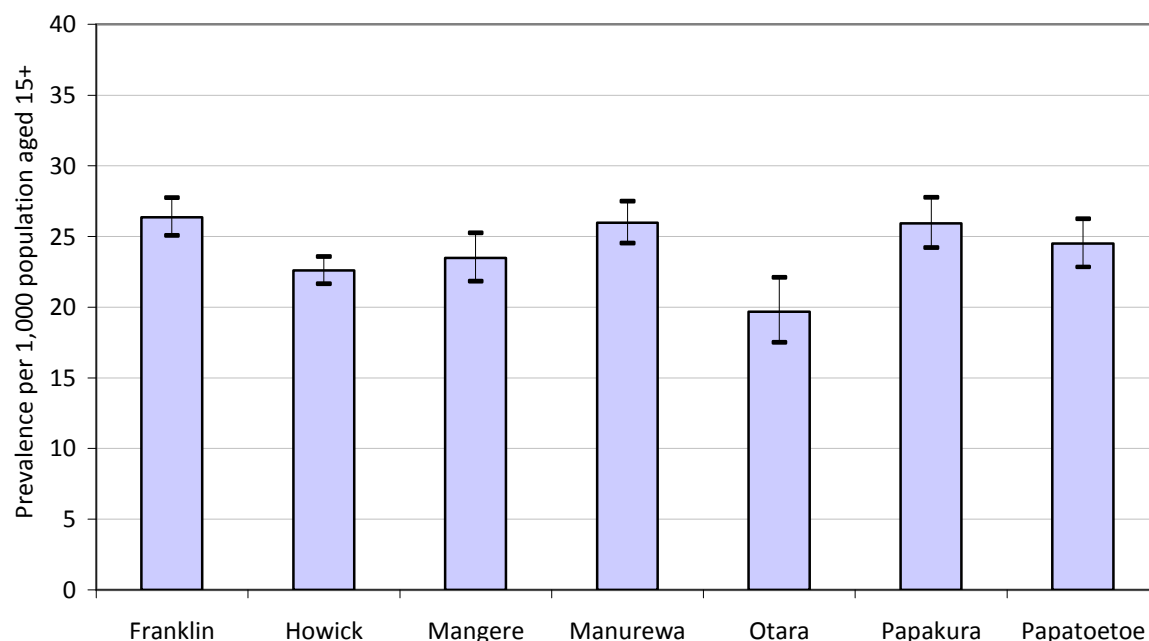
*Error bars indicate 95% confidence intervals
Sources: Ministry of Health National Collections (NMDS, Pharms, NNPAC)

Table 41 Estimates of number of adults with cancer and age standardised prevalence in CMDHB by residential locality, 2009

Locality	Prevalence per 1,000 population aged ≥15 years	Number of adult residents with cancer	Percentage of all CMDHB adult residents with cancer living in this locality
Franklin	26.36	1565	20.2%
Howick	22.59	2115	27.3%
Mangere	23.48	795	10.3%
Manurewa	25.97	1245	16.1%
Otara	19.67	345	4.5%
Papakura	25.93	840	10.9%
Papatoetoe	24.5	825	10.7%

Sources: Ministry of Health National Collections (NMDS, Pharms, NNPAC), analysed by CMDHB

Table 42 Estimates of number of people with cancer and age standardised prevalence by ethnic group, gender and age, CMDHB 2009

Ethnic group	Gender	Number of people with diabetes*						Diabetes prevalence per 1,000 population (95% CI)					
		0-14y	15-44y	45-64y	65+y	Total	15+y	0-14y	15-44y	45-64y	65+y	Total	15+y
Maaori	Female	20	125	295	140	580	560	1.53 (0.92-2.4)	7.24 (6.02-8.65)	45.77 (40.65-51.37)	92.34 (76.39-111.07)	25.63 (23.22-28.31)	32.14 (29.09-35.53)
	Male	40	80	135	110	360	320	2.95 (2.1-4.05)	5.68 (4.48-7.12)	25.94 (21.74-30.74)	99.68 (79.09-124.75)	21.43 (18.61-24.71)	26.42 (22.85-30.57)
	Both	60	205	430	245	940	880	2.26 (1.72-2.93)	6.55 (5.67-7.53)	36.82 (33.4-40.51)	95.01 (82.26-109.45)	23.68 (21.85-25.67)	29.46 (27.15-31.99)
Pacific Peoples	Female	25	185	330	155	695	670	1.25 (0.8-1.86)	7.07 (6.07-8.18)	36.27 (32.45-40.41)	48.34 (40.79-57.01)	17.85 (16.46-19.35)	22.33 (20.57-24.23)
	Male	30	70	130	175	405	375	1.6 (1.1-2.27)	3.05 (2.38-3.87)	14.93 (12.45-17.76)	71.22 (60.26-83.81)	13.91 (12.4-15.61)	17.24 (15.32-19.38)
	Both	55	255	460	330	1100	1045	1.43 (1.08-1.86)	5.21 (4.59-5.9)	25.82 (23.51-28.3)	57.98 (51.58-65.03)	15.78 (14.77-16.85)	19.65 (18.38-21.02)
Indian	Female	10	50	120	55	240	230	2.41 (1.1-4.59)	5.74 (4.24-7.62)	33.71 (27.95-40.32)	54.26 (40.3-72.07)	17.64 (15.27-20.39)	21.75 (18.78-25.21)
	Male	5	40	70	25	145	135	1.62 (0.65-3.37)	5.19 (3.73-7.04)	19.66 (15.3-24.92)	27.14 (16.65-42.85)	10.57 (8.71-12.92)	12.99 (10.64-15.95)
	Both	15	95	190	80	380	365	1.99 (1.13-3.24)	5.48 (4.41-6.74)	26.7 (23.03-30.8)	41.85 (32.61-53.24)	14.25 (12.7-16.01)	17.56 (15.61-19.77)
Other Asian	Female	10	65	135	70	280	270	1.82 (0.83-3.48)	5.47 (4.21-7.01)	21.73 (18.2-25.78)	40.78 (31.49-52.11)	12.89 (11.32-14.67)	15.88 (13.91-18.11)
	Male	10	20	60	75	165	155	2.3 (1.19-4.03)	2.24 (1.33-3.57)	12.85 (9.8-16.57)	52.59 (41.02-66.59)	10.94 (9.24-12.91)	13.28 (11.15-15.74)
	Both	20	80	195	145	445	425	2.07 (1.28-3.17)	4.24 (3.37-5.27)	17.9 (15.47-20.62)	46.18 (38.73-54.71)	12.17 (10.99-13.46)	14.89 (13.42-16.51)
Other	Female	35	320	1145	1330	2835	2800	1.99 (1.39-2.76)	7.6 (6.79-8.49)	39.58 (37.32-41.95)	77.54 (73.42-81.82)	22.59 (21.76-23.45)	28.16 (27.11-29.23)
	Male	50	195	665	1360	2275	2220	2.72 (2.03-3.57)	5.24 (4.53-6.03)	22.84 (21.14-24.66)	97.1 (91.98-102.43)	20.14 (19.31-20.99)	24.84 (23.81-25.91)
	Both	90	515	1810	2690	5110	5020	2.37 (1.9-2.91)	6.48 (5.93-7.06)	31.25 (29.83-32.73)	85.78 (82.57-89.09)	21.21 (20.63-21.81)	26.3 (25.58-27.05)
Total	Female	95	745	2030	1750	4620	4525	1.66 (1.35-2.03)	7.02 (6.53-7.55)	37.42 (35.8-39.08)	71.51 (68.2-74.94)	21.02 (20.42-21.64)	26.25 (25.49-27.03)
	Male	140	405	1060	1745	3350	3210	2.28 (1.92-2.69)	4.46 (4.04-4.92)	20.73 (19.5-22.01)	88.94 (84.75-93.3)	18.21 (17.58-18.85)	22.51 (21.72-23.32)
	Both	240	1150	3090	3495	7970	7735	1.98 (1.74-2.25)	5.85 (5.51-6.2)	29.33 (28.3-30.38)	78.86 (76.25-81.54)	19.56 (19.13-20)	24.3 (23.76-24.86)

*The number of people with cancer is rounded to the nearest 5.

Estimates of number and prevalence of cancer are derived from an algorithm based on diagnosis or treatment for cancer in the last 5 years.

3.2.8 Asthma

This analysis is focussed on people aged <45 years in order to avoid overlap with Chronic Obstructive Pulmonary Disease (COPD) diagnoses (see subsequent section). This means there will be people with asthma older than 45 years of age who are not accounted for in this analysis.

In 2009 there were approximately 34,000 people aged <45 years identified as having asthma[23] living in the CMDHB region. The age-standardised prevalences for asthma in CMDHB were 140 per 1,000 population (95% CI 138.0-142.2) for the 0-14 year age group and 84 per 1,000 population (95% CI 82.8-85.0) for the 15-44 year age group. As shown in Figure 26, prevalences were higher amongst Maaori (more than 100 per 1,000 population). In 2009, approximately one in six Maaori aged 0-14 years, and one in ten Maaori aged 15-44 years, living in the CMDHB region were identified as having asthma.

By locality, child asthma prevalence ranged from 154 per 1,000 population in Manurewa to 117 per 1,000 population in the Franklin area. Asthma prevalence in the 15 to 44 year age group ranged from 100 per 1,000 population in Papakura to 69 per 1,000 population in Otara (Figure 27). By volume, approximately one fifth of people identified as having asthma were resident in Howick with another fifth resident in Manurewa (Table 43).

Figure 26 Age standardised prevalence of asthma in CMDHB by ethnic groups, gender and age, 2009
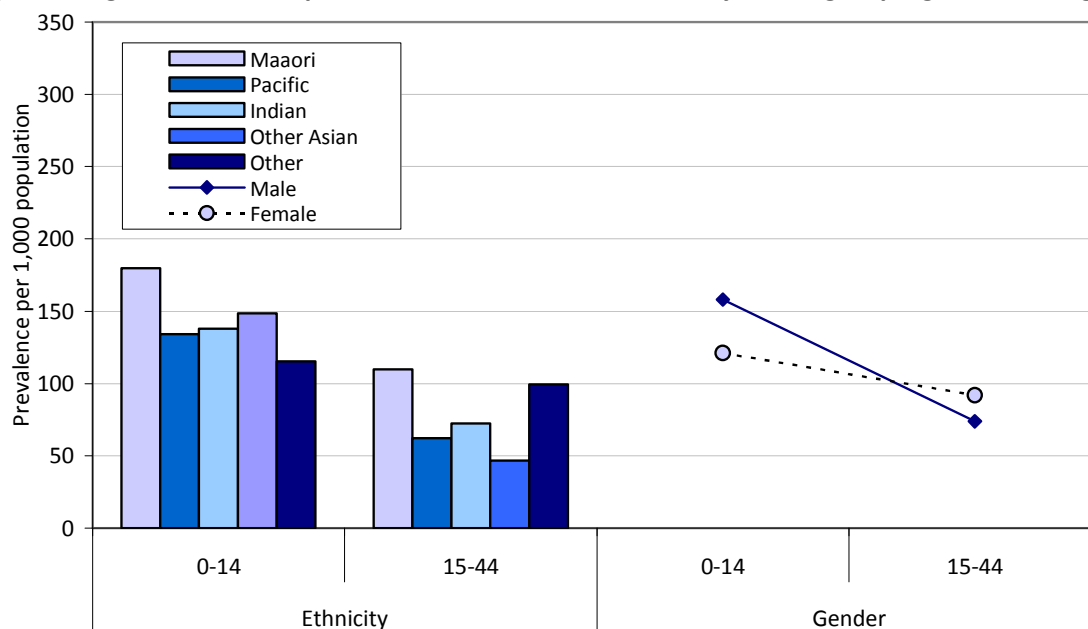
Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

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[23] Estimates of number and prevalence of asthma are derived from an algorithm based on a diagnosis of asthma in hospitalisation data (years 2000-2009) and/or pharmaceutical information indicating dispensing of two or more scripts for asthma-specific medications (years 2005-2009).

Figure 27 Age standardised prevalence of asthma in CMDHB by residential locality, 2009, age groups 0-14 years and 15-44 years
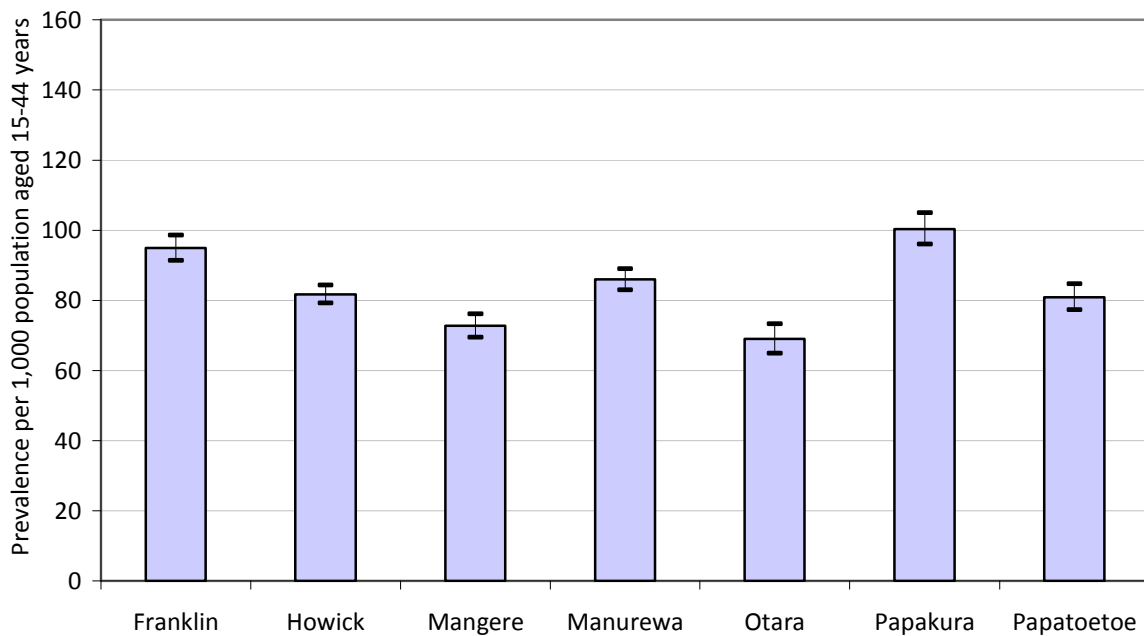
*Error bars indicate 95% confidence intervals
Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

Table 43 Estimates of number of people with asthma and age standardised prevalence in CMDHB by residential locality, 2009

Locality	Prevalence per 1,000 population aged 0-14 years	Prevalence per 1,000 population aged 15-44 years	Number of residents aged <45 years with asthma	Percentage of all CMDHB residents aged <45 years with asthma
Franklin	116.67	94.94	4850	14.2%
Howick	137.87	81.75	7375	21.6%
Mangere	140.03	72.74	4685	13.7%
Manurewa	154.28	85.99	6935	20.3%
Otara	137.53	69.02	2785	8.2%
Papakura	148.57	100.37	3725	10.9%
Papatoetoe	142.18	80.94	3745	11.0%

Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

Table 44 Estimates of number of people with asthma and age standardised prevalence by ethnic group, gender and age, CMDHB 2009

Ethnic group	Gender	Number of people with asthma*			Asthma prevalence per 1,000 population (95% CI)	
		0-14y	15-44y	0-44y	0-14y	15-44y
Maaori	Female	2065	2395	4460	157.69 (150.89-164.72)	128.34 (123.18-133.67)
	Male	2805	1325	4130	200.25 (192.84-207.88)	86.72 (82.03-91.62)
	Both	4870	3720	8590	179.61 (174.55-184.78)	109.96 (106.41-113.62)
Pacific Peoples	Female	2400	1960	4360	119.51 (114.75-124.42)	71.53 (68.37-74.81)
	Male	3110	1285	4395	148.09 (142.9-153.42)	51.61 (48.8-54.56)
	Both	5510	3245	8755	134.07 (130.53-137.68)	62.33 (60.18-64.54)
Indian	Female	435	650	1085	111 (100.72-122.07)	73.95 (68.27-80)
	Male	705	565	1270	162.36 (150.52-174.9)	70.4 (64.69-76.49)
	Both	1135	1215	2350	137.93 (129.98-146.25)	72.41 (68.36-76.65)
Other Asian	Female	600	480	1080	124.05 (114.3-134.42)	43.05 (39.26-47.12)
	Male	895	435	1330	171.13 (160.09-182.75)	51.18 (46.44-56.28)
	Both	1495	915	2410	148.54 (141.09-156.28)	46.75 (43.76-49.88)
Other	Female	1765	4405	6170	97.08 (92.6-101.72)	108.36 (105.17-111.62)
	Male	2535	3310	5845	132.74 (127.62-138.01)	89.43 (86.39-92.54)
	Both	4300	7715	12015	115.36 (111.93-118.86)	99.43 (97.22-101.69)
Total	Female	7255	9895	17150	121.02 (118.24-123.85)	92.07 (90.26-93.9)
	Male	10050	6915	16965	158.13 (155.04-161.26)	73.88 (72.14-75.65)
	Both	17305	16810	34115	140.08 (137.99-142.19)	83.75 (82.49-85.03)

*The number of people with asthma is rounded to the nearest 5.

Estimates of number and prevalence of asthma are derived from an algorithm based on a diagnosis of asthma in hospitalisation data (years 2000-2009) and/or pharmaceutical information indicating dispensing of two or more scripts for asthma-specific medications (years 2005-2009).

3.2.9 Chronic pulmonary disease

Chronic pulmonary disease (CPD) is defined in this analysis by an algorithm [24] which incorporates a range of chronic conditions (e.g. chronic obstructive pulmonary disease, asthma or bronchitis in those aged ≥55 years, cystic fibrosis, bronchiectasis, pulmonary heart disease, and other chronic pulmonary conditions). *Often health analyses refer to COPD alone, and it is important to note this analysis utilises a broader categorisation.* In addition, note this algorithm does not capture people aged <55 years with asthma or bronchitis.

In 2009 there were approximately 15,600 people identified as having chronic pulmonary disease (CPD) living in the CMDHB region. The age-standardised prevalence for CPD in CMDHB was 39 per 1,000 population (95% CI 38.4-39.6). As shown in Figure 28, prevalences were highest amongst Maaori, followed by Pacific Peoples and those of Indian ethnicity. This reflects in part smoking rates in these populations. Prevalence of CPD was particularly high amongst the 65 years and over age group and females appeared to have slightly higher prevalence than males. Note that people with asthma aged <55 years are captured in the asthma prevalence algorithm (and not in the CPD algorithm).

By locality, Otara, Mangere, and Manurewa had the highest prevalence of CPD, Papatoetoe and Papakura followed in the middle, and Franklin and Howick had the lowest prevalence of CPD (Figure 29). By volume, the largest percentages of people identified as having CPD were resident in Howick, Manurewa, and Franklin (Table 45).

Figure 28 Age standardised prevalence of CPD in CMDHB by ethnic groups, gender and age, 2009
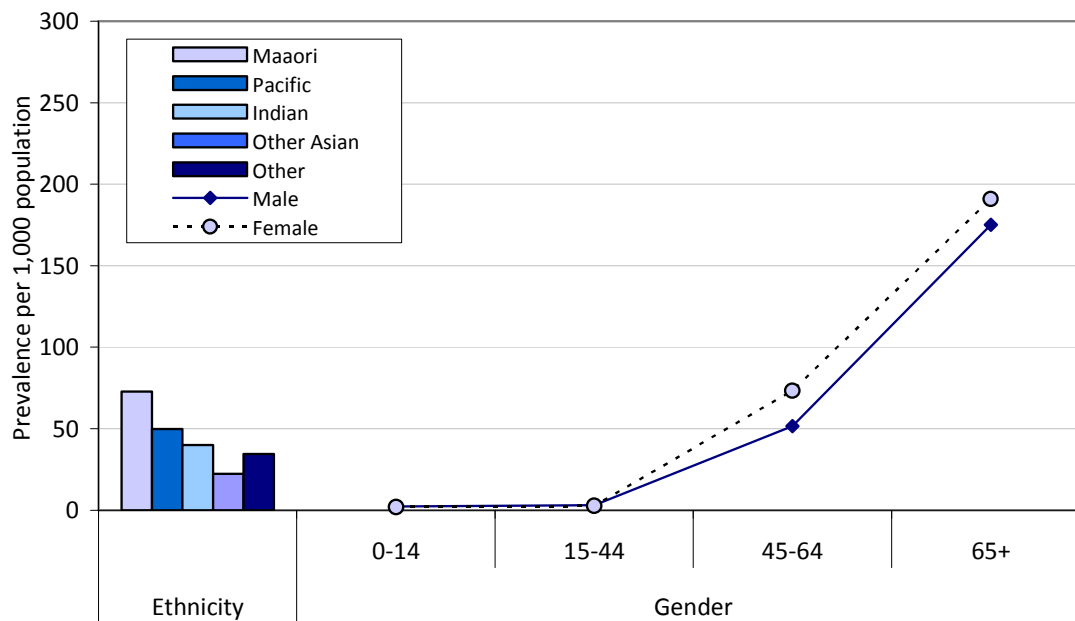
Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

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[24] Estimates of number and prevalence of CPD are derived from an algorithm based on a diagnosis or procedure related to CPD in NMDS hospitalisation data (years 2000-2009) excluding asthma and bronchitis if age <55 years, and/or pharmaceutical information indicating dispensing of two or more scripts for CPD-specific medications (years 2005-2009) excluding people aged <55 years.

Figure 29 Age standardised prevalence of CPD in CMDHB by residential locality, 2009

*Error bars indicate 95% confidence intervals
Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

Table 45 Estimates of number of people with CPD and age standardised prevalence in CMDHB by residential locality, 2009

Locality	Prevalence per 1,000 population	Number of residents with CPD	Percentage of all CMDHB residents with CPD living in this locality
Franklin	35.04	2680	17.2%
Howick	29.13	3480	22.3%
Mangere	49.01	2010	12.9%
Manurewa	47.17	2750	17.7%
Otara	50.98	1065	6.8%
Papakura	41.83	1710	11.0%
Papatoetoe	44.71	1855	11.9%

Sources: Ministry of Health National Collections (NMDS, Pharms)

Table 46 Estimates of number of people with CPD and age standardised prevalence by ethnic group, gender and age, CMDHB 2009

Ethnic group	Gender	Number of people with CPD*					CPD prevalence per 1,000 population (95% CI)				
		0-14y	15-44y	45-64y	65+y	Total	0-14y	15-44y	45-64y	65+y	Total
Maaori	Female	25	95	835	560	1515	1.8 (1.15-2.71)	5.72 (4.63-7)	142.78 (133.23-152.83)	369.38 (336.84-404.62)	82.06 (77.41-86.98)
	Male	30	85	480	315	910	2.2 (1.48-3.15)	6.17 (4.93-7.65)	97.15 (88.62-106.29)	284.33 (249.15-323.81)	61.05 (56.21-66.33)
	Both	55	185	1315	875	2430	2.01 (1.5-2.63)	5.92 (5.08-6.85)	122.06 (115.53-128.86)	332.86 (308.73-358.62)	72.77 (69.4-76.32)
Pacific Peoples	Female	65	105	725	675	1570	3.27 (2.51-4.19)	3.92 (3.21-4.76)	84.9 (78.83-91.32)	221.51 (204.58-239.56)	49.71 (47.15-52.4)
	Male	75	105	550	605	1335	3.7 (2.91-4.64)	4.61 (3.76-5.59)	67.13 (61.62-72.99)	261.51 (239.55-285.12)	50.74 (47.71-53.96)
	Both	140	210	1275	1280	2905	3.49 (2.93-4.13)	4.25 (3.69-4.87)	76.23 (72.09-80.54)	237.77 (224.29-251.9)	49.81 (47.87-51.83)
Indian	Female	5	10	210	195	420	1.51 (0.55-3.35)	1.39 (0.71-2.47)	62.42 (54.22-71.51)	199.15 (170.35-231.83)	40.16 (36.06-44.67)
	Male	10	10	200	170	385	2.16 (0.99-4.11)	1.42 (0.71-2.56)	61.81 (53.49-71.06)	194.22 (162.98-230.42)	39.56 (35.18-44.47)
	Both	15	25	405	360	805	1.86 (1.04-3.08)	1.42 (0.9-2.14)	62.11 (56.21-68.46)	197.36 (175.9-220.97)	39.95 (36.93-43.2)
Other Asian	Female	-	10	165	200	380	-	0.8 (0.36-1.54)	30.29 (25.85-35.27)	110.9 (95.55-128.2)	21.21 (19.02-23.62)
	Male	5	10	145	185	345	1.33 (0.53-2.77)	1.09 (0.5-2.11)	32.25 (27.21-37.95)	124.67 (106.67-145.03)	23.69 (21.13-26.51)
	Both	10	20	310	385	725	0.89 (0.4-1.69)	0.93 (0.55-1.48)	31.11 (27.74-34.77)	117.16 (105.32-130.06)	22.33 (20.65-24.13)
Other	Female	25	70	1965	3075	5130	1.27 (0.8-1.9)	1.65 (1.28-2.09)	65.23 (62.38-68.18)	179.81 (173.5-186.3)	38.52 (37.47-39.6)
	Male	30	70	1250	2220	3565	1.47 (0.98-2.13)	1.94 (1.51-2.45)	41.22 (38.97-43.58)	157.32 (150.81-164.04)	30.21 (29.22-31.23)
	Both	50	140	3215	5290	8695	1.37 (1.02-1.8)	1.78 (1.5-2.11)	53.19 (51.37-55.07)	168.44 (163.93-173.04)	34.34 (33.62-35.07)
Total	Female	120	290	3900	4700	9015	1.99 (1.65-2.38)	2.75 (2.44-3.08)	73.21 (70.93-75.54)	190.99 (185.57-196.54)	42.42 (41.54-43.3)
	Male	150	285	2620	3495	6545	2.39 (2.02-2.81)	3.09 (2.74-3.47)	51.51 (49.55-53.52)	175.04 (169.19-181.05)	35.52 (34.64-36.41)
	Both	265	575	6525	8195	15560	2.19 (1.94-2.48)	2.91 (2.67-3.15)	62.6 (61.09-64.14)	182.94 (178.98-186.98)	39.01 (38.4-39.64)

*The number of people with CPD is rounded to the nearest 5. A dash is used where numbers are too small to give an accurate estimate and to protect confidentiality of individuals. Estimates of number and prevalence of CPD are derived from an algorithm based on a diagnosis or procedure related to CPD in NMDS hospitalisation data (years 2000-2009) excluding asthma and bronchitis if age <55 years, and/or pharmaceutical information indicating dispensing of two or more scripts for CPD-specific medications (years 2005-2009) excluding people aged <55 years.

3.2.10 Epilepsy

In 2009 there were approximately 7,100 people identified as having epilepsy[25] living in the CMDHB region. The age-standardised prevalence for epilepsy in CMDHB was 16 per 1,000 population (95% CI 16.0-16.7). As shown in Figure 30, prevalences were highest amongst Maaori and Other ethnic groups. Prevalence of epilepsy increased with increasing age. Male and female prevalence proportions were similar.

By locality, epilepsy prevalence ranged from 12 per 1,000 in Otara to 20 per 1,000 in the Papakura area (Figure 31). By volume, one quarter of people identified as having epilepsy were resident in Howick, with a further 19% resident in Franklin, and 18% in Manurewa (Table 47).
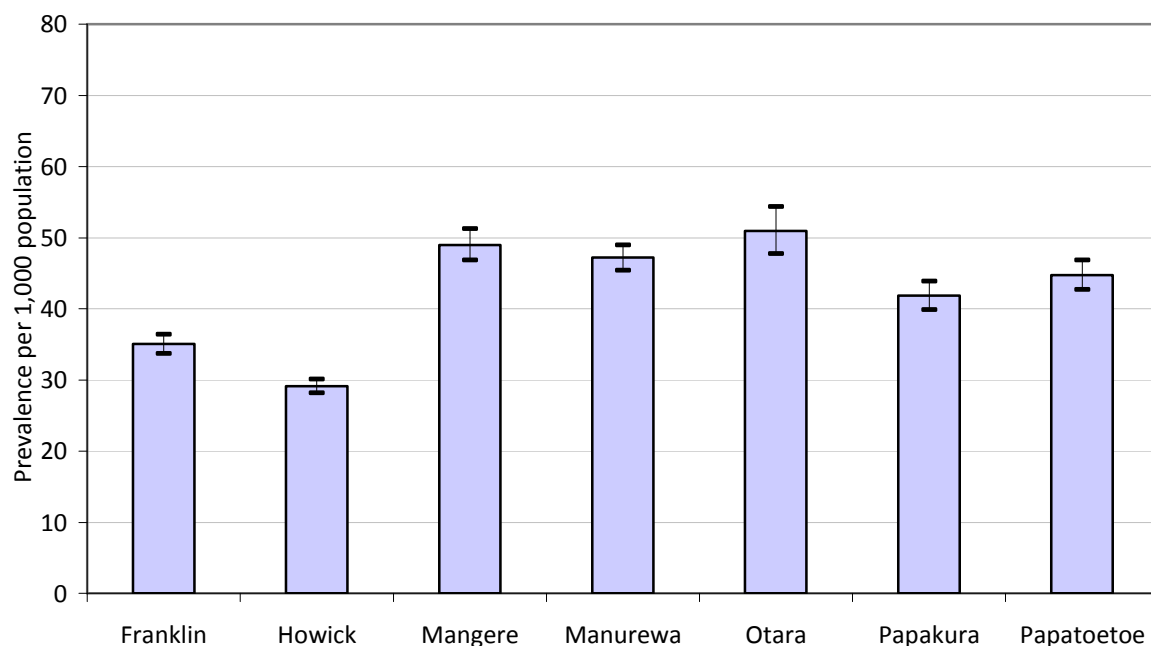
Figure 30 Age standardised prevalence of epilepsy in CMDHB by ethnic groups, gender and age, 2009
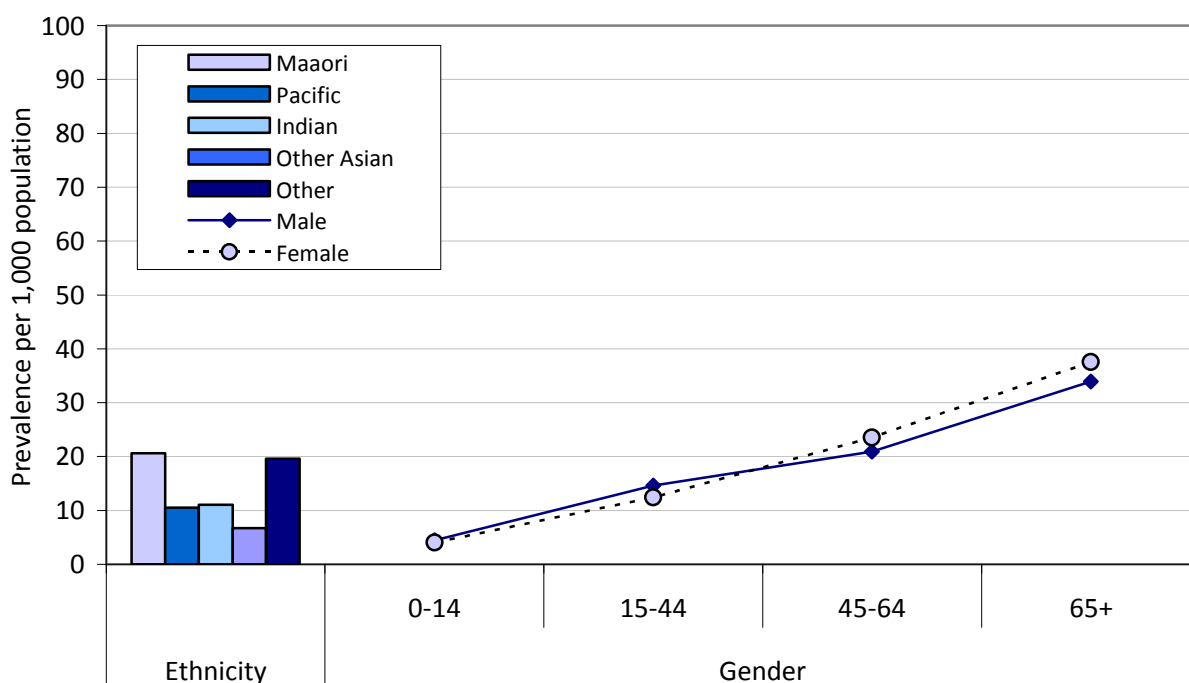
Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

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[25] Estimates of number and prevalence of epilepsy are derived from an algorithm based on a diagnosis or procedure related to epilepsy in NMDS hospitalisation data (years 2000-2009) and pharmaceutical information indicating dispensing of two or more scripts for antiepilepsy medications (years 2005-2009).

Figure 31 Age standardised prevalence of epilepsy in CMDHB by residential locality, 2009
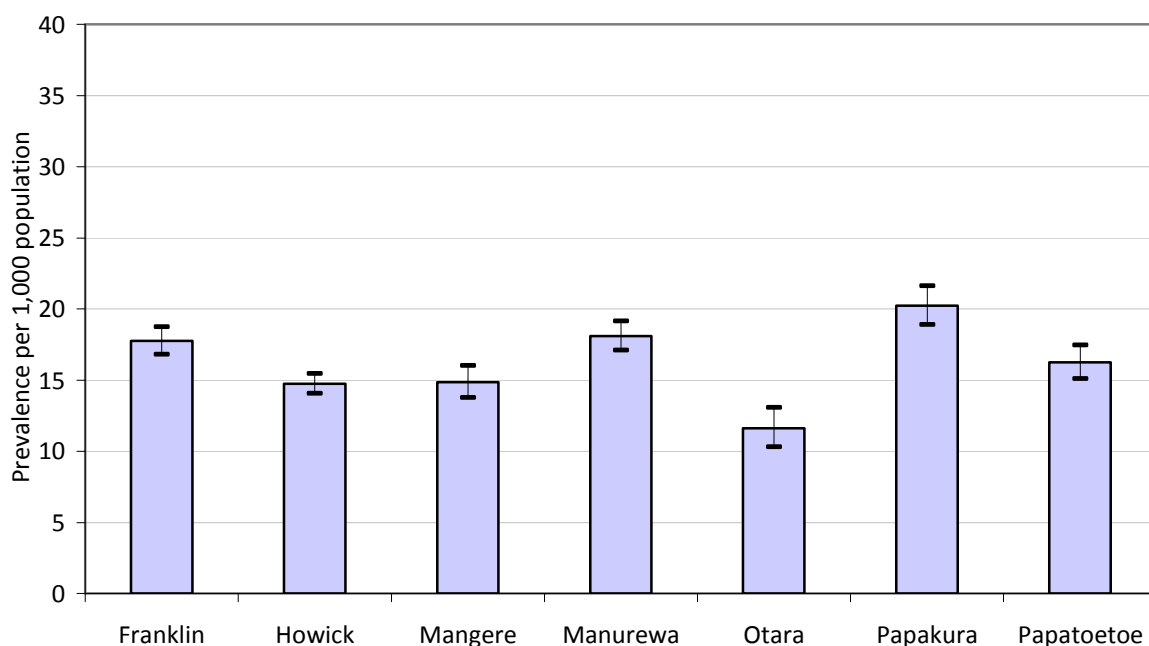
*Error bars indicate 95% confidence intervals
Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB*

Table 47 Estimates of number of people with epilepsy and age standardised prevalence in CMDHB by residential locality, 2009

Locality	Prevalence per 1,000 population	Number of residents with epilepsy	Percentage of all CMDHB residents with epilepsy living in this locality
Franklin	17.75	1325	18.6%
Howick	14.75	1760	24.7%
Mangere	14.86	760	10.7%
Manurewa	18.10	1300	18.2%
Otara	11.61	340	4.8%
Papakura	20.22	875	12.3%
Papatoetoe	16.25	765	10.7%

Sources: Ministry of Health National Collections (NMDS, Pharms), analysed by CMDHB

Table 48 Estimates of number of people with epilepsy and age standardised prevalence by ethnic group, gender and age, CMDHB 2009

Ethnic group	Gender	Number of people with epilepsy*					Epilepsy prevalence per 1,000 population (95% CI)				
		0-14y	15-44y	45-64y	65+y	Total	0-14y	15-44y	45-64y	65+y	Total
Maaori	Female	70	305	185	50	605	5.5 (4.27-6.99)	17 (15.12-19.05)	27.54 (23.68-31.87)	32.52 (23.38-44.55)	18.97 (17.24-20.95)
	Male	70	335	170	45	620	5.17 (4.03-6.54)	23.36 (20.88-26.06)	30.39 (25.97-35.39)	35.8 (24.53-51.55)	22.7 (20.58-25.2)
	Both	140	640	355	90	1225	5.33 (4.47-6.3)	19.83 (18.3-21.45)	28.81 (25.87-32.01)	34 (26.71-42.99)	20.63 (19.28-22.12)
Pacific Peoples	Female	65	225	120	60	465	3.3 (2.54-4.23)	8.2 (7.15-9.37)	12.66 (10.47-15.18)	20.83 (15.83-27.02)	9.77 (8.81-10.84)
	Male	80	280	105	55	520	3.93 (3.11-4.9)	11.62 (10.29-13.08)	11.64 (9.49-14.14)	23.32 (17.15-31.21)	11.42 (10.3-12.69)
	Both	145	505	220	115	985	3.62 (3.05-4.27)	9.78 (8.94-10.69)	12.15 (10.6-13.88)	21.92 (17.95-26.57)	10.53 (9.79-11.32)
Indian	Female	15	50	45	35	150	4.4 (2.56-7.09)	5.91 (4.38-7.82)	12.88 (9.42-17.22)	35.74 (24.4-51.1)	10.9 (9.04-13.15)
	Male	10	80	55	20	165	2.6 (1.29-4.68)	9.7 (7.66-12.13)	15.57 (11.74-20.3)	22.39 (12.65-37.6)	11.15 (9.29-13.48)
	Both	30	130	100	55	315	3.46 (2.29-5.01)	7.77 (6.48-9.25)	14.23 (11.59-17.31)	29.64 (21.76-39.75)	11.07 (9.73-12.62)
Other Asian	Female	10	55	50	30	145	2.51 (1.3-4.4)	4.77 (3.57-6.27)	8.34 (6.2-11.01)	16.95 (11.33-24.6)	6.63 (5.55-7.91)
	Male	10	55	45	15	130	2.1 (1.05-3.78)	6.6 (4.95-8.64)	9.69 (7.09-12.96)	11.17 (6.34-18.52)	6.94 (5.75-8.37)
	Both	25	105	95	50	275	2.3 (1.46-3.46)	5.51 (4.52-6.66)	8.94 (7.24-10.92)	14.3 (10.41-19.29)	6.72 (5.92-7.63)
Other	Female	75	695	880	740	2390	4.04 (3.16-5.08)	16.85 (15.62-18.16)	30.8 (28.8-32.91)	42.92 (39.88-46.14)	20.65 (19.82-21.51)
	Male	105	595	700	540	1935	5.43 (4.43-6.58)	15.99 (14.72-17.34)	24.68 (22.88-26.59)	38.2 (35.03-41.58)	18.54 (17.71-19.4)
	Both	175	1290	1580	1280	4325	4.75 (4.07-5.51)	16.44 (15.55-17.36)	27.75 (26.4-29.16)	40.75 (38.54-43.04)	19.63 (19.04-20.23)
Total	Female	235	1325	1280	915	3760	4.01 (3.51-4.56)	12.42 (11.76-13.11)	23.53 (22.26-24.85)	37.55 (35.16-40.07)	16.36 (15.84-16.9)
	Male	275	1340	1075	675	3365	4.43 (3.92-4.99)	14.61 (13.84-15.42)	20.94 (19.71-22.23)	33.9 (31.35-36.61)	16.32 (15.77-16.9)
	Both	510	2670	2355	1590	7125	4.23 (3.87-4.61)	13.43 (12.92-13.95)	22.27 (21.38-23.19)	35.91 (34.16-37.73)	16.34 (15.96-16.73)

*The number of people with epilepsy is rounded to the nearest 5.

Estimates of number and prevalence of epilepsy are derived from an algorithm based on a diagnosis or procedure related to epilepsy in NMDS hospitalisation data (years 2000-2009) and pharmaceutical information indicating dispensing of two or more scripts for antiepilepsy medications (years 2005-2009).

3.2.11 Serious Mental Illness

As noted previously, an algorithm was developed to estimate the prevalence of serious mental health conditions, in particular psychosis, schizophrenia, major mood and anxiety disorders, substance use disorders and eating disorders; however initial results were not consistent with current understanding from national surveys of the distribution of these conditions in the population. Hence these results are not included. However results from Te Rau Hinengaro, The New Zealand Mental Health Survey 2006[26], give an indication of what could be anticipated.

Prevalence of mental disorder is higher for people who are disadvantaged, whether measured by educational qualification, household income or using the small area index of deprivation (NZDep2001). In relation to ethnic group, the prevalence of disorder in any period is higher for Maaori and Pacific peoples than for others. Much of this burden appears to be because of the youthfulness of the Maaori and Pacific populations and their relative socioeconomic disadvantage.

This means prevalence of serious mental illness is likely to be higher in those localities with higher levels of socioeconomic deprivation and higher proportions of Maaori and Pacific peoples, i.e. Otara, Mangere, Manurewa and Papakura.

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[26] Oakley Browne MA, Wells JE, Scott KM (eds). 2006. *Te Rau Hinengaro – The New Zealand Mental Health Survey: Summary.* Wellington: Ministry of Health

3.3 Health behaviours and risk factors

Of the population health behaviours that protect or add to risks to health, two variables are available from the New Zealand Census 2006, smoking and active commuting. Unfortunately information about other important health behaviours such as other physical activity, nutrition and alcohol use is not available at small area level; neither are related risk factors such as obesity. However, to give an indication of the size of the issues for locality planning, estimations are provided in this document based on prevalence figures from the most recent New Zealand Health Survey.

An important limitation of this approach is it applies the prevalences from 2006/07 to the current population, whereas those prevalences may have actually increased or decreased in the meantime. In addition while the overall DHB prevalence was directly derived from the survey sample, the ethnic specific prevalences at DHB level were modelled (and so are more vulnerable to assumptions which may not hold), and yet because of the distribution of the CMDHB population in localities by ethnicity, these figures are important in estimating prevalence for each locality. Hence the figures given need to be clearly seen as indicative, but do highlight the extent of these issues for the CMDHB population and their localities of residence.

3.3.1 Smoking

Tobacco smoking remains a leading preventable cause of premature mortality and disease throughout New Zealand, and is a major contributor to health inequalities amongst Maaori communities[27]. There have been increased efforts in the last two years to reduce smoking rates and smoking-related illness, with the Maaori Affairs Select Committee into the effects of tobacco on Maaori prompting a call for a smokefree Aotearoa by 2025[28].

Questions on smoking were asked in the 1996 and 2006 Censuses and are planned for the 2013 Census. Within CMDHB the number of people using tobacco declined slightly from 25% of the adult population in 1996 to 22% in 2006. However, due to population growth there was an overall increase between 1996 and 2006 of 9,000 people who smoke tobacco regularly.

While the percentages of regular smokers among the adult population were lower in Howick, Franklin and Otara, more than one quarter of adults in the other CMDHB localities responded they were regular smokers. The highest proportion was in the Papatoetoe area where one third of adults were regular tobacco smokers. The lower percentages of those smoking in Howick and Franklin localities reflects the ethnicity of the resident

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[27] Ministry of Health. 2011. *Māori smoking and tobacco use 2011*. Wellington: Ministry of Health; Te Ohu Rata o Aotearoa. 2011. *Te Ara Hiringa. Strategic Plan for the National Māori Tobacco Control Service 2011-2016*. Available at www.teora.maori.nz

population, with much higher smoking rates in Maaori and also higher in Pacific peoples than European/Other groups.

Table 49 CMDHB residents smoking tobacco regularly, 1996 and 2006 by residential locality

Locality	Number of smokers		Percentage of population aged 15 years & over	
	1996	2006	1996	2006
Howick	9,710	12,140	15%	13%
Mangere	10,860	12,250	32%	29%
Otara	5,530	5,320	26%	22%
Papatoetoe	10,530	11,880	35%	33%
Manurewa	12,880	16,670	31%	28%
Papakura	7,610	8,520	28%	28%
Franklin	10,460	10,730	23%	20%
CMDHB	**66,220***	**75,070***	**25%**	**22%**

Source: SNZ Census 2006, analysed by CMDHB
* Total numbers may not match to the subtotals due to rounding.

Figure 32 CMDHB smoking numbers and percentages by residential locality, 1996 and 2006
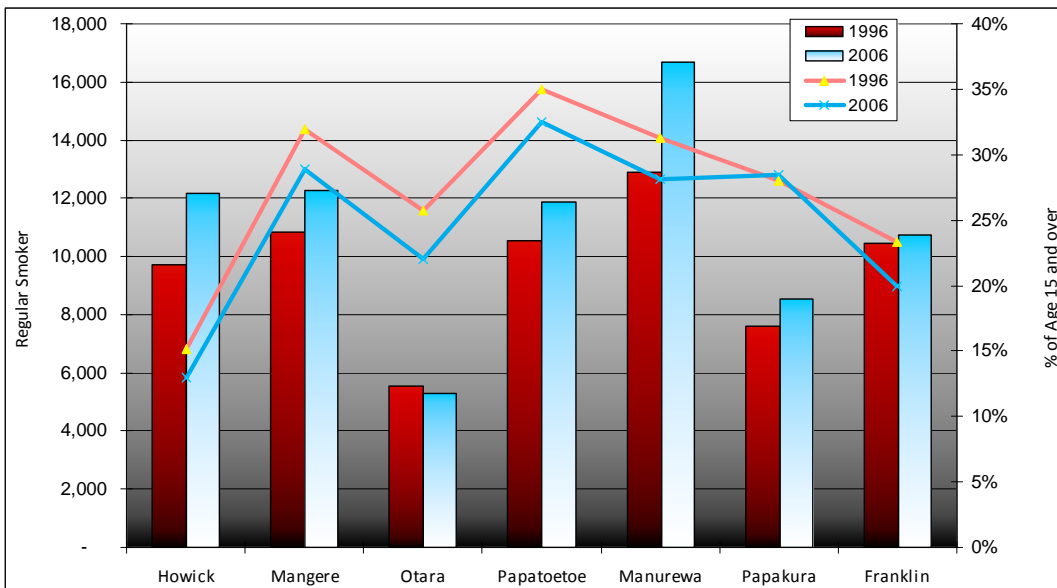
Source: SNZ Census 2006, analysed by CMDHB

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[28] Māori Affairs Committee. 2010. *Inquiry into the tobacco industry n Aotearoa and the consequences of tobacco use for Māori.* Wellington: House of Representatives.

3.3.2 Active commuting

Using active methods of getting to the workplace can be a very useful addition to a person's daily physical activity. Additional co-benefits include reductions in traffic congestion and air pollution.

Within CMDHB the number of people using trains, busses, walking or cycling as opposed to driving private vehicles has been declining since 1996. Only 15% of commuter journeys were made by these means in 2006, down from 18% in 1996. The localities with the highest percentages were Otara and Mangere, areas with relatively high usage of trains.

Table 50 CMDHB commuters using public transport, cycling or walking, 1996 to 2006 by residential locality

Locality	Number of active commuters			Percentage active commuters		
	1996	2001	2006	1996	2001	2006
Howick	3,690	3,580	5,030	12%	10%	11%
Mangere	3,350	2,960	3,040	28%	24%	21%
Otara	2,370	1,990	1,770	33%	29%	23%
Papatoetoe	2,670	2,450	2,710	21%	20%	19%
Manurewa	3,820	3,420	3,870	20%	16%	15%
Papakura	2,640	2,210	2,490	20%	17%	17%
Franklin	2,860	2,590	2,930	14%	12%	11%
CMDHB	21,400	19,210	21,830	18%	16%	15%

Source: SNZ Census 2006, analysed by CMDHB

3.3.3 Overweight and obesity

Obesity is the main preventable cause of Type 2 diabetes and is also linked with heart disease, some forms of cancer and arthritis, and hypertension (which can lead to strokes and heart attacks). Childhood obesity is associated with a number of serious medical conditions in childhood and increases the likelihood of obesity and its related health problems in adult life. Losing 5 – 10% of initial body weight can bring significant health benefits for those who are obese.

As noted (at the beginning of Section 3.3), the figures given here for the potential number of people in each locality who are overweight and obese need to be clearly seen as indicative because of limitations in the approach used to calculate the numbers. However the figures do highlight the extent of these issues for the CMDHB population and their localities of residence.

According to the 2006/07 New Zealand Health Survey 34% of adults in Counties Manukau were overweight and 33% were obese (very overweight)[29]. Just under six percent of adults were extremely obese (BMI of 40 or over). Of children aged 5 – 14 years in Counties Manukau, 12.7% were obese. Nationally a further 20% of children were overweight (this figure is not available specifically for Counties Manukau). The prevalence of obesity varied by ethnicity, crude estimates being calculated as 76% for Pacific adults, 50% for Maaori adults, 15% for Asian adults (if the standard BMI cutoff is used) and 31% for 'Other' adults in the CMDHB population. (The Asian percentage increases to 45% if the lower cutoff is used as per footnote 29). If these patterns have remained unchanged, there are potentially a total of 128,000 overweight and 124,000 obese adults in Counties Manukau, and 10,100 obese children.

Howick, Mangere and Manurewa would be the localities with the largest number of obese adults (Table 52) and Mangere and Otara the localities with the highest percentage of their population being classified as obese. The ethnicity mix of the populations effected in each locality varies, with indications given below.

Table 51 Potential number of overweight adults, by locality, based on 2006/07 prevalence applied to 2011 estimated population

Locality	Total number	Indication of ethnic mix[30]
Howick	39,900	Over half of these people likely to be in the 'Other' ethnic group and a third in Asian groups
Mangere	12,900	About 40% likely to be Pacific, rest spread across other ethnicities
Otara	6,700	About 50% likely to be Pacific, 20% Maaori.
Papatoetoe	12,900	About one third likely to be Asian, one third 'Other' group.
Manurewa	21,400	About 40-45% likely to be 'Other' ethnic group, rest spread across other ethnicities
Papakura	11,900	Over 60% likely to be 'Other' ethnic group, 20% Maaori.
Franklin	22,900	Over 80% of these people likely to be in the 'Other' ethnic group

These numbers will not add up exactly to totals because of rounding and the fact that modelled estimates are used for ethnicity specific estimates
Source: NZ Health Survey & SNZ Census 2006, analysed by CMDHB

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[29] In health risk terms, overweight and obesity are defined by Body Mass Index (BMI), which is calculated by dividing a person's weight in kilograms by their height in metres squared. Overweight is defined as having a BMI between 25 and 29.9 and obese as a BMI of 30 or over.
Some analyses use a cut off of a BMI of 25 or over as obese for Asian populations. The figures in these tables retain the standard definition of 30 or over for all populations to simplify the calculations.
[30] New Zealand Health Survey proportions cannot be directly applied as those results are total response ethnicity (people can appear in more than one category), but can be used to indicate the kind of mix likely

Table 52 Potential number of obese adults, by locality, based on 2006/07 prevalence applied to 2011 estimated population

Locality	Total number	Indication of ethnic mix
Howick	24,800	About 60% likely to be in the 'Other' ethnic group, 20% in the Asian groups (note this proportion would be higher if the lower cutoff were used for BMI for Asian groups as per footnote)
Mangere	22,300	About three quarters likely to be Pacific
Otara	13,300	About three quarters likely to be Pacific, and most of rest Maaori
Papatoetoe	12,800	About 45% likely to be Pacific, rest spread across other ethnicities
Manurewa	23,600	About 40% likely to be Pacific, 25% each Maaori and 'Other' groups
Papakura	10,500	About 45% likely to be 'Other' ethic group, a third Maaori.
Franklin	16,600	About three quarters likely to be in the 'Other' ethnic group

Source: NZ Health Survey & SNZ Census 2006, analysed by CMDHB

3.3.4 Hazardous alcohol consumption

Alcohol use is common; in the New Zealand Health Survey eight out of ten adults had had an alcoholic drink in the last 12 months. However results of the Survey suggested that 13% of adults in Counties Manukau were drinking in a way that put their physical or mental health at risk, 19% of men and 8% of women. If these patterns have remained unchanged, there are potentially a total of 49,900 adults drinking in a way which is hazardous to their health in Counties Manukau. Approximately 70% of those with hazardous drinking in each locality would be men, with Howick and Manurewa having the largest number of adults with hazardous drinking. The ethnicity mix of the populations effected in each locality varies, with indications given below.

Table 53 Estimated number of adults drinking in a way hazardous to their health, by locality, based on 2006/07 prevalence applied to 2011 estimated population

Locality	Total number	Approximate % of adult population of locality	Indication of ethnic mix
Howick	10,900	10	About 70% likely to be 'Other' ethnicities
Mangere	7,200	15	About 60% likely to be Pacific
Otara	4,200	16	About two thirds likely Pacific and rest mainly Maaori
Papatoetoe	4,800	12	Just under a third each likely to be Pacific, 'Other' and Maaori
Manurewa	9,600	15	35-40% likely to be Maaori, 30% each for Pacific and 'Other' ethnicities
Papakura	4,900	15	About half likely to be in 'Other' ethnic groups, a third Maaori.
Franklin	8,200	14	About three quarters likely to be in the 'Other' ethnic group

Source: NZ Health Survey & SNZ Census 2006, analysed by CMDHB

4 Health Services Utilisation

4.1 Hospitalisations

Admission to hospital is usually considered a negative indicator of health for communities – the lower the rate (assuming adequate access) the healthier the population is likely to be. Hospitalisation can be 'viewed' in a number of ways – the actual number of hospitalisations, the number of individuals admitted to hospital (some of them more than once), the number admitted from an area to any publicly funded facility/hospital bed in New Zealand, and the number to specific facilities (e.g. all CMDHB facilities or Middlemore Hospital specifically). The following sections present a range of these 'views' across the residential localities of CMDHB. In health data sets admissions are actually documented as discharges from hospital, hence the use of that term. Hospitalisations in public facilities funded by ACC are included in these figures.

Estimates of the number of hospitalisations for a population are very dependent on the definitions used. In the New Zealand National Minimum Data Set which records hospitalisations, discharges are recorded for people who have been seen and/or treated in a hospital for more than three hours (after which time they become what is termed a 'statistical admission'). After that time they may be discharged from an emergency department (or related area such as an acute observation unit) or a main hospital ward such as a medical or surgical ward. If they are in the hospital at midnight (the time of the 'midnight census') and stay longer than three hours, they are deemed to have been an inpatient, while people who are admitted and discharged between midnight censuses (e.g. admitted at 9 a.m. and discharged at 10 p.m.) are deemed to be daypatients. The analysis of discharges below includes both inpatients and daypatients. Numbers may differ from those found in other analyses depending on the detail of the definitions so it is important in making any comparisons to be clear about the parameters being compared.

In 2010 there were 108,760 hospitalisations (excluding well newborns) of CMDHB residents in publicly funded facilities/hospital beds in New Zealand, accounting for 324,400 bed days. Of these, 73,000 hospitalisations were at Middlemore Hospital, 11,400 at Manukau Super Clinic and 4,130 at other CMDHB facilities. This leaves approximately 20,000 hospitalisations for CMDHB residents at non-CMDHB facilities; approximately 14,250 of these were at ADHB facilities.

In the past decade CMDHB has developed significant community alternatives to acute mental health admissions. This has led to a low number of hospitalisations for the size of the CMDHB population and these admissions are not presented in the following analysis by locality.

4.1.1 Medical-Surgical-Emergency Care Hospitalisations

Of the 108,760 hospitalisations for CMDHB residents, just over 81,000 were discharged from medical-surgical-emergency care[31] specialities (the rest being maternity, mental health, and health of older people rehabilitation services). Manurewa had the most medical-surgical-emergency care hospitalisations overall (Figure 33), followed by Howick. Manurewa had the highest number in each age group until 65 yrs, after which Howick and also Franklin surpassed Manurewa.

Figure 33 CMDHB medical-surgical-emergency care hospitalisations by age, by residential locality, 2010
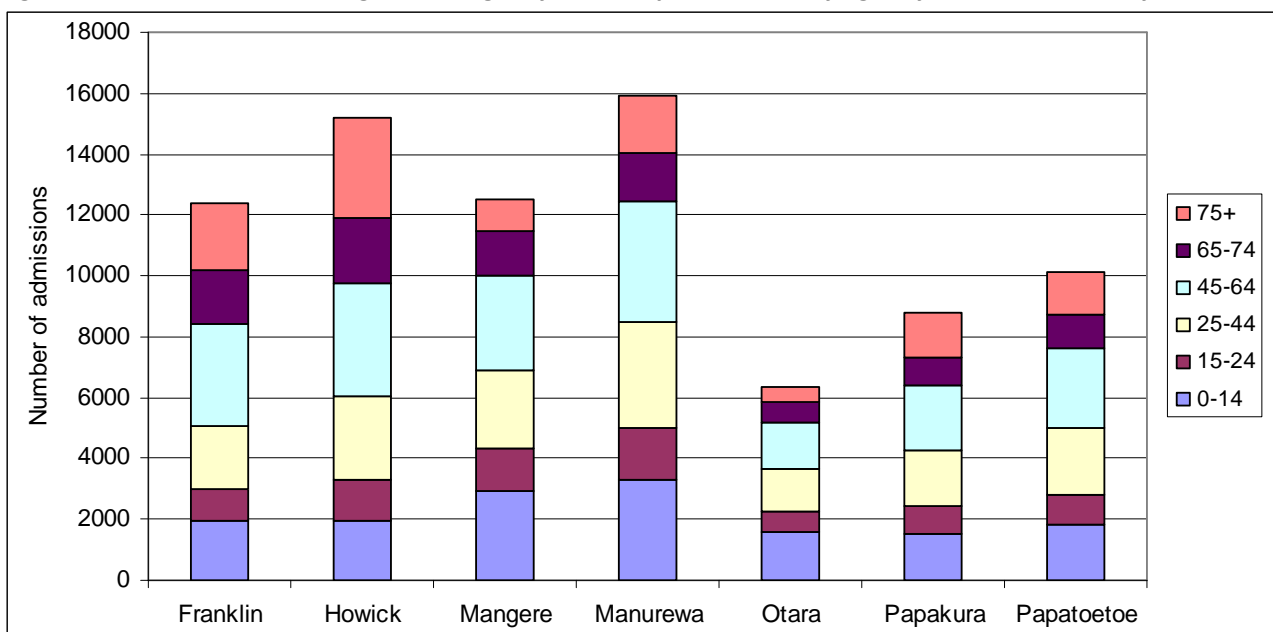
Source: Ministry of Health, NMDS, analysed by CMDHB

Each area has distinctive patterns of hospitalisations by ethnicity, as seen in Figure 34. Manurewa had the highest number of Maaori medical-surgical-emergency care hospitalisations in 2010 (4,400), while Mangere had the most Pacific (7,600), Papatoetoe the most Indian (1,500), and Howick the most Other Asian (2,000). Howick also had the most European/Other (10,550) although Franklin also had high numbers of this group (9,800).

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[31] People who are treated in emergency care for greater than three hours become a 'statistical admission'. They may be discharged from emergency care, or transferred to a ward and recorded as a discharge from the speciality of the ward (e.g. medicine or surgery)

Figure 34 CMDHB medical-surgical-emergency care hospitalisations by ethnicity, by residential locality, 2010
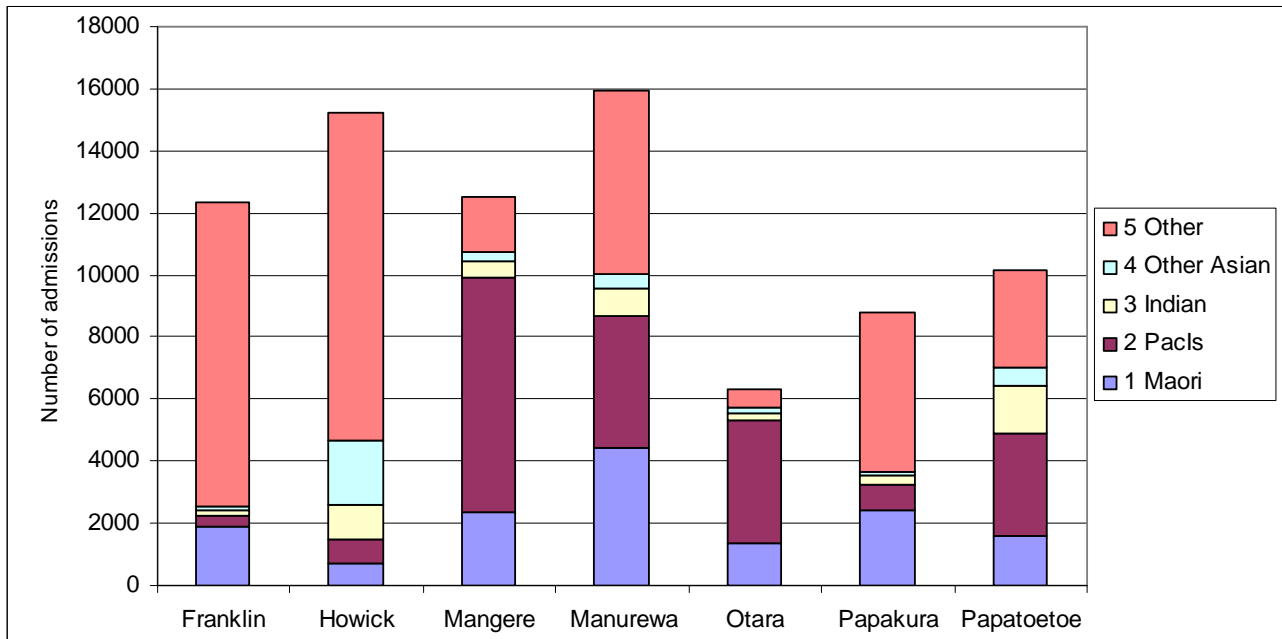
Source: Ministry of Health, NMDS, analysed by CMDHB

Of the 81,300 medical-surgical-emergency care hospitalisations for CMDHB residents in 2010, 58,500 were acute admissions[32] (72%), 51,250 of these to Middlemore Hospital.

Table 54 Number of acute medical-surgical-emergency care hospitalisations by age group, by residential locality, 2010

Locality	Age Group (years)						
	0-14	15-24	25-44	45-64	65-74	75+	total
Franklin	1239	802	1460	2114	1063	1471	8149
Howick	1332	1018	1921	2495	1340	2324	10430
Mangere	2294	1216	1993	2305	1062	830	9700
Manurewa	2436	1434	2674	2723	1108	1373	11748
Otara	1178	600	1072	1115	483	369	4817
Papakura	1062	755	1328	1443	563	985	6136
Papatoetoe	1363	888	1688	1827	736	1062	7564
Total	10904	6713	12136	14022	6355	8414	58544

Source: Ministry of Health, NMDS, analysed by CMDHB

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[32] This analysis counts acute hospitalisations only, not acute arranged hospitalisations as in some analyses of acute demand. Acute arranged admissions are those occurring within seven days of referral or presentation to the hospital.

The percentage which were acute admissions varies both by age-group and locality, ranging from 66% acute in Franklin to 77% in Mangere. The percentage which were acute admissions was lowest in the 55 – 84 and 5-14 yr age groups (65-68%).

Table 55 Proportion of medical-surgical-emergency care hospitalisations which were acute hospitalisations, by residential locality, 2010

Locality	Age group										
	0-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total
Franklin	66.1%	60.6%	77.7%	76.2%	68.4%	65.9%	59.4%	60.7%	62.8%	78.0%	**65.9%**
Howick	69.3%	65.6%	77.8%	74.0%	67.1%	67.6%	66.2%	62.7%	66.5%	77.5%	**68.6%**
Mangere	84.3%	69.8%	85.0%	80.1%	76.0%	74.5%	74.3%	72.2%	76.6%	84.1%	**77.4%**
Manurewa	80.3%	65.6%	83.3%	80.6%	73.2%	69.7%	67.8%	68.6%	71.2%	79.3%	**73.8%**
Otara	81.6%	65.9%	85.8%	77.8%	79.1%	73.8%	70.0%	72.0%	77.7%	90.0%	**76.2%**
Papakura	73.9%	61.1%	84.5%	75.5%	72.0%	68.3%	67.2%	58.2%	63.8%	80.4%	**69.9%**
Papatoetoe	80.4%	66.8%	88.1%	77.8%	76.4%	73.1%	66.2%	68.3%	71.4%	79.8%	**74.5%**
Total	**77.8%**	**65.3%**	**82.9%**	**77.8%**	**72.6%**	**70.0%**	**67.0%**	**65.6%**	**68.4%**	**79.2%**	**72.0%**

Source: Ministry of Health, NMDS, analysed by CMDHB

The overall rate for acute medical-surgical-emergency care hospitalisations in publicly funded hospitals for Counties Manukau residents in 2010 was 124 per 1,000. As demonstrated in Figure 35 although volumes are high for Franklin and Howick, their rates are lower than other CMDHB localities.

Figure 35 Age-standardised rates for acute medical-surgical-emergency care hospitalisations by residential locality, 2010
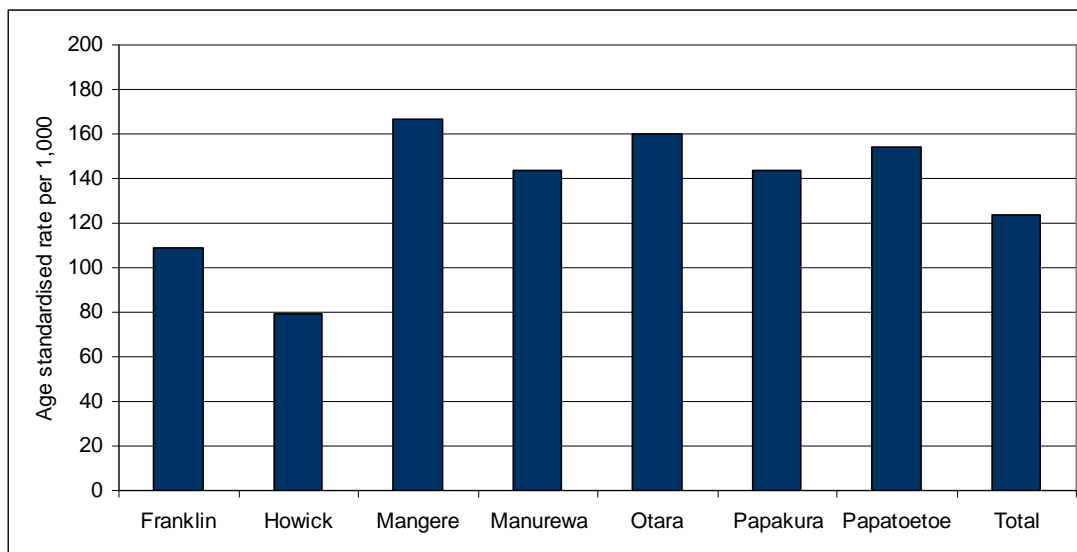
Source: Ministry of Health, NMDS, analysed by CMDHB

There are 19 categories of conditions causing acute hospitalisation. For all localities, hospitalisation numbers for adults were greatest for injuries and 'ill-defined conditions' (most likely needing further investigation), while the categories responsible for the greatest number of bed days were circulatory, respiratory, and digestive conditions, along with injuries. For children respiratory conditions and injuries feature for both admissions and bed days, with skin and subcutaneous conditions also being important.

Further analysis of acute demand, reviewing the years 2005 – 2010, has shown that for adults 25 years and over, Franklin had the biggest growth in acute admissions over that expected by demographic growth (Table 56). This amounted to an extra 1,450 admissions and 4,200 beds days more than projected from expectations from demographic growth for the residents of the Franklin locality.

Table 56 Acute demand for adults age 25 yrs and over, excess growth 2005 – 2010 over that predicted by demographic growth, by residential locality

Locality	Growth of discharges over that projected 2005 - 2010	Growth of bed days over that projected 2005 - 2010
Franklin	23%	22%
Howick	13%	15%
Mangere	8%	12%
Manurewa	15%	16%
Otara	4%	10%
Papakura	7%	5%
Papatoetoe	8%	5%
Grand Total	12%	13%

Source: Ministry of Health, NMDS, analysed by Dr Gary Jackson, Health Partners Consulting

4.1.2 Electives

There were just under 17,200 medical-surgical elective hospitalisations (occurring more than seven days after the need for hospitalisation is established) in publicly funded hospitals or hospital beds for people living in CMDHB in 2010, accounting for approximately 22,800 bed days. This gives an age standardised rate of 37 elective hospitalisations per 1,000 people across CMDHB. The majority of these hospitalisations were for surgical procedures. Howick, Franklin and Manurewa together accounted for just under 60% of the elective hospitalisations and bed days (Table 57). Howick had the highest volume of elective hospitalisations, but the lowest rate (Figure 36).

Table 57 Number of medical-surgical elective hospitalisations and associated bed days by residential locality, 2010

Locality	Number of hospitalisations for electives	Number bed days for electives	Number of hospitalisations for surgical electives	Number of bed days for surgical electives
Franklin	3,250	4,450	2,980	4,270
Howick	3,610	5,040	3,240	4,810
Mangere	2,070	2,850	1,890	2,570
Manurewa	3,190	3,860	2,900	3,630
Otara	1,090	1,290	1,000	1,090
Papakura	2,050	2,840	1,870	2,620
Papatoetoe	1,890	2,440	1,710	2,340

Source: Ministry of Health, NMDS, analysed by CMDHB

Figure 36 Aged standardised rate per 1000 for medical-surgical elective hospitalisations by residential locality and CMDHB total, 2010
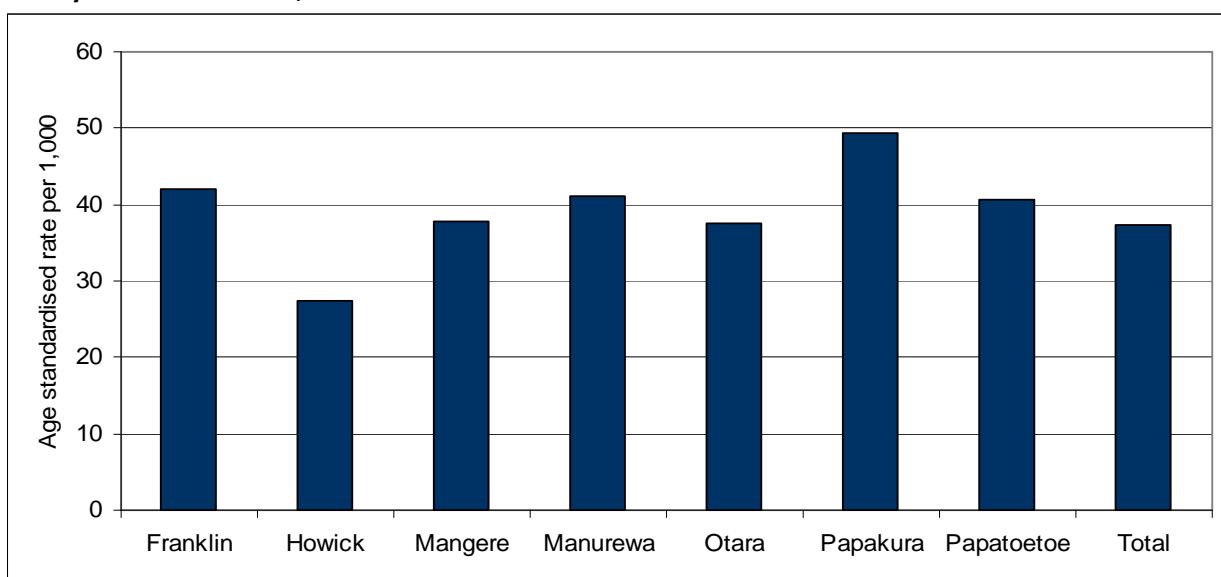
Source: Ministry of Health, NMDS, analysed by CMDHB

4.1.3 Ambulatory Sensitive Hospitalisations (ASH)

Hospitalisations can be categorised into those which are considered potentially avoidable and those more likely to be unavoidable, with a subgroup of potentially avoidable hospitalisations being termed Ambulatory Sensitive Hospitalisations (ASH). ASH reflect hospitalisations for conditions which are considered sensitive to preventive or treatment interventions in primary care; some conditions[33] are weighted at 50% of the actual volumes of admissions to reflect the proportion which are thought to be ambulatory sensitive. Over the last decade the definition of ASH in New Zealand has been refined, in particular to recognise the different patterns of conditions relevant to ASH for children compared to adults. In addition it is recognised that while access to effective primary care is important in reducing ASH, addressing the factors which drive the underlying burden of disease such as housing, second hand smoke exposures, is also important.

In the 2010 calendar year there were just over 15,760 weighted ASH discharges for CMDHB residents from health facilities in New Zealand. Manurewa had the highest number of ASH discharges (Table 58 and Figure 37) but residents of Mangere and Otara had the highest rates of ASH discharges (Table 58 and Figure 38). Otara had the lowest number of ASH discharges but the second highest rate, while Howick had the third highest number but the lowest rate of ASH discharges.

Table 58 Number and aged-standardised rates of weighted ASH discharges for CMDHB residents by residential locality, 2010

Locality	Number of weighted ASH discharges	ASR of weighted ASH discharges per 1,000
Franklin	1856.5	25.1
Howick	2354	18.6
Mangere	3028.5	53.3
Manurewa	3276	41.2
Otara	1476	50
Papakura	1624.5	37.9
Papatoetoe	2146	45

Source: Ministry of Health, NMDS, analysed by CMDHB

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[33] Stroke and certain categories of heart disease, noted with an * in the following analyses

Figure 37 Number of weighted ASH discharges by residential locality, 2010
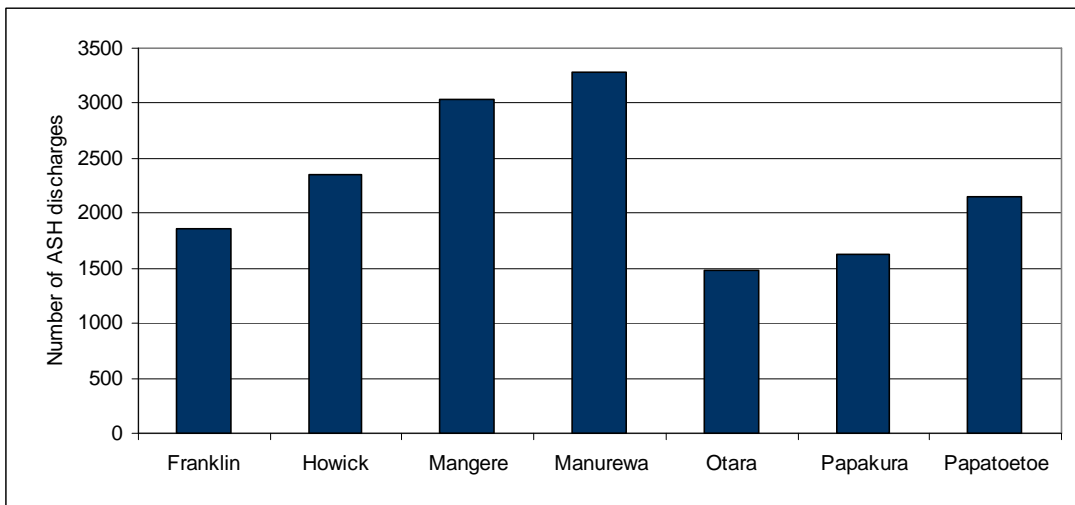
Source: Ministry of Health, NMDS, analysed by CMDHB

Figure 38 Age-standardised rates of weighted ASH discharges by residential locality, 2010
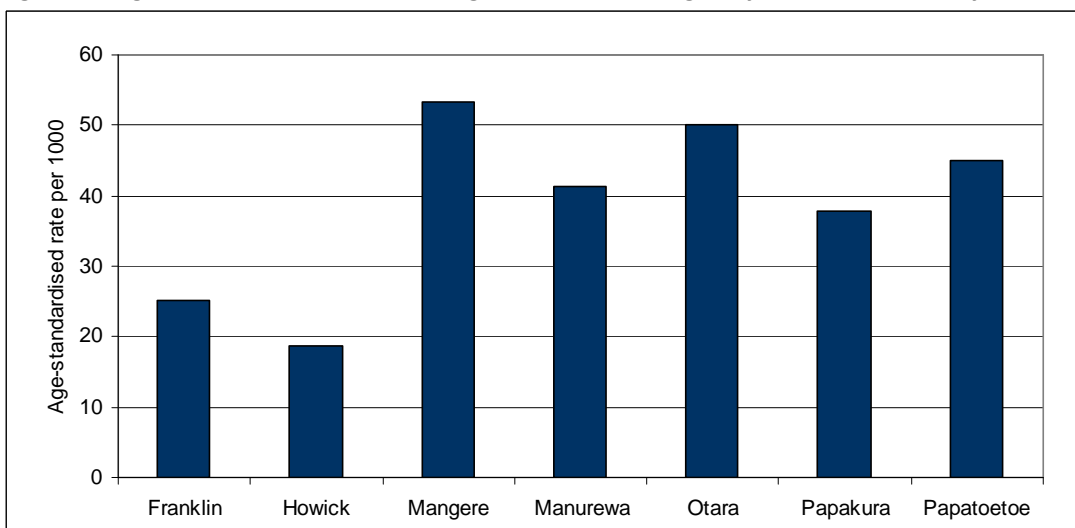
Source: Ministry of Health, NMDS, analysed by CMDHB

By age group, Mangere and Manurewa had the largest number of children (under 15 yrs) and adults up to age 64 yrs admitted with ASH conditions, while the volume from Howick stands out in the 75 yrs and over and is also high in the 56 – 74 yrs group. Rates were highest for children and those aged 45 – 64 years in Mangere, Otara and Papatoetoe, while for those 65 years and older Mangere and Otara rates were highest (Table 60).

Table 59 Number of weighted ASH discharges for CMDHB residents by age group by residential locality, 2010

Locality	Age group						Total
	0-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65-74 yrs	75 yrs & over	
Franklin	356	148.5	267.5	470	238.5	376	1856.5
Howick	438	168	321	500.5	320	606.5	2354
Mangere	878	299	558	710.5	324.5	258.5	3028.5
Manurewa	844	315.5	635	784.5	291	406	3276
Otara	443	132.5	257	357	173	113.5	1476
Papakura	371	149.5	260	404.5	166.5	273	1624.5
Papatoetoe	501	194.5	393.5	518	215.5	323.5	2146

Source: Ministry of Health, NMDS, analysed by CMDHB

Table 60 Age-standardised rates per 1000 of weighted ASH discharges for CMDHB residents by age group by residential locality, 2010

Locality	Age group						Total
	0-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65-74 yrs	75 yrs & over	
Franklin	20	15	14	22	46	114	25
Howick	18	8	9	15	34	93	19
Mangere	45	26	33	59	108	171	53
Manurewa	32	22	26	44	71	156	41
Otara	38	19	27	54	126	179	50
Papakura	31	21	22	41	69	136	38
Papatoetoe	39	25	26	52	77	149	45

Source: Ministry of Health, NMDS, analysed by CMDHB

By ethnicity, Maaori volumes of ASH discharges were much higher from Manurewa than other localities; similarly Mangere for Pacific. Howick features for Indian and Other Asian, and Howick and Franklin for those of Other ethnicities (Table 61). Rates were higher for Maaori and Pacific peoples across all residential localities (Table 62).

Table 61 Number of weighted ASH discharges for CMDHB residents by ethnicity, by residential locality, 2010

Locality	Ethnicity					
	Maaori	Pacific	Indian	Other Asian	Other	Total
Franklin	389.5	83	33	21.5	1329.5	1856.5
Howick	131.5	159	206.5	308.5	1548.5	2354
Mangere	581	1938.5	116	57	336	3028.5
Manurewa	1069	982.5	181	89	954.5	3276
Otara	324	968.5	47	31	105.5	1476
Papakura	557	186	57.5	16.5	807.5	1624.5
Papatoetoe	363	811	295	128	549	2146

Source: Ministry of Health, NMDS, analysed by CMDHB

Table 62 Age-standardised rates per 1000 of weighted ASH discharges for CMDHB residents, by ethnicity by residential locality, 2010

Locality	Ethnicity					
	Maaori	Pacific	Indian	Other Asian	Other	Total
Franklin	43	46	22	14	22	25
Howick	36	33	24	11	20	19
Mangere	62	65	38	21	37	53
Manurewa	59	53	34	20	31	41
Otara	81	51	41	20	43	50
Papakura	63	54	37	12	31	38
Papatoetoe	64	72	42	26	33	45

Source: Ministry of Health, NMDS, analysed by CMDHB

As demonstrated in Table 63, the high volume ASH disease categories for all residential localities were cellulitis, angina and chest pain and pneumonia. If the full volumes are considered for those conditions which are weighted to 50%, myocardial infarction (confirmed heart attack) and stroke are also high volume conditions.

As noted there is a discrepancy in the volumes related to gastroenteritis/dehydration which is being explored; this could potentially elevate gastroenteritis to a high volume category.

Table 63 Number of weighted ASH discharges for CMDHB residents by disease category by residential locality, 2010

Disease category	Franklin	Howick	Mangere	Manurewa	Otara	Papakura	Papatoetoe	Total
Angina and chest pain*	209 (418)	280 (560)	219 (438)	280.5 (561)	106 (212)	146.5 (293)	193 (386)	1434 (2868)
Asthma	99	143	276	316	118	146	170	1268
Bronchiectasis	-	-	8	-	8	-	-	30
Cellulitis	256	263	547	569	256	265	347	2503
Cervical cancer	-	-	7	-	-	7	7	32
Congestive heart failure	109	138	133	179	93	87	110	849
Constipation	67	87	86	83	38	43	61	465
Dental conditions	127	138	238	211	100	116	136	1066
Dermatitis & eczema	30	29	47	52	34	29	32	253
Diabetes	86	84	216	186	89	82	111	854
Epilepsy	73	61	82	76	41	47	63	443
Gastroenteritis/dehydration#	125	172	111	175	60	74	125	842
GORD (Gastro-oesphageal reflux disease)	36	61	44	42	16	27	49	275
Hypertensive disease	18	18	22	29	13	21	20	141
Kidney/urinary infection	130	193	213	241	106	137	171	1191
Myocardial infarction*	85 (170)	112.5 (225)	73.5 (147)	92.5 (185)	33.5 (67)	51 (102)	66(132)	514 (1028)
Nutrition Deficiency and Anaemia	45	76	34	69	17	29	53	323
Other Ischaemic Heart Disease*	-	8 (16)	7 (14)	6.5 (13)	-	-	-	34 (68)
Peptic ulcer	14	20	28	36	30	13	30	171
Respiratory infections - Pneumonia	182	245	324	322	174	165	202	1614
Rheumatic fever/heart disease	12	-	42	24	24	14	13	132
Sexually transmitted Infections	9	10	31	16	8	8	8	90
Stroke*	53.5 (107)	80.5 (161)	35 (70)	48.5 (97)	20 (40)	35 (70)	39.5 (79)	312 (624)
Upper respiratory tract and ENT infections	90	130	212	223	93	79	136	963

A dash is used where numbers are less than five to protect confidentiality of individuals.

*50% weighting applied to these conditions so actual volume is shown in brackets

#A separate ASH analysis from the CMDHB database demonstrated a volume approximately twice this amount for this condition and potential reasons are currently being explored; if the higher figure is correct that would elevate gastroenteritis/dehydration into being one of the high volume categories.

Source: Ministry of Health, NMDS, analysed by CMDHB

4.1.4 Housing-Related Potentially Avoidable Hospitalisations (HRPAH)

As described in the previous section, hospitalisations can be categorised into those considered "potentially avoidable" and those more likely to be unavoidable. In addition to ASH, another subgroup of "potentially avoidable" hospitalisations is those considered potentially avoidable due to housing-related factors. This subgroup of "housing-related" potentially avoidable hospitalisations (HRPAHs) was developed as an outcome measure to study the impact of the CMDHB and Housing New Zealand Corporation "Healthy Housing Programme" on health outcomes[34]. A disease condition was included in the HRPAH subgroup if there was likely to be a strong causal link between the housing intervention and the disease through reducing overcrowding or improving ambient temperature in the house.

Disease conditions included in the subgroup are respiratory conditions and infectious diseases: tuberculosis, gastroenteritis, immunisation-preventable diseases (tetanus, diphtheria, whooping cough, polio, haemophilus influenzae type b, measles, mumps, rubella), meningococcal infection, cellulitis and skin infections, rheumatic fever/heart disease, respiratory infections (upper respiratory tract, influenza, bacterial pneumonia, acute bronchitis, bronchiolitis), chronic obstructive respiratory disease (CORD), and asthma.

In 2010 there were 9221 HRPAH discharges for CMDHB residents from health facilities in New Zealand. These accounted for approximately 15% of the total acute medical and surgical discharges. Manurewa and Mangere had the highest numbers of HRPAH discharges and also had high rates of HRPAH discharges (Table 64, Figure 39, Figure 40). Otara had a smaller number of HRPAH discharges (reflecting Otara's smaller residential population compared with the other localities), but had the second highest rate of HRPAH discharges. Otara also had the highest percentage of HRPAH discharges (as a percentage of the total number of acute medical and surgical discharges), twice the percentage for Howick. HRPAH discharges rates ranged from 8.8 per 1,000 in Howick to 31.5 per 1,000 in Mangere.

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[34] Jackson G, Thornley S, Woolston J, Papa D, Bernacchi A, Moore T. Reduced acute hospitalisation with the healthy housing programme. Journal of Epidemiology and Community Health 2011;65:588-593

Table 64 Number and aged-standardised rates of HRPAH discharges for CMDHB residents by residential locality, 2010

Locality	Number of HRPAH discharges	HRPAH discharges as % of total acute medical/surgical discharges	ASR of HRPAH discharges per 1,000
Franklin	970	11%	13.0
Howick	1099	10%	8.8
Mangere	1942	19%	31.5
Manurewa	2038	17%	23.2
Otara	999	20%	29.7
Papakura	911	14%	20.0
Papatoetoe	1262	16%	25.1
CMDHB	9221	15%	18.9

Source: Ministry of Health, NMDS, analysed by CMDHB

Figure 39 Number and percentage of HRPAH discharges by residential locality, 2010
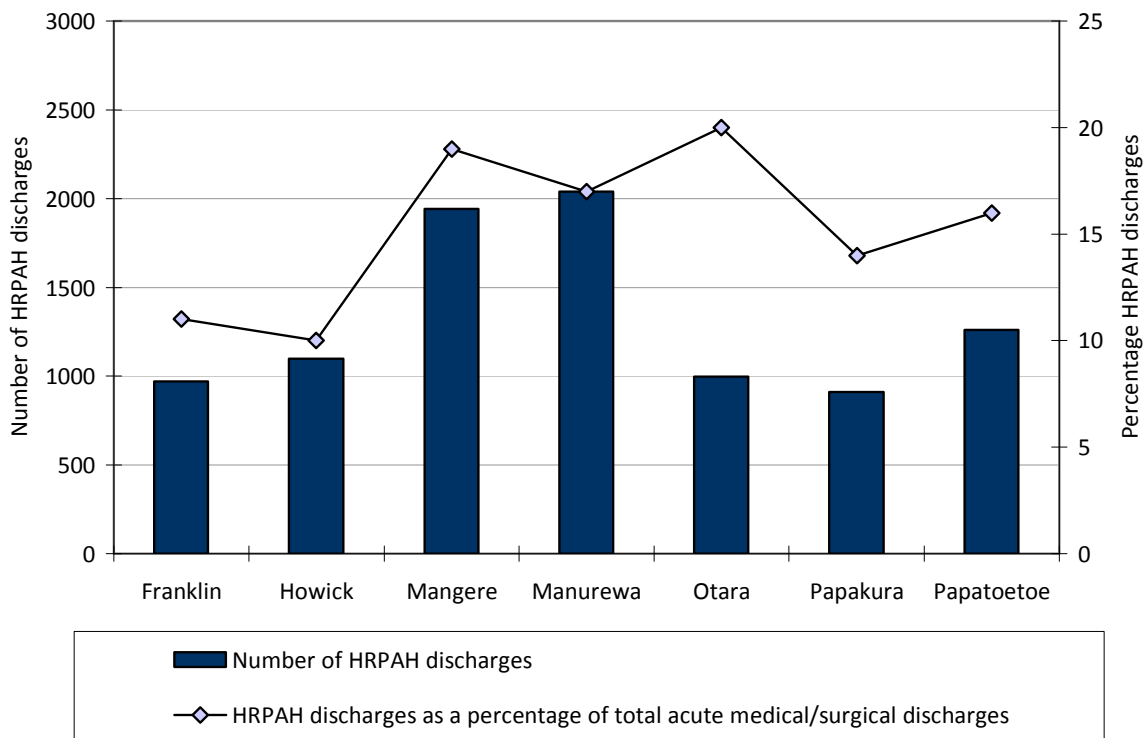
Source: Ministry of Health, NMDS, analysed by CMDHB

Figure 40 Age-standardised rates of HRPAH discharges by residential locality, 2010
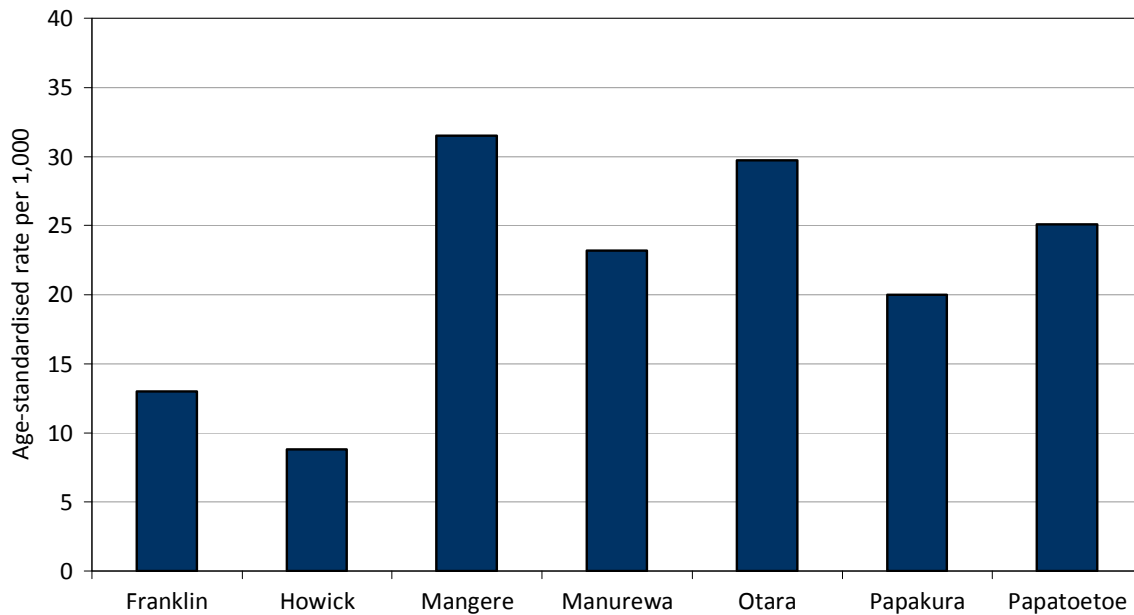
Source: Ministry of Health, NMDS, analysed by CMDHB

In 2010, children accounted for nearly 40% (n=3557) of CMDHB residents discharged from hospital with housing-related potentially avoidable conditions. The majority (29% of all HRPAH discharges, n=2714) of these children were aged 0-4 years. The highest number of discharges in this age group occurred in Manurewa and Mangere residents (Table 65). Rates were highest for children aged 0-4 years in Mangere, Otara, Papatoetoe and Manurewa, as well as for people aged 65-74 years living in Mangere and Otara, and CMDHB residents aged ≥75 years, particularly those living in Otara and Mangere (Table 66).

Table 65 Number of HRPAH discharges for CMDHB residents by age group by residential locality, 2010

Locality	Age group							Total
	0-4 yrs	5-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65-74 yrs	≥75 yrs	
Franklin	211	76	61	133	206	112	171	970
Howick	211	99	87	154	171	142	235	1099
Mangere	638	202	145	271	344	204	138	1942
Manurewa	660	183	160	313	384	164	174	2038
Otara	376	103	74	119	176	89	62	999
Papakura	255	74	88	124	184	67	119	911
Papatoetoe	363	106	91	205	231	110	156	1262
CMDHB	2714	843	706	1319	1696	888	1055	9221

Source: Ministry of Health, NMDS, analysed by CMDHB

Residential Locality Profiles for Counties Manukau DHB: CMDHB overview
October 2011

Table 66 Age-standardised rates per 1000 of HRPAH discharges for CMDHB residents by age group by residential locality, 2010

Locality	0-4 yrs	5-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65-74 yrs	≥75 yrs	Total
				Age group				
Franklin	38.6	6.2	6.2	7.1	9.4	21.5	51.8	13.0
Howick	27.8	5.7	4.4	4.2	5.1	15.0	36.2	8.8
Mangere	94.5	16.8	12.6	15.9	28.4	68.3	88.4	31.5
Manurewa	70.5	11.6	11.1	12.8	21.5	39.8	66.7	23.2
Otara	94.4	14.4	10.9	12.6	26.6	64.8	96.1	29.7
Papakura	58.3	10.6	12.6	10.6	18.7	27.7	59.3	20.0
Papatoetoe	80.4	13.8	11.5	13.6	22.9	39.3	72.4	25.1
CMDHB	60.5	10.7	9.1	9.9	15.2	31.3	56.5	18.9

Source: Ministry of Health, NMDS, analysed by CMDHB

By ethnicity, the highest volumes and rates of HRPAH discharges for CMDHB as a whole were amongst Pacific Peoples (n=3584, ASR 36.5 per 1,000 population) and Maaori (n= 2341, ASR 32.2 per 1,000 population). People of "Other" ethnicity had a relatively high volume of discharges (n=2617, 28% of all HRPAH discharges in 2010) but a low rate (ASR 12.2 per 1,000) in comparison to Pacific and Maaori groups (Table 67 and Table 68).

The highest volumes of HRPAH discharges amongst Pacific Peoples were from Mangere, Manurewa and Otara localities and amongst Maaori were from Manurewa, Mangere and Papakura. Amongst the "Other" ethnic group, half were from Franklin and Howick. Rates varied by a factor of eight. High rates were seen for Pacific Peoples and Maaori across all residential localities (Table 67 and Table 68).

Table 67 Number of HRPAH discharges for CMDHB residents by ethnicity, by residential locality, 2010

Locality	Maaori	Pacific	Indian	Other Asian	Other	Total
			Ethnicity			
Franklin	270	59	8	13	620	970
Howick	96	96	87	137	683	1099
Mangere	401	1333	39	27	142	1942
Manurewa	742	740	66	47	443	2038
Otara	213	683	26	19	58	999
Papakura	368	121	22	9	391	911
Papatoetoe	251	552	119	60	280	1262
CMDHB	2341	3584	367	312	2617	9221

Source: Ministry of Health, NMDS, analysed by CMDHB

Residential Locality Profiles for Counties Manukau DHB: CMDHB overview
October 2011

Table 68 Age-standardised rates per 1000 of HRPAH discharges for CMDHB residents, by ethnicity by residential locality, 2010

Locality	Ethnicity					Total
	Maaori	**Pacific**	**Indian**	**Other Asian**	**Other**	**Total**
Franklin	28.1	30.7	4.6	8.8	10.7	13.0
Howick	22.7	19.4	9.4	4.9	9.4	8.8
Mangere	35.5	41.7	14.8	9.8	14.9	31.5
Manurewa	34.3	36.0	11.7	9.4	14.8	23.2
Otara	30.7	31.9	19.9	11.9	22.5	29.7
Papakura	34.8	26.9	18.1	6.7	16.0	20.0
Papatoetoe	39.2	42.9	16.0	12.1	17.7	25.1
CMDHB	32.2	36.5	11.8	6.7	12.2	18.9

Source: Ministry of Health, NMDS, analysed by CMDHB

A break-down of HRPAH discharges by disease condition and locality is provided in Table 69. Across all residential localities, and particularly in Manurewa and Mangere, respiratory infections and cellulitis accounted for large volumes of HRPAH discharges.

Table 69 Number of HRPAH discharges for CMDHB residents by disease category by residential locality, 2010

Disease category	Franklin	Howick	Mangere	Manurewa	Otara	Papakura	Papatoetoe	Total
Tuberculosis	-	15	6	-	6	-	-	40
Gastroenteritis	73	98	76	109	44	44	79	523
Immunisation-preventable diseases	-	-	6	9	-	-	6	29
Meningococcal infection	-	-	5	-	-	-	-	13
Cellulitis	257	269	555	585	263	272	355	2556
Rheumatic fever/heart disease	11	-	41	22	23	14	14	128
Respiratory infections	350	402	732	750	426	326	459	3445
CORD	173	166	248	244	117	107	175	1230
Asthma	98	143	277	317	117	145	171	1268

A dash is used where numbers are less than five to protect confidentiality of individuals.
Source: Ministry of Health, NMDS, analysed by CMDHB

4.1.5 Injury-Related Hospitalisations

This section provides information on injury-related hospitalisation numbers and rates for 2010. It is focussed on two main categories of injury, "unintentional" (injuries that are not inflicted by deliberate means and are unintended or "accidental" regardless of whether the injury was inflicted by the person themselves or another person) and "intentional" (injuries that are inflicted deliberately on an individual by themselves or by another person, for example self-harm or assault)[35]. This categorisation of injury according to the underlying intent is widely-accepted internationally and nationally (including in the New Zealand Injury Prevention Strategy[36]). The term "accidental" is avoided as it conveys the idea that injuries are not preventable when in fact many injuries are amenable to preventive measures/interventions. This analysis excludes injury diagnoses related to complications of medical/surgical care, events of undetermined intent, injuries due to legal intervention and operations of war, and late-effects of injuries. It is also important to acknowledge that this analysis describes the moderate to severe end of the injury spectrum, i.e. there will be many injuries that occur in the community that are not captured in this analysis because they do not result in hospitalisation.

In 2010 there were approximately 11,500 injury-related discharges for CMDHB residents from health facilities in New Zealand, an age-standardised rate of 24.2 per 1,000 population (Table 70and Table 71). The majority (87%) of these injuries were unintentional and 13% were intentional.

By volume of intentional and unintentional injuries (Table 70 and Figure 41), Manurewa had the highest number (n=2230) of injury-related hospital discharges, followed by Howick, Franklin and Mangere. Although Papakura, Papatoetoe and Otara had lower volumes of injury-related hospital discharges, the rates of injury in these localities were high (Table 71 and Figure 42). The highest rate of injury was in Papakura (30 per 1,000 population), double the rate in Howick (16 per 1,000 population).

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[35]Center for Disease Control and Prevention. Injury Prevention and Control: data and statistics webpage. Available at: http://www.cdc.gov/injury/wisqars/index.html
[36] Minister for ACC. 2003. *New Zealand Injury Prevention Strategy*. ACC: Wellington:

Table 70 Number of injury-related hospital discharges for CMDHB residents by residential locality, 2010

Locality	Unintentional injuries*	Intentional injuries†	Total injuries‡
Franklin	1702	166	1865
Howick	1848	241	2085
Mangere	1567	224	1785
Manurewa	1900	338	2230
Otara	736	156	889
Papakura	1108	216	1318
Papatoetoe	1204	194	1393
CMDHB	10065	1535	11565

* The "unintentional injuries" category comprises hospitalisations with ICD-10 external-cause-of-injury codes V01-V99 (including transport accidents), W00-W99 (including falls, exposure to mechanical forces, accidental drowning and submersion, other accidental threats to breathing, exposure to electric current, radiation and extreme ambient air temperature and pressure), X00-X59 (including exposure to smoke, fire and flames, contact with heat, exposure to forces of nature, accidental poisoning, overexertion).
† The "intentional injuries" category comprises hospitalisations with ICD-10 external-cause-of-injury codes X60-X84 (intentional self-harm) and X85- X09 (assault).
‡ "Total injuries" in this analysis comprises those in the "unintentional injuries" and "intentional injuries" categories, which are outlined above. Note the following ICD-10 external-cause-of-injury codes are excluded: Y10-Y34 (event of undetermined intent), Y35-Y36 (legal intervention and operations of war), Y40-Y84 (including adverse effects fro therapeutic use of drugs, surgical and medical care misadventures, medical device-associated misadventures), Y85-Y89 (sequelae of external causes), Y90-98 (supplementary factors related to causes classified elsewhere). Row totals may not add up as an individual may be counted in more than one category, but is counted only once in the "Total".
Source: Ministry of Health, NMDS, analysed by CMDHB

Table 71 Age-standardised rates per 1,000 of injury-related hospital discharges for CMDHB residents by residential locality, 2010

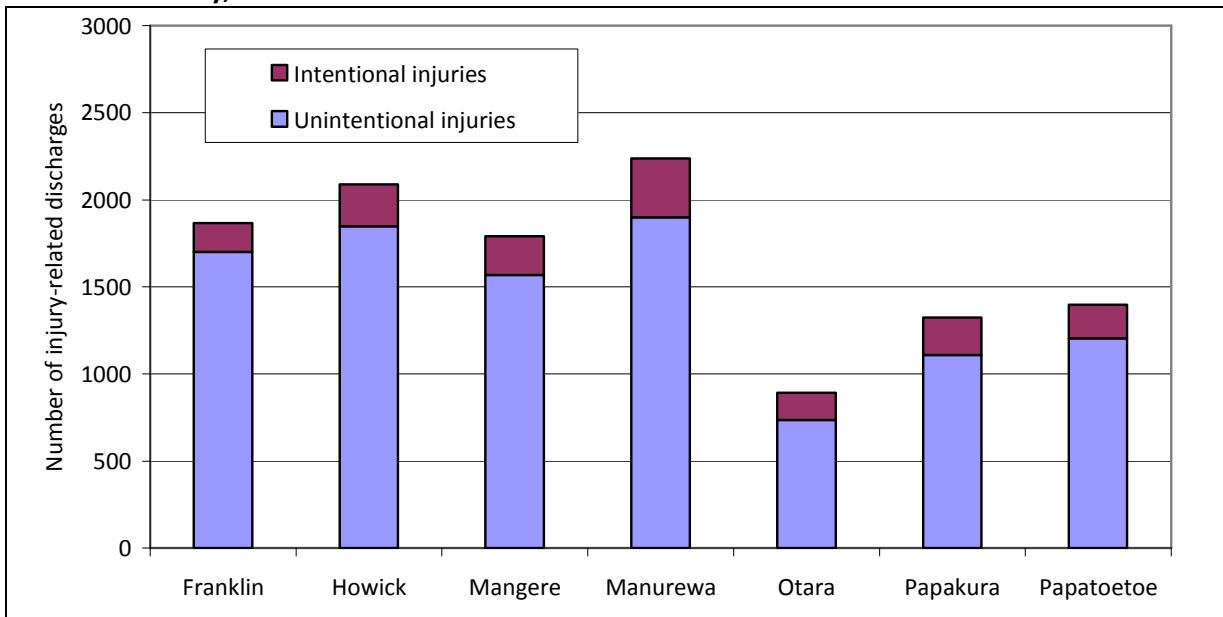| Locality	Unintentional injuries*	Intentional injuries†	Total injuries‡
Franklin	23.0	2.3	25.2
Howick	14.5	1.8	16.3
Mangere	25.0	3.3	28.2
Manurewa	22.9	3.7	26.5
Otara	21.3	4.1	25.3
Papakura	25.3	4.8	30.0
Papatoetoe	24.5	3.7	28.1
CMDHB	21.3	3.1	24.2

* Definition of "unintentional injuries" as per Table 70.
† Definition of "intentional injuries" as per Table 70.
‡ Definition of "Total injuries" as per Table 70.
*Source: Ministry of Health, NMDS, analysed by CMDHB*

Figure 41 Number of intentional and unintentional injury-related hospital discharges for CMDHB residents by residential locality, 2010

The "unintentional injuries" category comprises hospitalisations with ICD-10 external-cause-of-injury codes V01-V99 (including transport accidents), W00-W99 (including falls, exposure to mechanical forces, accidental drowning and submersion, other accidental threats to breathing, exposure to electric current, radiation and extreme ambient air temperature and pressure), X00-X59 (including exposure to smoke, fire and flames, contact with heat, exposure to forces of nature, accidental poisoning, overexertion).

The "intentional injuries" category comprises hospitalisations with ICD-10 external-cause-of-injury codes X60-X84 (intentional self-harm) and X85- X09 (assault).

Source: Ministry of Health, NMDS, analysed by CMDHB

Figure 42 Age-standardised rates per 1,000 of injury-related hospital discharges for CMDHB residents by residential locality, 2010
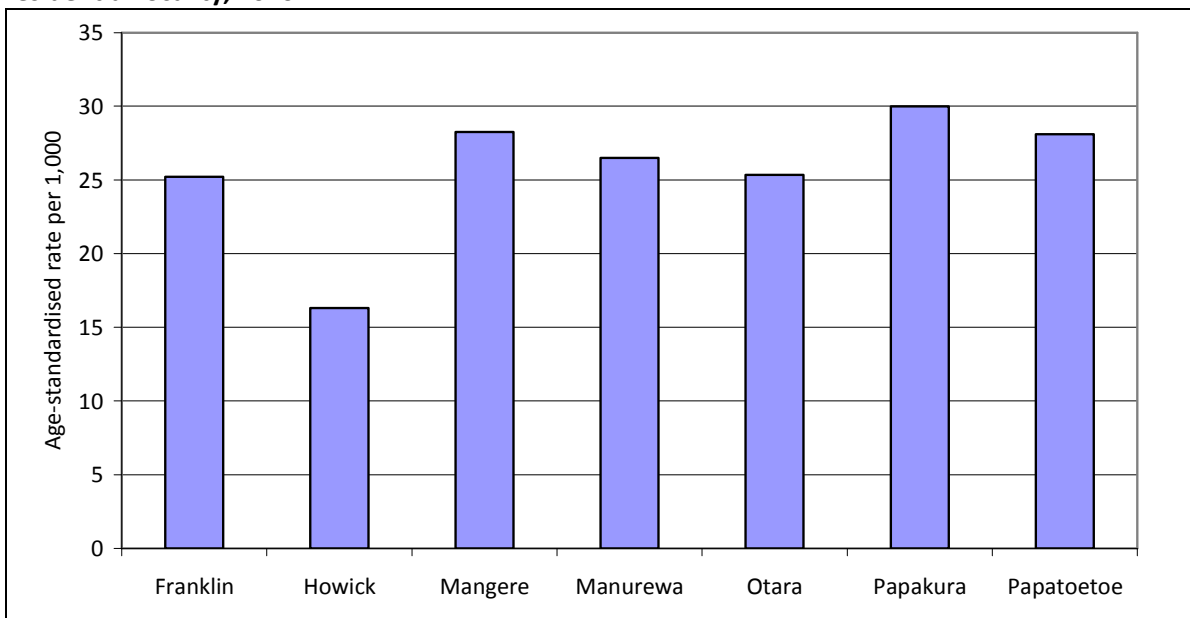
Age Standardised Rates above are for the "total injuries" category, which for this analysis comprises "unintentional injuries" and "intentional injuries" categories. The following ICD-10 external-cause-of-injury codes are excluded from the Total: Y10-Y34 (event of undetermined intent), Y35-Y36 (legal intervention and operations of war), Y40-Y84 (including adverse effects fro therapeutic use of drugs, surgical and medical care misadventures, medical device-associated misadventures), Y85-Y89 (sequelae of external causes), Y90-98 (supplementary factors related to causes classified elsewhere).

Source: Ministry of Health, NMDS, analysed by CMDHB

4.2 Maternity and infants

4.2.1 Birth Events

In 2010 there were a total of just over 8,500 deliveries to CMDHB mothers in New Zealand hospitals. Manurewa had the highest number of live birth events[37] of the CMDHB residential localities; with 1843 mothers delivering in 2010, it made up 22% of all deliveries in CMDHB (Table 72). Howick was next with 1504 deliveries, followed by Mangere on 1412. Manurewa also had the highest number of deliveries for young women aged under 20 yrs (190), followed by Mangere (140) and Otara (101). Otara had the highest percentage of mothers aged under 20 yrs at 12%.

**Table 72 Deliveries to CMDHB mothers by maternal age and residential locality, 2010**

Maternal age	<20	20-24	25-29	30-34	35-39	40+	Total	% of deliveries <20 yrs old	% of CM deliveries
Franklin	71	189	232	295	198	58	1043	7%	12%
Howick	51	205	432	482	274	60	1504	3%	18%
Mangere	140	390	379	298	153	52	1412	10%	17%
Manurewa	190	453	527	380	233	60	1843	10%	22%
Otara	101	222	237	160	88	42	850	12%	10%
Papakura	99	211	246	200	114	32	902	11%	11%
Papatoetoe	81	218	310	238	102	35	984	8%	12%
Total	733	1888	2363	2053	1162	339	8538		

Source: Ministry of Health, NMDS, analysed by CMDHB

The age profile of these mothers is shown in Figure 43. The majority of localities have a peak of deliveries in the 25-29 year age group, while the Franklin and Howick areas peak in the 30-34 year age group and Mangere peaks in the 20-24 year group. This difference lies in the different fertility patterns of Maaori and Pacific women compared to women of other ethnicities. The two areas with the older peak have the highest proportion of European women. In those two areas 22-25% of deliveries are to mothers over the age of 35, while the other areas average 15% for that age group.

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[37] Includes all births which happen in a hospital, 97.5% of all births for women resident in CMDHB

Figure 43 CMDHB delivery numbers by maternal age and by residential locality, 2010
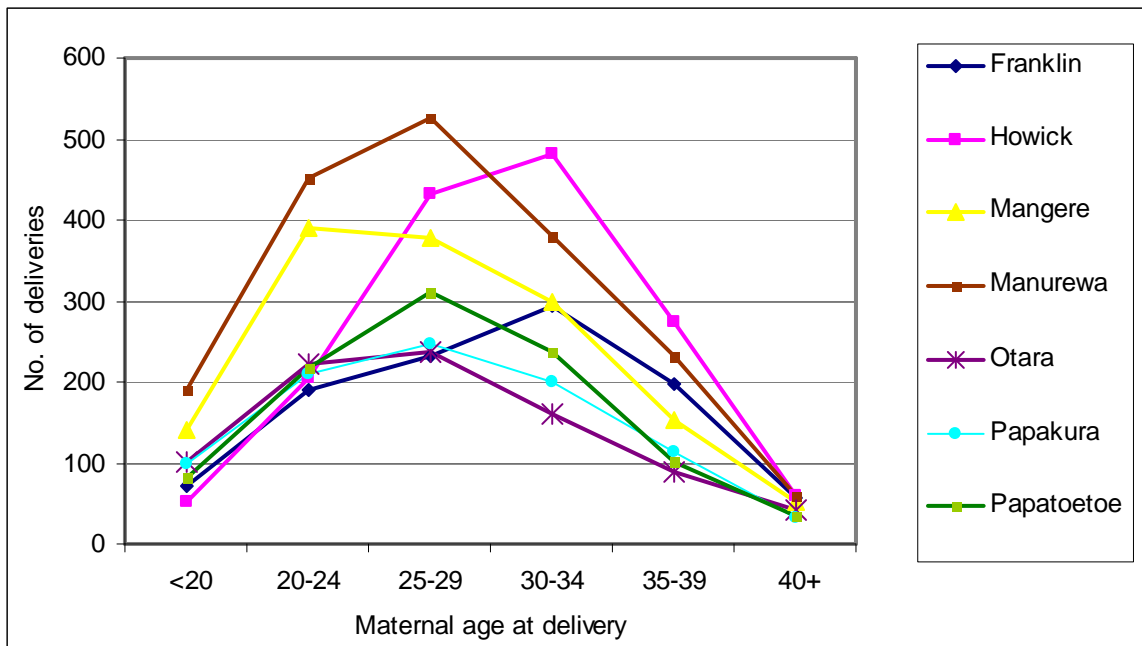
Source: Ministry of Health, NMDS, analysed by CMDHB

Deliveries to Pacific mothers formed the single largest ethnicity cluster in CMDHB in 2010 (Table 73), making up 34% of all live birth events and were particularly found in Mangere, Manurewa and Otara. European and Other were next largest group on 28%, with Howick and Franklin standing out. Maaori at 23% were particularly from Manurewa and Papakura, while Other Asian at 9% were most prevalent in Howick and Indian at 7% from Papatoetoe, Howick and Manurewa.

Table 73 Deliveries in CMDHB by ethnicity and residential locality, 2010

Number of births	Maaori	Pacific	Indian	Other Asian	Other	Total	% Maaori & Pacific
Franklin	229	61	22	32	699	1043	28%
Howick	98	100	147	427	732	1504	13%
Mangere	278	925	62	37	110	1412	85%
Manurewa	615	684	127	95	322	1843	70%
Otara	188	568	16	38	40	850	89%
Papakura	366	127	43	24	342	902	55%
Papatoetoe	168	438	168	92	118	984	62%
Total	**1942**	**2903**	**585**	**745**	**2363**	**8538**	57%
% of Total	23%	34%	7%	9%	28%		

Source: Ministry of Health, NMDS, analysed by CMDHB

Residential Locality Profiles for Counties Manukau DHB: CMDHB overview
October 2011

4.2.2 Low birthweight infants

Low birthweight (LBW) babies are at increased risk of complications in the neonatal period. To some extent birthweight can be affected by antenatal care but broader health considerations are also important (e.g. smokefree pregnancies). Using a cut-off of 2500g, 6 % of CMDHB babies born in 2010 would be considered to be of low birthweight, ranging from 4.7% for Pacific to 10% for Indian babies. The highest number of LBW babies in 2010 was in Manurewa (Table 74) while the highest proportion was in Papatoetoe. Maaori babies constituted 31% of babies of low birthweight babies.

Table 74 Low birthweight babies in CMDHB by ethnicity and residential locality, 2010

% of births <2500gm	Maaori	Pacific	Indian	Other Asian	Other	Total	Number < 2500 gm
Franklin	7.2%	7.0%	8.0%	0.0%	4.7%	**5.3%**	56
Howick	8.0%	7.2%	10.1%	5.4%	5.0%	**6.0%**	91
Mangere	10.3%	3.2%	11.6%	5.1%	2.2%	**4.8%**	70
Manurewa	8.3%	5.7%	8.3%	4.2%	4.2%	**6.3%**	119
Otara	9.4%	4.4%	7.4%	5.1%	12.8%	**6.0%**	53
Papakura	8.3%	4.3%	6.5%	4.2%	4.9%	**6.2%**	57
Papatoetoe	10.4%	5.9%	11.9%	6.6%	5.5%	**7.7%**	80
Total	**8.7%**	**4.7%**	**10.0%**	**5.1%**	**4.8%**	**6.0%**	**526**
Number	163	139	65	39	120	526	
% of Total	31%	26%	12%	7%	23%		

Source: Ministry of Health, NMDS, analysed by CMDHB

4.2.3 Hospitalisation in the first year of life

2,010 children born in CMDHB in 2009 were admitted to hospital in their first year of life – nearly 1 in 4 of all children born in CMDHB, or 5 per day. These hospitalisations exclude the birth process and neonatal care, with each infant being counted once even if they had multiple admissions. Pacific and Maaori children were twice as likely to be so admitted as Asian and European/Other children – around 700 such admissions would be prevented each year if Maaori and Pacific children had the same rate of admission as European/other children. Manurewa had the highest number of children admitted, followed closely by Mangere. Mangere had the highest proportion of infants hospitalised in their first year.

Table 75 Infants hospitalised in first year of life in CMDHB by ethnicity and residential locality, born 2009

	Maaori	Pacific	Indian	Other Asian	Other	Total	% hospitalised
Franklin	61	16	-	-	90	169	16%
Howick	22	21	20	52	91	206	14%
Mangere	83	328	12	5	34	462	32%
Manurewa	175	184	17	10	86	472	26%
Otara	45	163	-	7	11	229	26%
Papakura	109	31	6	-	55	205	23%
Papatoetoe	57	121	41	14	34	267	26%
Total	552	864	100	93	401	2010	23%
% hospitalised 1st year	29%	30%	17%	13%	16%	23%	

Includes all births in 2009, excludes admissions around the birthing process and neonatal care.

A dash is used where numbers are less than five to protect confidentiality of individuals

Source: Ministry of Health, NMDS, analysed by CMDHB

4.3 Use of Emergency Care

Presentations to hospital Emergency Care departments are captured in the National Non-admitted Patient Collection (NNPAC). All presentations are recorded, including those people who are subsequently admitted. Whether these attendances were GP or self referred is not recorded in NNPAC; this information is available from the CMDHB EC database although that database only captures information on people seen at or admitted to CMDHB facilities so will miss attendances by CMDHB residents at ECs at other hospitals.

There were just over 88,000 Emergency Care (EC) attendances by CMDHB residents at health facilities in New Zealand in the 2010 calendar year. Manurewa, Mangere and Howick had the highest number of EC attendances (Table 76 and Figure 44) but residents of Mangere and Papatoetoe had the highest rates of attendance (Table 76 and Figure 45).

Table 76 Number and aged-standardised rates of EC attendances for CMDHB residents by residential locality, 2010

Residential locality	Number of EC attendances	ASR of EC attendance per 1,000
Franklin	11069	150
Howick	14341	112
Mangere	15895	258
Manurewa	17976	210
Otara	7426	222
Papakura	8921	203
Papatoetoe	12387	247

Source: Ministry of Health, NNPAC, analysed by CMDHB

Figure 44 Number of EC attendances by residential locality, 2010
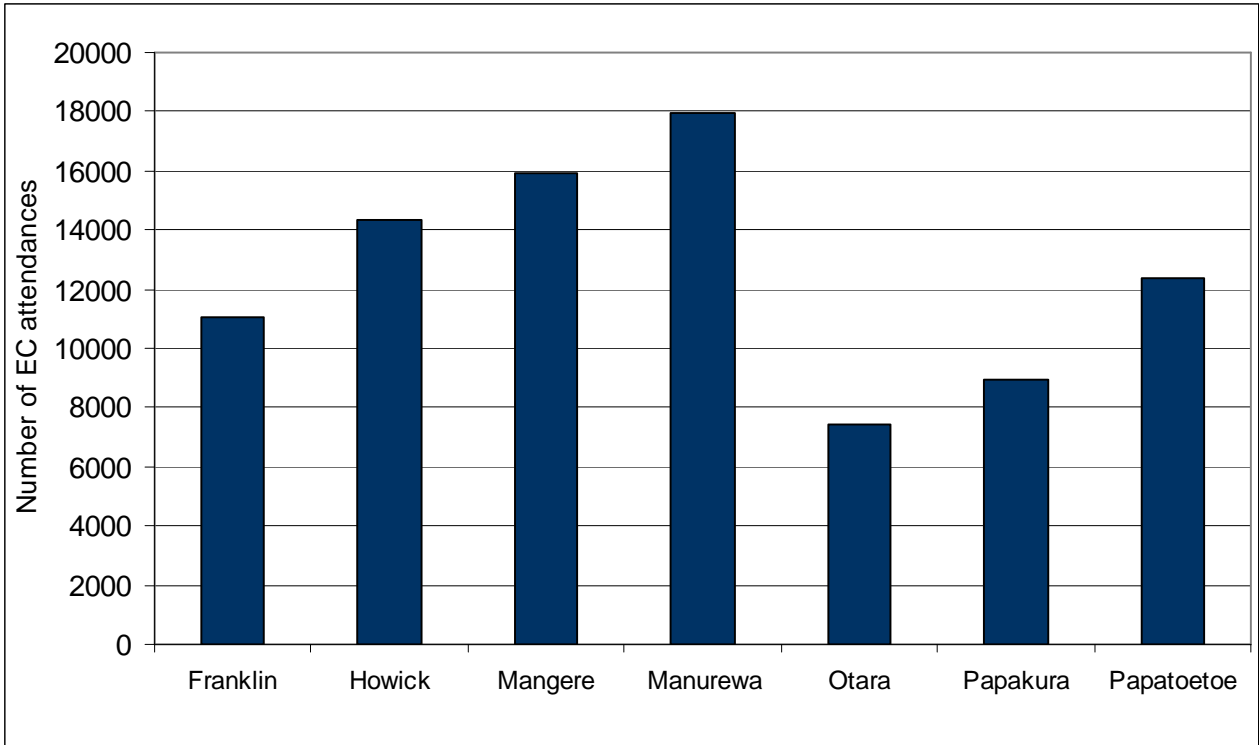
Figure 45 Age-standardised rates per 1,000 of EC attendances by residential locality, 2010
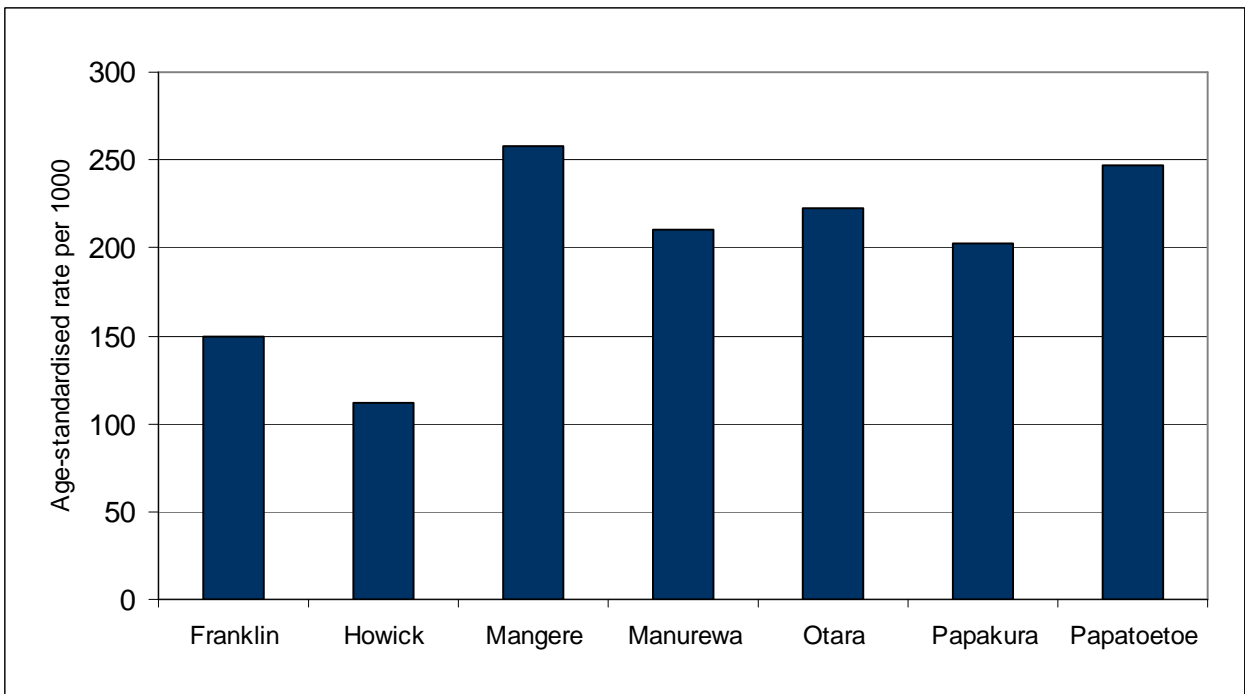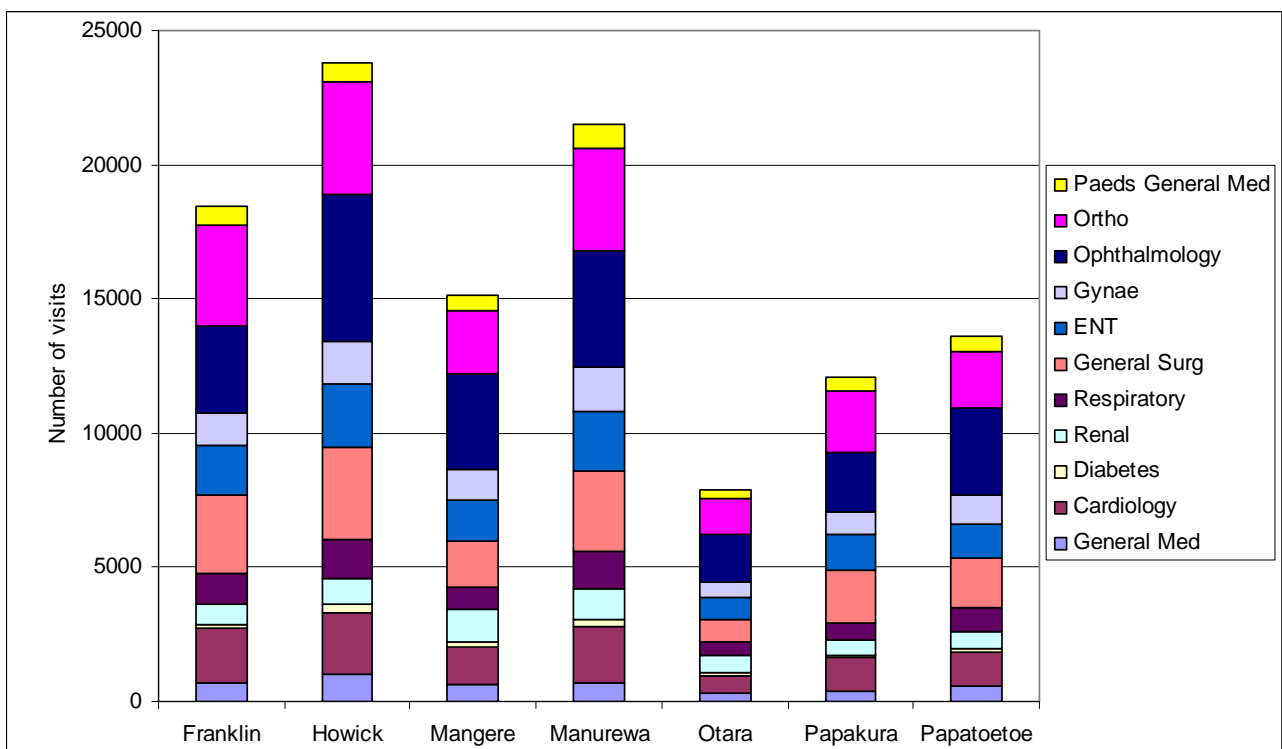

Source: Ministry of Health, NNPAC, analysed by CMDHB

4.4   Outpatient Care

In 2010 there were just under 300,000 (299,260) visits to outpatient clinics[38] by CMDHB residents. 56% of these were to Manukau Super Clinic, 21% to Middlemore Hospital and 22% to Auckland DHB facilities. Some specialities are provided as tertiary services and hence are much more heavily weighted to Auckland facilities such as cancer services (95% provided at Auckland) and specialist paediatric clinics (paediatric surgery, specialist medical services) while adult and child general medical services are predominantly provided at Manukau Super Clinic.

As demonstrated in Figure 46 and Table 77, Howick and Manurewa residential localities were responsible for the largest volume of outpatient visits when the main medical and surgical services are considered, consistent with the size of their residential populations.

Figure 46 Numbers of visits for the main medical and surgical services outpatient clinics, first appointments & follow up visits combined, excluding dialysis, by residential locality, 2010

This analysis includes adult general medical, cardiology, diabetes, renal (except dialysis), respiratory, general surgery, ENT, gynaecology, ophthalmology, orthopaedic; and paediatric general medical visits.
 Source: Ministry of Health, NNPAC, analysed by CMDHB

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[38] Mental health outpatient visits are recorded in a separate database and are not included in this number, but described in a subsequent section. These figures do not include allied health and support service activity because these visits are not consistently reported in the national outpatient database, NNPAC, by all DHBs. Those visits could be analysed for CMDHB facilities.

Table 77 Number of visits for the main medical and surgical services outpatient clinics, first appointments & follow up visits combined, by residential locality, 2010

	Franklin	Howick	Mangere	Manurewa	Otara	Papakura	Papatoetoe
Adult services							
General Med	701	990	613	716	292	394	561
Cardiology	2023	2321	1405	2103	670	1252	1279
Diabetes	158	340	232	223	95	97	153
Renal	755	919	1188	1161	654	553	633
Dialysis	2431	3471	12644	7678	6876	4332	5001
Respiratory	1154	1484	842	1387	491	651	841
General Surg	2929	3395	1701	2994	857	1938	1902
ENT	1842	2359	1544	2256	843	1338	1268
Gynae	1174	1638	1110	1653	558	846	1031
Ophthalmology	3272	5476	3557	4314	1795	2240	3292
Ortho	3756	4145	2358	3788	1319	2298	2100
Paediatric Services							
Paeds General Med	695	721	559	907	314	505	522

Source: Ministry of Health, NNPAC, analysed by CMDHB

Mental Health Outpatient and Community Contacts

As noted previously, in the past decade CMDHB has developed significant community alternatives to acute mental health admissions. This has led to a low number of hospitalisations for the size of the CMDHB population and much of work is managed in outpatient and community settings. Mental health outpatient and community contacts are recorded in a separate database from other outpatient services. Services provided are recorded separately for children, adults and older people. The age distinctions between these services can vary according to the clinical and social circumstances but in general child services cater for those up to age 16-20 years, and services for older people begin at age around 65 years. Contacts include individual visits, caregiver/whaanau/family visits, and include services provided in homes and care facilities as well as clinics.

Community mental health services are currently organised according to four areas - Otahuhu (providing services for Mangere, Otara and Otahuhu), Manukau (Papatoetoe, Manukau and Manurewa), East (Howick/ Botany), and Papakura (Papakura and Franklin).

The largest volumes of contact in 2010 were provided to residents of Manurewa, Howick and Papatoetoe (Table 78).

Table 78 Number of mental health outpatient and community contacts, first contact and & follow up combined, by residential locality, 2010

Locality	Child	Adult	Older people	Total
Franklin	5,200	11,998	1,586	18,784
Howick	6,968	24,909	3,719	35,596
Mangere	2,873	22,852	1,347	27,072
Manurewa	5,770	31,602	1,495	38,867
Otara	1,342	11,932	286	13,560
Papakura	4,009	19,374	2,105	25,488
Papatoetoe	2,949	27,371	2,431	32,751
Total	29,111	150,038	12,969	192,118

Source: CMDHB database, analysed by CMDHB

Health of Older People Outpatient and Community Contacts

Much of the work of the Health of Older People services is also managed in outpatient and community settings. This work and how it relates to inpatient rehabilitation services and aged residential care needs to be examined collectively and it is planned to add this in a future version of this document.