

# ***Enrolled Population Service Locality Overview***

***As at 31 December 2012***

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## Background

The Counties Manukau Health (CM Health) catchment area has been divided into four geographical localities. There are two definitions of locality – enrolled population service locality (or enrolled locality) and residential locality.

### Enrolled population service localities (enrolled locality)

In the enrolled locality view, a patient's locality is determined by which GP practice they are enrolled with, and where that practice is located. There are a few cases where GP practices are close to locality borders where affiliations and networks of interest take precedence over actual physical address in terms of which locality the practice is considered to part of, or is allocated to.

The enrolled population service localities are:

- Mangere/Otara -including northern Papatoetoe
- Eastern - Howick plus Maraetai/Beachlands and Clevedon
- Manukau - Manurewa, Papakura, Drury and the majority of Papatoetoe
- Franklin

These four localities are shown in the map below:

### *Map showing Counties Manukau Health localities*



This document focusses mainly on the enrolled locality view, providing analysis of the demography and health service utilisation of these populations.

## **Residential localities**

In the residential or domiciled locality view, locality is determined by where the patient lives. The four residential localities served by CM Health correspond approximately to the four enrolled localities. For inter-sectoral activities, the Mangere/Otara and Manukau localities taken together largely align with the Auckland Council's Southern Initiative area. This document provides a brief summary of the demography of populations resident in each of these four localities.

Of note, people may not live and be enrolled in the same locality; for example they may live in Manurewa, but attend a general practice in Otara, so they would be part of the Manukau residential population and the Mangere/Otara enrolled population. They can also live in the CM Health area but be enrolled with a general practice outside the CM Health area (e.g. in the Auckland District Health Board area), and so be part of a CM Health residential locality but not part of a CM Health enrolled locality population.

Prior to these four localities being established, there was analysis done on the basis of the CM Health population being divided into localities that aligned to the Auckland Council local board boundaries where possible. These divisions gave seven CM Health residential localities: Mangere, Otara, Papatoetoe, Howick, Manurewa, Papakura and Franklin.

A summary of the demography, health indicators and health service utilisation of the population of CM Health mapped according to those seven residential localities was compiled in 2011 and is available on the CM Health website:

[http://www.countiesmanukau.health.nz/About\\_CMDHB/Overview/population-profile.htm](http://www.countiesmanukau.health.nz/About_CMDHB/Overview/population-profile.htm)

## **Sources of information for enrolled population analyses**

Payment for patients receiving primary care services from general practice in New Zealand is distributed according to a capitation formula based on the number and demographic characteristics of patients enrolled in the practice. Nearly all practices belong to a Primary Health Organisation (PHO). The DHB has access to an encrypted (anonymous) version of the national PHO register. This provides anonymous information about the people enrolled in general practices located in the DHB area, including how many of these people actually live in the CM Health area and how many of the enrolled patients are people living outside the CM Health area. In addition, information is able to be extracted about CM Health residents who access care through practices outside of CM Health. For the purposes of this report, this latter group are divided into those who access care through practices in Otahuhu, and those who access care through practices beyond both CM Health and Otahuhu.

Practice registers are updated each quarter (at the end of March, June, September, and December). The following analyses are based on the enrolled populations as at the 31 December 2012. Secondary health service utilisation with respect to these patients for the 2012 calendar year (1 January to 31 December 2012) has been extracted. This means that there may be patients enrolled in the practices as at 31 December 2012 who were actually attending a different practice at the time of their service utilisation earlier in the year. There

will always be a degree of movement in the place where people are enrolled. The same caveat applies to the residential population. People can change their primary health care provider at any time so the numbers will always be indicative only.

Appendix One outlines which practice registers are included in each locality. Some practices which are satellites of other practices do not appear on this list as they do not have a separate patient register on the PHO register (for example Bader Drive Health Care practice in Manurewa – the register being linked to the Bader Drive Mangere practice, ETHC Airport Oaks clinic is linked to ETHC Mangere).

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## Demography

The PHO/practice enrolment register includes information on the ethnicity and age of those enrolled. Ethnicity is taken from practice registers and is prioritised in the usual manner for health data from multiple ethnic codes, in the following order: Maaori, Pacific peoples, Asian, European and 'Other' New Zealanders<sup>1</sup>. The demography of the locality enrolled populations described here is based on the practice/PHO enrolment ethnicity. This is the ethnicity that primary care practitioners use in their work with their patients, although historical comparisons of ethnicity recorded in PHO enrolment and ethnicity recorded by self-identification from other health information sets has demonstrated misclassification, and in particular undercounting of Maaori<sup>2</sup>. The ethnicity for the service utilisation is that which is in the National Minimum Data Set (NMDS), linked to the NHI and may differ from the PHO register.

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 CM Health population the South Asian group is predominantly Indian. Within the Other Asian group in Counties Manukau, 63% identify as Chinese. This report uses the categories of Maaori, Pacific, Indian, Other Asian and European/Other (predominantly New Zealand European).

### Overview of the population enrolled in CM Health practices

As at 31 December 2012 there were 456,671 people enrolled in practices in the CM Health area; 28,171 (6%) of these people were living outside of the CM Health area. This leaves 428,500 CM Health residents who were enrolled with CM Health practices.

Table 1 summarises the populations for the CM Health enrolled localities. Manukau is the largest locality, with an enrolled population of just under 160,000 people enrolled as at 31 December 2012. This is 35% of the total enrolled population. Mangere/Otara is the second largest locality with just under 142,000 enrolments (31%).

**Table 1: - Enrolled populations of CM Health service localities – 31 December 2012**

Locality	Total	% of population enrolled in CM Health practices	Rank by size
Eastern	108,874	24%	3
Franklin	46,139	10%	4
Mangere/Otara	141,806	31%	2
Manukau	159,852	35%	1
<b>TOTAL</b>	<b>456,671</b>	<b>100%</b>	

Source: Ministry of Health PHO registers as at 31 December 2012, analysed by CM Health May 2013

<sup>1</sup> 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

<sup>2</sup> Bramley D, Latimer S (2007) The accuracy of ethnicity data in primary care. *New Zealand Medical Journal* 120(1262) 2779

## CM Health residents who access care through practices outside of CM Health

As noted previously, CM Health residents who access primary care through GP practices outside of CM Health can be divided into two groups - those who are enrolled with practices in Otahuhu, and those who access care through practices beyond CM Health and Otahuhu. This distinction is useful as it is known from previous work that more than half of people enrolled in Otahuhu practices are CM Health residents, Table 2 summarises these populations.

**Table 2: Enrolled populations of Otahuhu and CM Health residents enrolled with GP practices located beyond CM Health as at 31 December 2012**

Locality	Total enrolled population	Number CM Health residents enrolled	CM Health residents as % of total enrolled
Otahuhu	39,887	23,536	59%
Other		47,000	

Source: Ministry of Health PHO registers as at 31 December 2012, analysed by CM Health May 2012

Of those CM Health residents enrolled with Otahuhu practices, 24% lived in Mangere and 33% lived in Papatoetoe as at 31 December 2012. For those enrolled beyond both CM Health and Otahuhu, 38% were from Howick and 23% from Mangere.

Adding the above figures to the number of CM Health residents enrolled in CM Health practices, gives a total enrolled population of CM Health residents of 499,036. The estimated resident population of CM Health used in this report is 514, 562 (Statistics New Zealand estimate July 2012)<sup>3</sup>. Using this population estimate there were an estimated 13,849 people living in CM Health at end of 2012 who were not enrolled in a PHO anywhere (2.7% of the estimated resident population). This is consistent with previous work done with regard to a 'constructed' population (people who have come into contact with the health system in some way) of CM Health residents in 2010.

As the DHB is responsible for the people domiciled in its area, it is important to acknowledge that this means a localities approach focusing on the enrolled population will miss up to 84,385 CM Health residents enrolled beyond our borders or not enrolled at all. However if changes are implemented through CM Health primary care practices, it is most often only their enrolled populations whose care can be influenced.

## Ethnicity of the service locality enrolled populations

Enrolled localities within CM Health vary dramatically by ethnicity (Figure 1 and Table 3). Just over half of the enrolled CM Health population who identify as Maaori are enrolled in the Manukau locality, with another third in Mangere/Otara. Nearly three-quarters of Pacific peoples enrolled in CM Health practices are part of the Mangere/Otara locality, with the balance primarily in the Manukau locality. Just over half of the non-Indian Asian population are enrolled in practices in the Eastern locality, with very few in Franklin. The Indian population is fairly evenly distributed between Mangere-Otara and Manukau, with a much smaller percentage

<sup>3</sup> Subsequent Ministry of Health population estimates in 2012 reflected slightly lower population growth for Counties Manukau, with a total estimated population for 2012 of 508,150. However breakdown of this estimate at locality level is not available so the earlier estimate has been used as indicative for the purposes of this document.



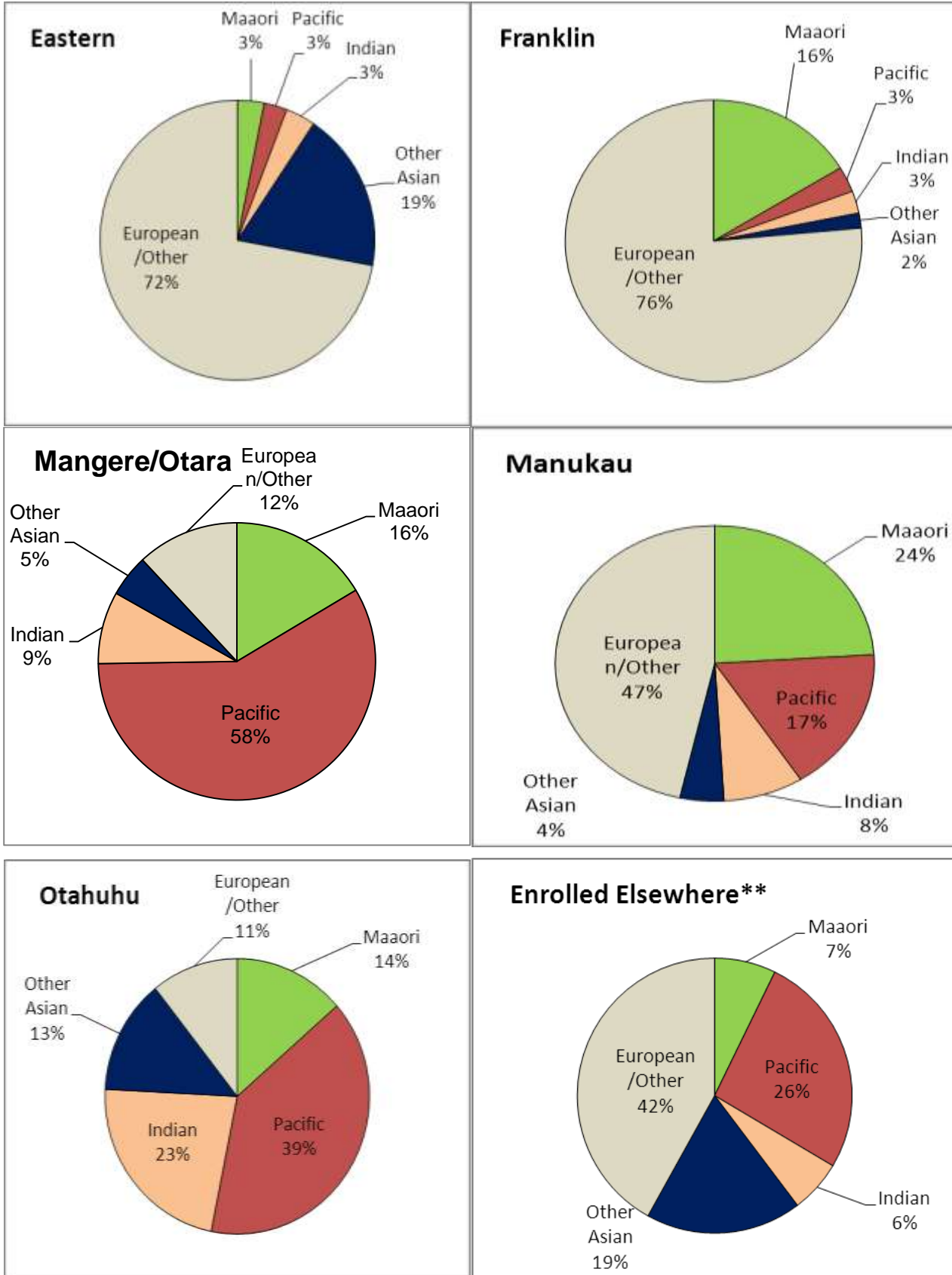
in Eastern and Franklin practices. The Eastern and Manukau localities have over a third each of the European/Other enrolled populations, with most of the balance being in enrolled in Franklin practices.

Of note, the PHO register ethnicity information for the enrolled population of CM Health practices suggests there are fewer people who identify as Asian ethnicities (14%) than in the CM Health estimated resident population (21%). The biggest difference is in Chinese (7% compared with 5%). Indian percentages are closer (8% vs 7%) but the absolute difference is still over 10,000 patients. It is likely that these differences are partly due to differences in recording of ethnicity.

Of those who live outside of CM Health and are enrolled in CM Health practices, 20% are identified as Asian ethnicities, compared to 14% of those who are enrolled and live in Counties Manukau. There are also a higher number identified as European/Other ethnicities in the enrolled population compared to the estimated resident population (45% compared to 42%), again likely relating at least in part to differences in ethnicity recording.

Otahuhu practices have a very low percentage of people identified as European/Other ethnicities and high percentages of people of Pacific, Indian and Other Asian ethnicities. Fewer CM Health residents enrolled beyond CM Health/Otahuhu are identified as Maaori than the enrolled population of CM Health and more identified as Other Asian ethnicities (Table 4).

**Figure 1: Enrolled population of CM Health enrolled localities, percentage by ethnicity**



**\*\*CM Health residents enrolled beyond both CM Health and Otahuhu**

Source: Ministry of Health PHO registers as at 31 December 2012, analysed by CM Health, May 2013

**Table 3:- Enrolled population by ethnicity and CM Health enrolled locality, 31 Dec 2012**

Locality	Maaori	% of locality	% of enrolled Maaori	Pacific	% of locality	% of enrolled Pacific	Indian	% of locality	% of enrolled Indian	Other Asian	% of locality	% of enrolled Other Asian	European/ Other	% of locality	% of CM European/ Other	Total
Eastern	3,430	3%	5%	2,938	3%	3%	3,837	4%	13%	20,175	19%	58%	78,494	72%	38%	108,874
Franklin	7,535	16%	10%	1,355	3%	1%	1,178	3%	4%	794	2%	2%	35,277	76%	17%	46,139
Mangere/Otara	23,280	16%	32%	82,715	58%	72%	11,953	8%	40%	6,953	5%	20%	16,905	12%	8%	141,806
Manukau	38,363	24%	53%	27,098	17%	24%	12,988	8%	43%	7,101	4%	20%	74,302	46%	36%	159,852
<b>CM HEALTH</b>	<b>72,608</b>	<b>16%</b>	<b>100%</b>	<b>114,106</b>	<b>25%</b>	<b>100%</b>	<b>29,956</b>	<b>7%</b>	<b>100%</b>	<b>35,023</b>	<b>8%</b>	<b>100%</b>	<b>204,978</b>	<b>45%</b>	<b>100%</b>	<b>456,671</b>

Source: Ministry of Health PHO registers 31 December 2012, analysed by CM Health May 2013

**Table 4: Population enrolled outside CM Health by ethnicity and enrolled locality, 31 Dec 2012**

Locality	Maaori	% of locality	Pacific	% of locality	Indian	% of locality	Other Asian	% of locality	Other	% of locality	Total
Otahuhu (total)	5,423	14%	15,785	40%	9,035	23%	5,395	14%	4,249	11%	39,887
Otahuhu (CM residents)	1,905	8%	9,975	42%	6,477	28%	3,600	15%	1,579	7%	23,536
Enrolled elsewhere (CM residents)	3,394	7%	12,361	26%	2,905	6%	8,633	18%	19,709	42%	47,000

Source: Ministry of Health PHO registers 31 December 2012, analysed by CM Health May 2013

Within each locality, practices can also have quite different ethnicity profiles. Some practices are set up to provide for specific populations while not being restricted to those populations. Examples are Marae practices for Maaori, and Pacific provider practices for Pacific peoples. Other practices can also serve particular populations; for example in the Eastern locality, some practices serve predominantly Asian populations, while others serve mainly European/Other populations, and in Mangere/Otara and Manukau some practices have higher than average enrolments of Indian patients.

***Enrolled population defined as ‘High need’ for primary care funding and monitoring***

PHO funding and monitoring frameworks include categorisation of the proportion of the enrolled population defined as ‘high need’ – Maaori, Pacific or living in an area defined as high socioeconomic deprivation (NZDep quintile 5 – essentially the poorest fifth of the country). Mangere/Otara and Manukau have much higher percentages of their enrolled population defined as high need (see table 5 below)

**Table 5: Percentage High Needs Patients per Enrolled Locality**

Locality	% high need
Eastern	9%
Franklin	25%
Mangere/Otara	81%
Manukau	54%
<b>Total</b>	<b>49%</b>

*Source: NDSA PHO register summary, analysed by CM Health, May 2013*

**Age of the service locality enrolled populations**

The Mangere/Otara locality has the highest percentage of children in its population at 29%, and the lowest proportion of those 65 years and over (6%) - see Table 6. This reflects the ethnicity of the population, with higher birth rates<sup>4</sup> and lower life expectancy for Pacific and Maaori populations<sup>5</sup>. Of young people and adults, Mangere-Otara also has a higher proportion of those aged 15-44 years (46%) than other localities (39-45%), with less aged 45-64 years. Franklin (14 %) and Eastern (13%) have higher proportions of those aged 65 years and over, close to or meeting the New Zealand average of 13%.

The age profile of the enrolled population of CM Health practices overall is similar in proportion to the CM Health estimated resident population. Of those who live in DHBs other than CM Health and are enrolled in CM Health practices, a higher percentage are aged 15-44 years (49%) than those who are enrolled and live in CM Health (42%). Less children and older people live in DHBs other than CM Health and are enrolled in CM Health practices compared to those who are enrolled and live in CM Health (17% compared to 25% for children, and 8% compared to 10% for those aged 65 years and over).

<sup>4</sup> Jackson C (2011) Antenatal Care in Counties Manukau DHB: A focus on primary antenatal care. Auckland: Counties Manukau District Health Board

<sup>5</sup> O’Brien B, Winnard D, Wang K, Papa D (2012) Life expectancy update to 2011 for Counties Manukau DHB. Unpublished internal memo.

**Table 6: Enrolled population by age group and service locality, 31 December 2012**

Locality	0-14 years	% of locality	% of enrolled pop this age	15-44 years	% of locality	% of enrolled pop this age	45-64 years	% of locality	% of enrolled pop this age	65+ years	% of locality	% of enrolled pop this age	Total
Eastern	21,918	20%	19%	42,874	39%	22%	29,441	27%	28%	14,641	13%	32%	<b>108,874</b>
Franklin	11,228	24%	10%	16,893	37%	9%	11,701	25%	11%	6,317	14%	14%	<b>46,139</b>
Mangere/ Otarā	41,698	29%	37%	65,246	46%	34%	26,170	18%	25%	8,692	6%	19%	<b>141,806</b>
Manukau	39,113	24%	34%	66,735	42%	35%	37,503	23%	36%	16,501	10%	36%	<b>159,852</b>
<b>CM HEALTH</b>	<b>113,957</b>	<b>25%</b>	<b>100%</b>	<b>191,748</b>	<b>42%</b>	<b>100%</b>	<b>104,815</b>	<b>23%</b>	<b>100%</b>	<b>46,151</b>	<b>10%</b>	<b>100%</b>	<b>456,671</b>

Source: Ministry of Health PHO registers 31 December 2012, analysed by CM Health May 2013

Within each locality, practice age structures vary considerably; Table 7 below shows the ranges for each age group.

**Table 7: Practice age structures by locality**

Locality	0-14 years		15-44 years		45-64 years		65+ years		Total
	Range of % this age for practices	% of locality	Range of % this age for practices	% of locality	Range of % this age for practices	% of locality	Range of % this age for practices	% of locality	
Eastern	9-30%	20%	31-49%	40%	19-36%	27%	4-28%	13%	108,874
Franklin	23-32%	25%	35-43%	37%	18-26%	25%	7-15%	13%	46,139
Mangere/ Otarā	14-34%	30%	36-51%	46%	12-29%	18%	4-20%	6%	141,806
Manukau	0-44%	24%	2-61%	42%	11-34%	23%	1-85%	10%	159,852
<b>CM HEALTH</b>		<b>25%</b>		<b>42%</b>		<b>23%</b>		<b>10%</b>	<b>456,671</b>

Source: Ministry of Health PHO registers 31 December 2012, analysed by CM Health, May 2013

## Practice size

The majority of CM Health practices (72%) have less than 5,000 enrolled patients. Ten percent have 10,000 patients or more (Table 8). Note that some of the larger practice registers include the registers of satellite clinics so the actual practices represented may be in the smaller categories. The Manukau service locality has the largest percentage of smaller practices (84%). The Manukau locality's enrolled population is 12% greater than Mangere/Otarā's, but Manukau has 76% more practices.

Overall 42% of the enrolled population in CM Health practices are served by practices of less than 5,000 people, 33% by practices over 10,000 people.

**Table 8: Practice register size by enrolled population locality, 31 December 2012**

Locality	0-4,999	% of pop in practice this size	% of locality practices this size	5,000-9,999	% of pop in practice this size	% of locality practices this size	10,000+	% of pop in practice this size	% of locality practices this size	Total
Eastern	21	49%	75%	5	28%	18%	2	23%	7%	28
Franklin***	2	14%	40%	1	17%	20%	2	69%	40%	5
Mangere/ Otaga***	10	17%	50%	5	25%	25%	5	58%	25%	20
Manukau***	37	67%	84%	6	26%	14%	1	7%	2%	44
<b>CM HEALTH</b>	<b>70</b>	<b>42%</b>	<b>72%</b>	<b>17</b>	<b>25%</b>	<b>18%</b>	<b>10</b>	<b>33%</b>	<b>10%</b>	<b>97</b>

Source: Ministry of Health PHO registers 31 December 2012, analysed by CM Health May 2013

\*\*\*This analysis excludes four small practices with under 300 patients each.

Most practice registers have 10% or less of their patients who live outside CM Health; 13 practices have more than 10% of the patients who live outside CM Health and more than half (7) of these practices are in the Mangere/Otaga locality with most of the rest in the Eastern locality (4).

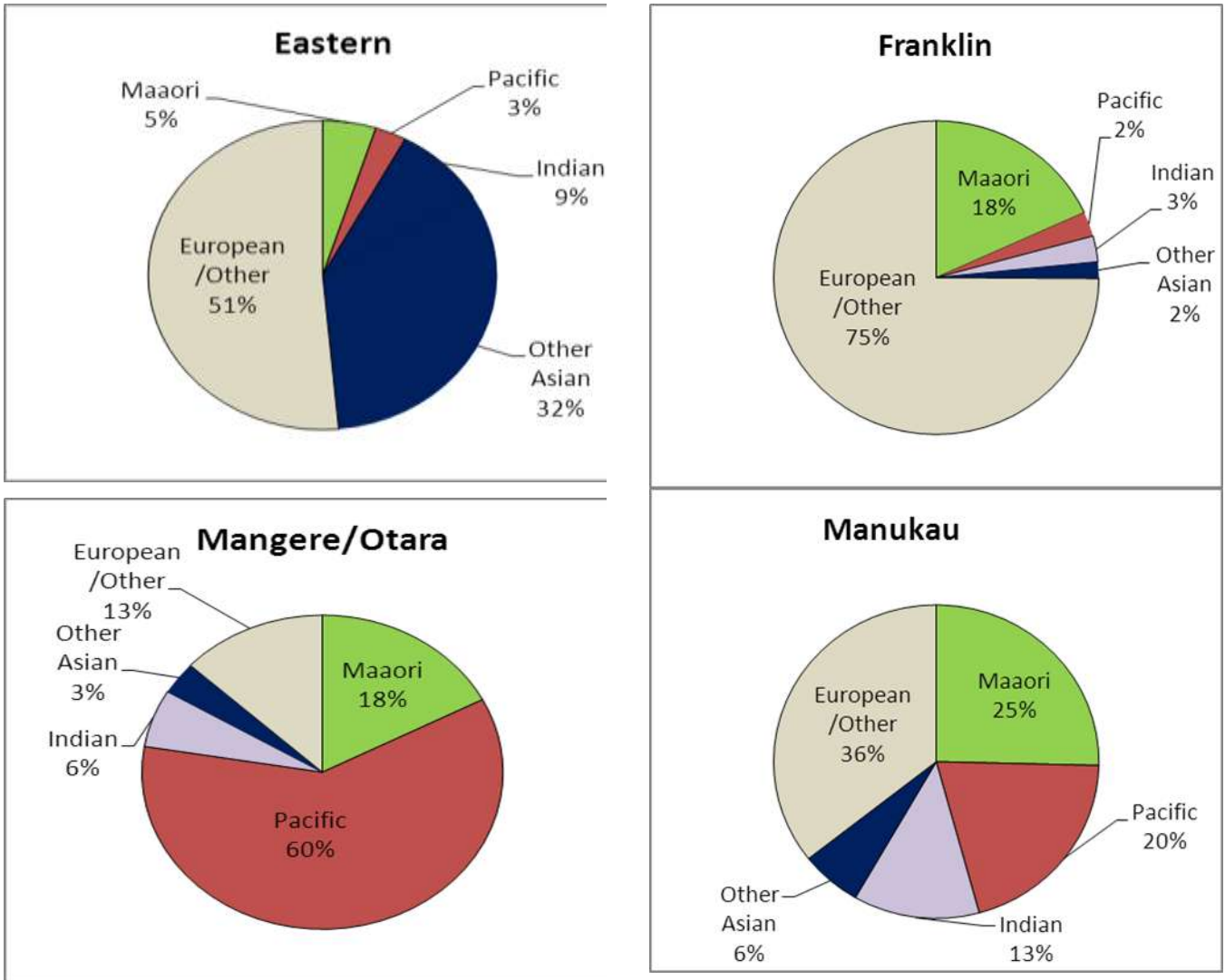
In the Otaga 'locality' 8 of the 10 practices have less than 5,000 patients, with the other two practices having between 5,000 and 9,000.

### **Demography of the Residential Population of the Four Localities**

While the localities focus is on the geographical location of the GP practice that a patient is enrolled with, the DHB remains responsible for looking after the health needs of the people residing within the Counties Manukau area. The following gives a brief overview of this population.

The following information is based on projections from the 2006 Census. Until the results of the recent Census 2013 are available, estimated population numbers at the DHB level reflect the expected growth in the size of the population and are indicative only. Even less certain is the actual distribution of the population across the localities and the proportions of different age groups and ethnicities as this can only be assumed based on historical patterns.

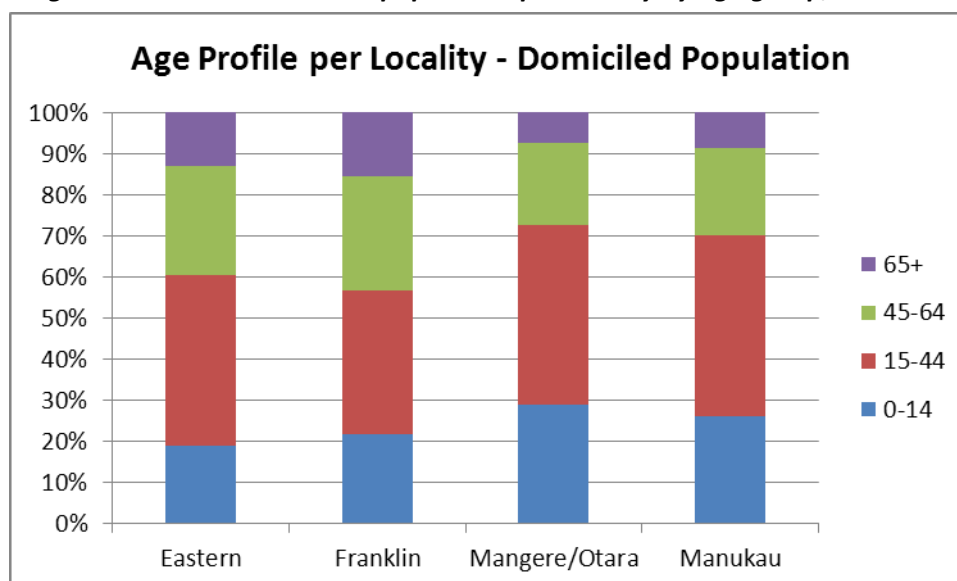
**Figure 2: Estimated resident population per locality as at 31 December 2012**



**Table 9: Estimated resident population per locality by ethnic group, 31 December 2012<sup>3</sup>**

Locality of Domicile	Maaori	Pacific	Indian	Other Asian	European/ Other	TOTAL
Eastern	7,350	4,310	12,930	47,570	76,490	<b>148,640</b>
Franklin	10,510	1,460	1,530	990	43,270	<b>57,760</b>
Mangere/Otara	21,010	72,970	7,190	4,050	15,830	<b>121,050</b>
Manukau	47,490	38,100	23,500	11,400	66,620	<b>187,110</b>
<b>TOTAL</b>	<b>86,350</b>	<b>116,830</b>	<b>45,160</b>	<b>64,010</b>	<b>66,620</b>	<b>514,560</b>

**Figure 3: Estimated resident population per locality by age group, 31 December 2012<sup>6</sup>**



<sup>6</sup> Population estimate as at July 2012. These numbers should be taken as indicative only.



## Hospitalisations/Admissions

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 measured in a number of ways – the actual number of admissions, the number of individuals admitted to hospital (some of them more than once), the number admitted to any publicly funded facility/hospital bed in New Zealand, or the number admitted to a specific facilities (e.g. all CM Health facilities or Middlemore Hospital specifically). The following sections present a range of these ‘views’ across the enrolled population localities of CM Health. The terms hospitalisation, admission and discharge are used interchangeably in terms of counting the number of episodes of hospital care. 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 (NMDS) 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. The record of their discharge is actually related to the hospital speciality team they were under the care of rather than the physical place; for example a person may be discharged from the emergency department having been under the care of a medical team, a surgical team or the emergency department team and their discharge will be recorded against the corresponding speciality, not the Emergency Care (EC) Department.

If someone is in the hospital at midnight (the time of the ‘midnight census’) and stays 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.

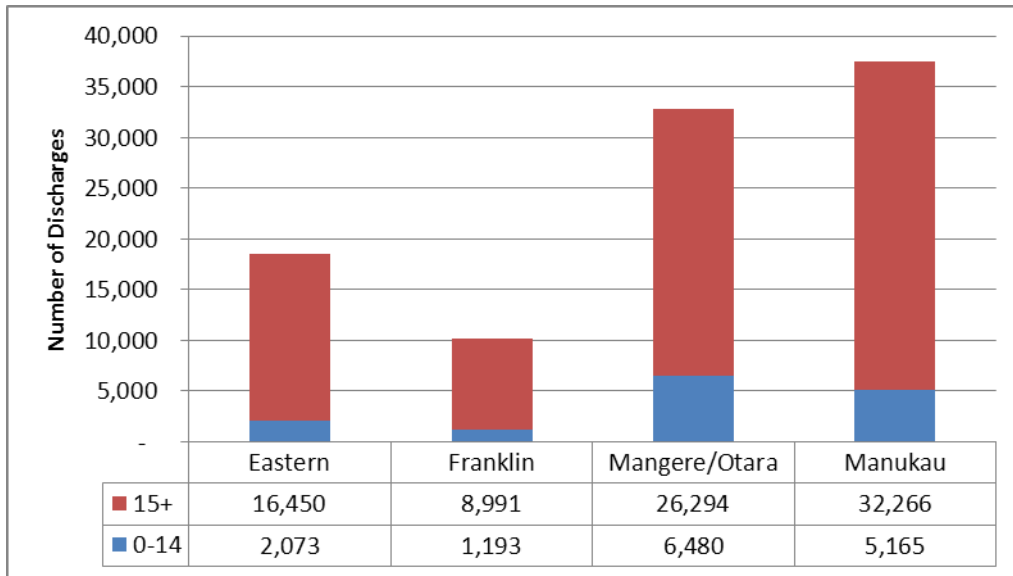
To compare different localities and/or ethnicities, hospitalisation rates should ideally be standardised for age. Both crude and age-standardised rates are presented here. Crude rates are indicative of volumes and absolute level of need. The age-adjusted rates take into account the different age profiles across the localities, and are more suitable for comparing localities. The age-adjusted rates have been calculated based on a combined CM Health locality age profile, with 10 year age groups.

See Appendix Two for more detail on the age-standardising method used.

### **Total hospitalisations**

From 1 January to 31 December 2012 there were 98,912 admissions (excluding well newborns) of people enrolled in general practices in the four CM Health localities to publicly funded facilities/hospital beds in New Zealand, accounting for 253,415 bed days. Manukau was the locality responsible for the highest total number of hospitalisations at 37,431 (38% of the total) closely followed by Mangere/Otara at 32,774 (33%). In comparison these localities contain 35% and 31% of the total enrolled population of CM Health respectively.

**Figure 4: Number of discharges by age group, by enrolled locality, 2012**

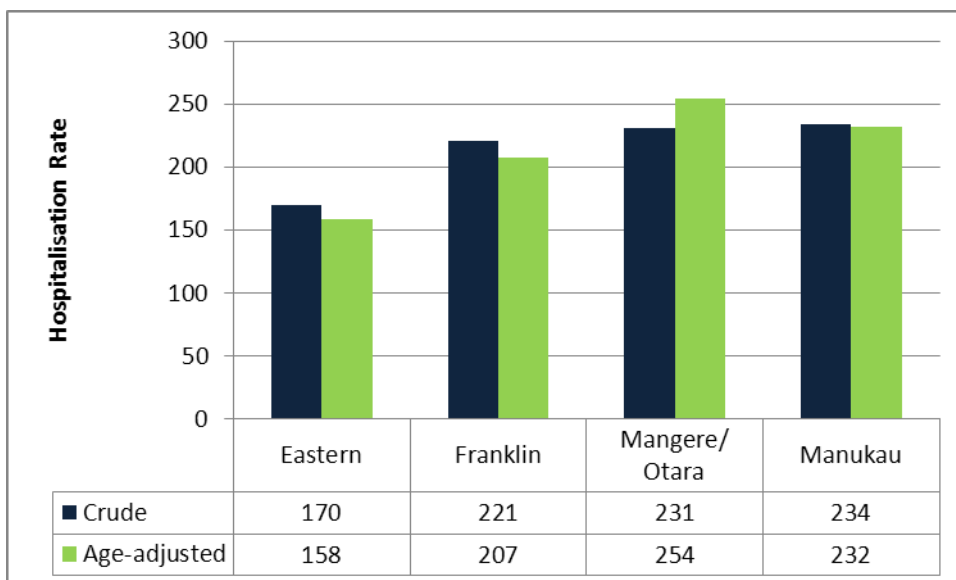


Source: Ministry of Health NMDS, analysed by CM Health May 2013

Figure 4 above shows the total hospitalisations of patients enrolled in the four CM Health GP localities in 2012. These include elective as well as acute admissions, GP as well as self-referrals. The only exclusion is the birth of well babies and admissions to private hospitals. Admissions to Auckland Hospital and other public hospitals are included.

To put these hospitalisation numbers in perspective, figure 5 shows hospitalisation rates per locality.

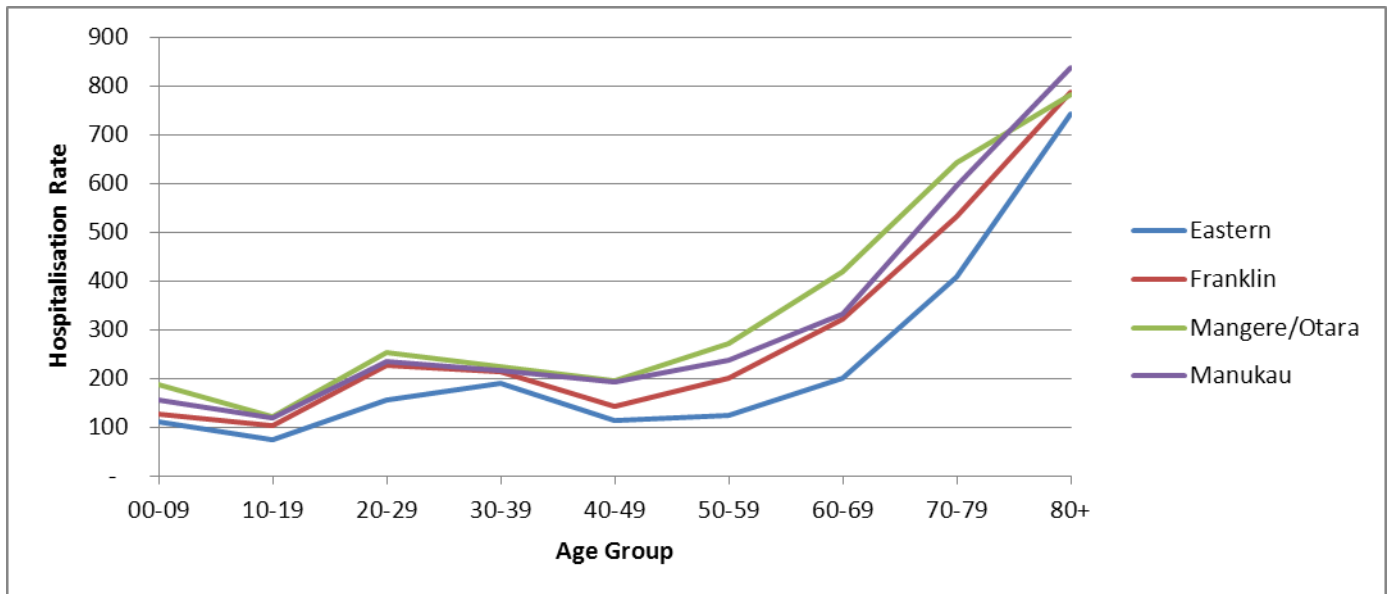
**Figure 5: Crude and age-standardised total hospitalisation rates per 1,000 enrolled patients by locality, 2012**



Source: Ministry of Health NMDS and PHO Registers December 2012, analysed by CM Health May 2013

As can be seen in Figure 5 above, Eastern and Franklin’s age-adjusted rates are lower than their crude rates, whereas Mangere/Otara’s age-adjusted rates are higher. This is because hospitalisation rates increase significantly with age (see figure 6 below). Eastern and Franklin have older populations than the other two localities (see Appendix 2). Age-standardisation therefore lowers Eastern and Franklin localities’ hospitalisation rates.

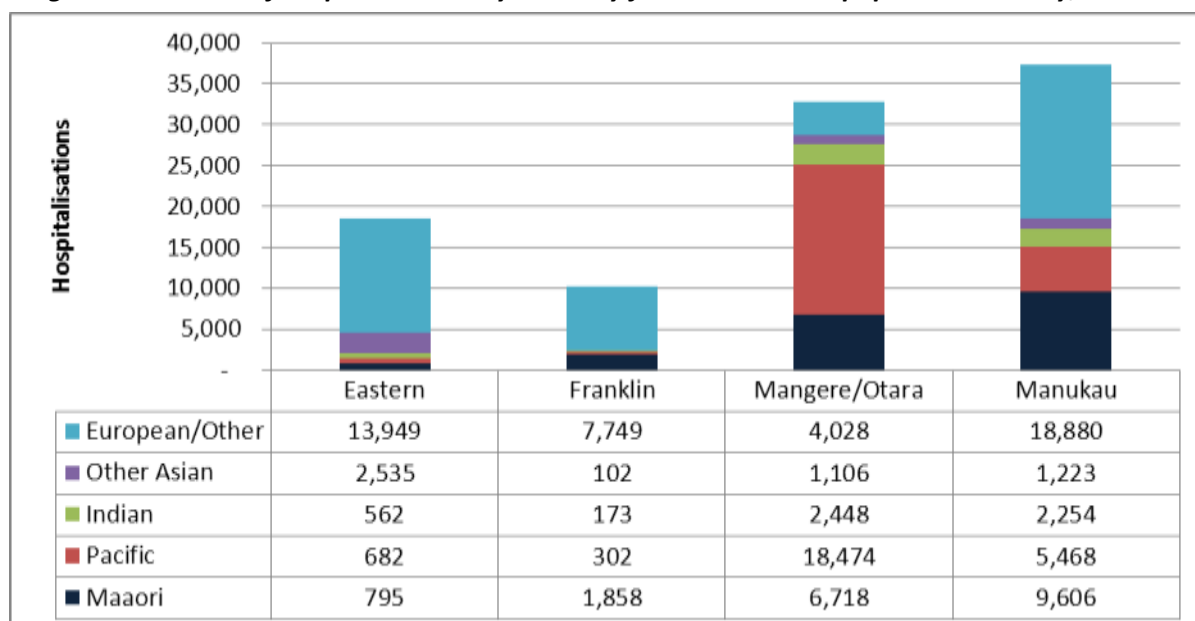
**Figure 6: Hospitalisation rates per 1,000 enrolled patients by age group and locality, 2012**



Source: Ministry of Health NMDS and PHO Registers December 2012, analysed by CM Health May 2013

Figure 7 shows the total number of hospitalisations by ethnicity for each enrolled population locality. Mangere/Otara locality accounted for 74% of Pacific hospitalisations, and Manukau for 51% of Maori hospitalisations, consistent with the ethnic profiles of their locality population. Eastern and Manukau accounted for the largest volumes of European/Other hospitalisations.

**Figure 7: Number of hospitalisations by ethnicity for each enrolled population locality, 2012**



Source: Ministry of Health NMDS, analysed by CM Health May 2013

Bed days related to the total hospitalisations for each locality follow the patterns for hospitalisations, with Manukau having the highest number of bed days 94,969 (37% of the total) (Table 10) followed by Mangere/Otara at 82,164 (32% of the total).

**Table 10: Number of bed days by age group for each enrolled population locality, 2012**

Locality	Age Group (Years)				Total	%
	00-14	%	15+	%		
Eastern	3,329	13%	43,153	19%	46,482	18%
Franklin	2,147	8%	27,653	12%	29,800	12%
Mangere/Otara	12,259	47%	69,905	31%	82,164	32%
Manukau	8,304	32%	86,665	38%	94,969	37%
<b>Total</b>	<b>26,039</b>	<b>100%</b>	<b>227,376</b>	<b>100%</b>	<b>254,415</b>	<b>100%</b>

Source: Ministry of Health NMDS, analysed by CM Health May 2013

**Table 11: Number of bed days by ethnicity for each enrolled population locality, 2012**

Locality	Ethnicity					Total
	Maaori	Pacific	Indian	Other Asian	European/Other	
Eastern	1,908	1,458	1,119	5,467	36,530	46,482
Franklin	5,192	680	516	293	23,119	29,800
Mangere/Otara	19,591	44,030	5,088	2,240	11,215	82,164
Manukau	25,554	11,900	4,242	2,626	50,647	94,969
<b>Total</b>	<b>52,245</b>	<b>58,068</b>	<b>10,965</b>	<b>10,626</b>	<b>121,511</b>	<b>253,415</b>

Source: Ministry of Health NMDS, analysed by CM Health May 2013

Patients of European/Other ethnicity use the most bed days, with 42% of these patients being enrolled with GP practices in the Manukau service locality.

### 3.1.2 Total Hospitalisations in CM Health facilities

Of the 98,912 total hospitalisations (excluding well newborns) for the CM Health enrolled population, 80,486 hospitalisations (81% of the total) were at CM Health facilities (Table 12).

Of the 80,486 CM Health hospitalisations, 64,656 admissions were to Middlemore Hospital (MMH) (80%), 12,058 to Manukau Surgery Centre (MSC) and 3,772 to other CM Health facilities.

There were 18,486 hospitalisations for the CM Health enrolled population at non-CM Health facilities.

**Table 12: Total Number of discharges from CM Health facilities by enrolled locality, 2012**

Locality	Facility			Total (CM Health Facilities)
	CM Health-MMH	CM Health-MSC	CM Health-Other	
Eastern	11,117	2,296	623	14,036
Franklin	6,111	1,591	858	8,560
Mangere/Otara	23,039	2,982	823	26,844
Manukau	24,389	5,189	1,468	31,046
Total	64,565	12,058	3,863	80,486

Source: Ministry of Health NMDS, analysed by CM Health May 2013

### Acute and Arranged Casemix-funded Hospitalisations

Of the 98,912 total hospitalisations in 2012 for the CM Health enrolled population, 58,421 (59%) were acute or arranged hospitalisations discharged by casemix-funded specialties. "Acute" and "arranged" in this context are Ministry of Health defined admission types. Broadly speaking they are all admissions that are not elective. Casemix-funded specialties are those within Medicine, Surgery, Women's Health and Emergency Care. These discharges accounted for 150,920 bed days. See Table 13 following.

**Table 13: Acute and arranged casemix-funded discharges and bed days used by locality and age group**

Locality	0-14		15+		All Ages	
	Discharges	Bed Days	Discharges	Bed Days	Discharges	Bed Days
Eastern	1,445	1,834	9,012	24,519	10,457	26,353
Franklin	811	1,367	4,484	13,993	5,295	15,360
Mangere/Otara	5,094	9,321	15,873	42,243	20,967	51,564
Manukau	3,804	6,490	17,898	50,523	21,702	57,013
<b>TOTAL</b>	<b>11,154</b>	<b>19,012</b>	<b>47,267</b>	<b>131,278</b>	<b>58,421</b>	<b>150,290</b>

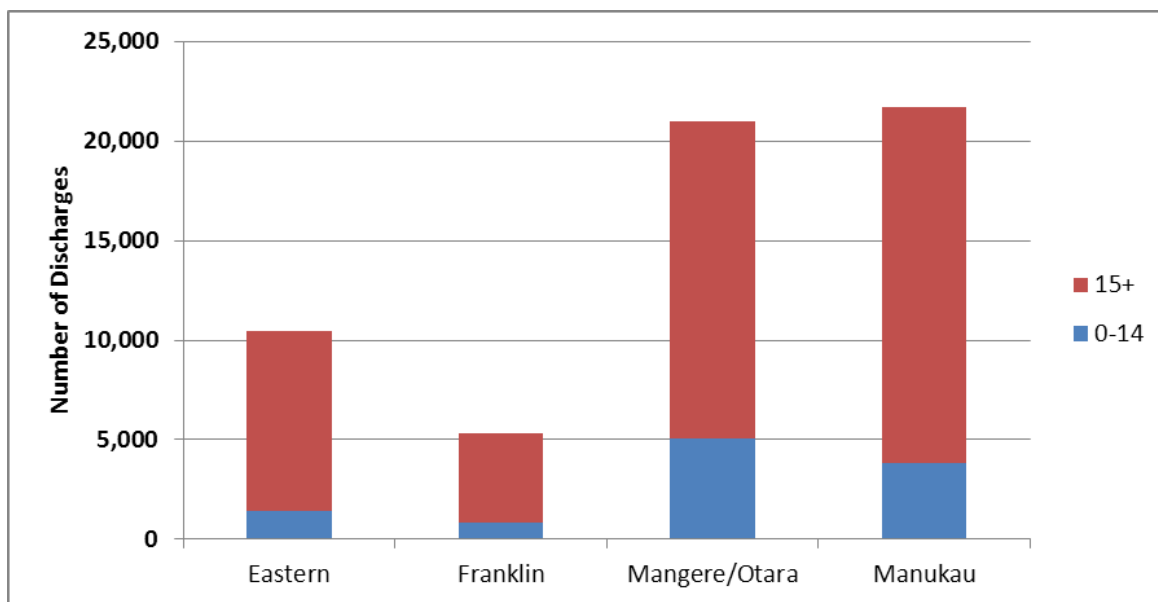
Source: Ministry of Health NMDS, analysed by CM Health May 2013

Approximately 17% of the above admissions are maternity related – mother and baby discharges. For information on deliveries per enrolled locality, please see the section on page 36.

This sub-group of hospitalisations (acute and arranged casemix-funded) follows the same pattern by locality as total hospitalisations. Manukau has the most discharges and bed days used overall – 37% and 38% of the total respectively. However Mangere/Otara has the highest number of discharges and bed days in the 0-14 age group (almost 46% of all CM Health enrolled localities in this age group).

This information is shown graphically in figure 8 following.

**Figure 8: Acute and arranged casemix-funded discharges by age group and locality, 2012**



Source: Ministry of Health NMDS, analysed by CM Health May 2013

Looking at the acute and arranged casemix-funded discharges by locality and ethnicity in tables 14 and 15, it can be seen that Manukau enrolled locality contributes the greatest number of Maori discharges and bed days. Manukau locality also contributes the greatest number of European/Other bed days. Mangere/Otara locality has the greatest number of Pacific discharges and bed days (75% of all Pacific discharges and 77% of all Pacific bed days).

**Table 14: Acute and arranged casemix-funded discharges by locality and ethnic group, 2012**

Locality	Maaori	Pacific	Indian	Other Asian	European/Other	TOTAL
Eastern	512	443	348	1,176	7,978	<b>10,457</b>
Franklin	1,078	169	95	48	3,905	<b>5,295</b>
Mangere/Otara	4,245	12,158	1,502	599	2,463	<b>20,967</b>
Manukau	5,947	3,400	1,307	585	10,463	<b>21,702</b>
<b>TOTAL</b>	<b>11,782</b>	<b>16,170</b>	<b>3,252</b>	<b>2,408</b>	<b>24,809</b>	<b>58,421</b>

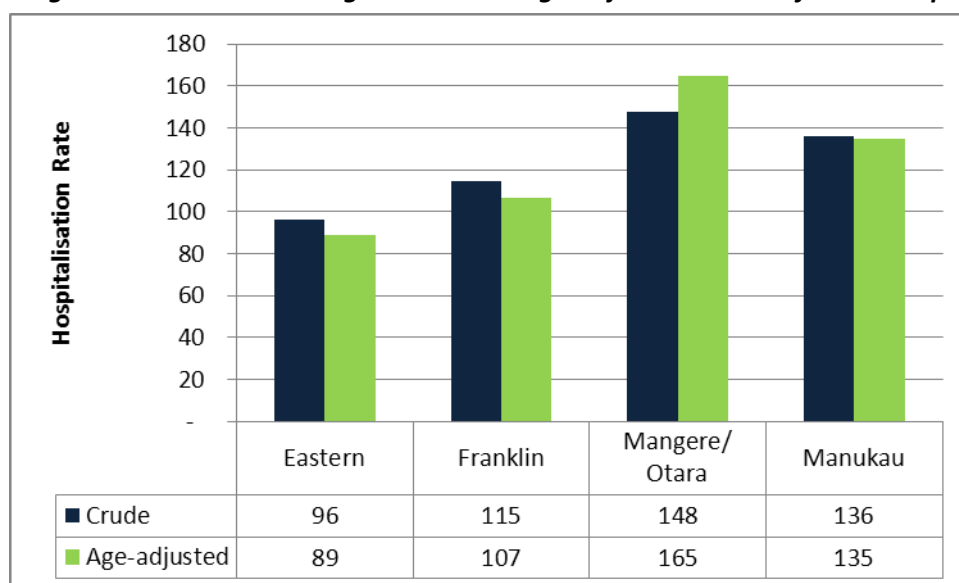
Source: Ministry of Health NMDS, analysed by CM Health May 2013

**Table 15: Acute and arranged casemix-funded bed days by locality and ethnic group**

Locality	Maaori	Pacific	Indian	Other Asian	European/Other	TOTAL
Eastern	1,084	981	643	2,631	21,014	<b>26,353</b>
Franklin	3,081	416	282	136	11,445	<b>15,360</b>
Mangere/Otara	10,317	30,065	3,368	1,171	6,643	<b>51,564</b>
Manukau	14,556	7,668	2,631	1,260	30,898	<b>57,013</b>
<b>Grand Total</b>	<b>29,038</b>	<b>39,130</b>	<b>6,924</b>	<b>5,198</b>	<b>70,000</b>	<b>150,290</b>

Source: Ministry of Health NMDS, analysed by CM Health May 2013

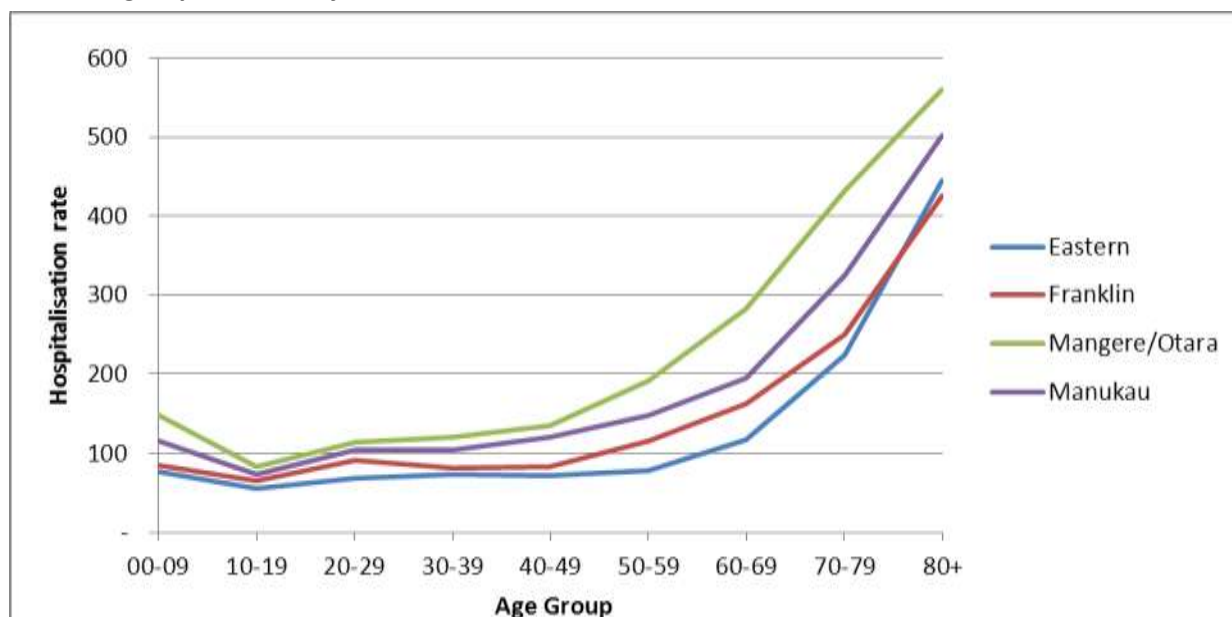
**Figure 9: Acute and arranged crude and age-adjusted casemix-funded hospitalisations, all DHBs, 2012**



Source: Ministry of Health NMDS and PHO registers, analysed by CM Health May 2013

Figure 9 shows the acute and arranged crude and age-adjusted casemix-funded hospitalisation rates per 1,000 enrolled patients per locality. As for the total hospitalisation rates, the age-adjusted rates are higher for Mangere/Otara, lower for Eastern and Franklin, and similar to the crude rate for Manukau. As can be seen in figure 10 below, Mangere/Otara locality's hospitalisation rates are the highest for all age groups. And hospitalisation rates are higher for all localities in the older age groups. The source of the age profile used for age-standardising is all four CM Health localities combined. This population has a higher percentage of older patients than the actual Mangere/Otara population, and this is the main reason for their age-standardised hospitalisation rate being higher than their crude rate.

**Figure 10: Acute and arranged casemix-funded hospitalisation rates per 1,000 enrolled patients by age group and locality, 2012**



Source: Ministry of Health NMDS and PHO registers, analysed by CM Health May 2013

### 3.1.4 Acute and arranged casemix-funded hospitalisations in CM Health Facilities

Of the 58,421 acute and arranged casemix-funded hospitalisations for the CM Health enrolled population, 47,483 hospitalisations (81% of the total) were at CM Health facilities (Table 16). There were 10,938 hospitalisations for the CM Health enrolled population at non-CM Health facilities.

Eastern locality has a significantly higher rate of usage of non-CM Health facilities, mainly Auckland City Hospital for tertiary services.

**Table 16: Acute and arranged casemix-funded hospitalisations by CM Health Facility**

Locality	Middlemore/ MSC	Other	TOTAL	% Other
Eastern	7,970	2,487	10,457	24%
Franklin	4,337	958	5,295	18%
Mangere/Otara	17,290	3,677	20,967	18%
Manukau	17,886	3,816	21,702	18%
<b>TOTAL</b>	<b>47,483</b>	<b>10,938</b>	<b>58,421</b>	<b>19%</b>

Source: Ministry of Health NMDS, analysed by CM Health May 2013

?Practice variation



## 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 are weighted at 50% of the actual volumes of admissions to reflect the proportion which are thought to be ambulatory sensitive. These are the categories Stroke, AMI, Angina and Chest Pain, and Other Ischaemic Heart Disease (IHD).

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.

Table 17 shows that in 2012 there were a total of 15,358 weighted ASH discharges (17,664 un-weighted) for people enrolled in practices in CM Health. This gives a total crude ASH rate of 34 per 1,000 enrolled patients.

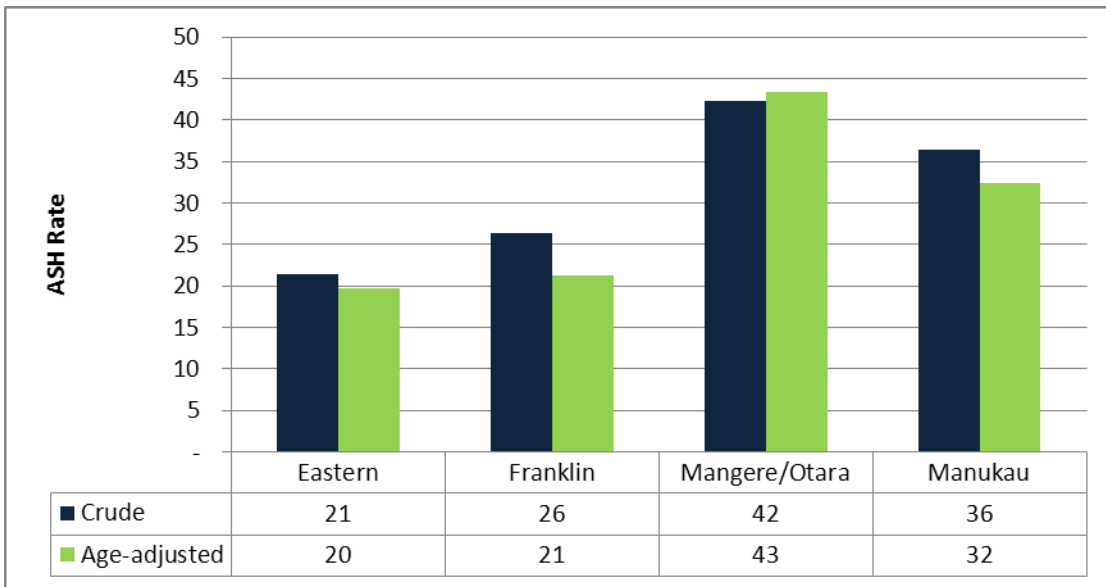
When taking into account the size of enrolled populations, Mangere/Otara had the highest crude ASH rate for both children and adults (Figure 11). In terms of volumes, Mangere/Otara and Manukau both had high numbers of child and adult ASH. Volumes and crude ASH rates were considerably lower for the Eastern and Franklin localities.

**Table 17: Number of ASH presentations by age group and locality, 2012**

Locality	Age		TOTAL
	0-14	15+	
Eastern	408	1,922	2,330
Franklin	244	972	1,216
Mangere/Otara	1,689	4,308	5,997
Manukau	1,291	4,525	5,816
<b>TOTAL</b>	<b>3,632</b>	<b>11,726</b>	<b>15,358</b>

Source: Ministry of Health NMDS, analysed by CM Health May 2013

**Figure 11: ASH rates per 1,000 enrolled patients by locality 2012**



Source: Ministry of Health NMDS and PHO Registers, analysed by CM Health May 2013

The ASH rates by locality are consistent with the total hospitalisation rates and the acute and acute arranged casemix-funded hospitalisation rates in that Mangere/Otara has significantly higher ASH rates than the other 3 localities. Eastern locality has the lowest rates. However Franklin locality is very similar to Eastern when comparing age-adjusted rates.

**Figure 12: ASH rates per 1,000 enrolled patients by age group and locality, 2012**

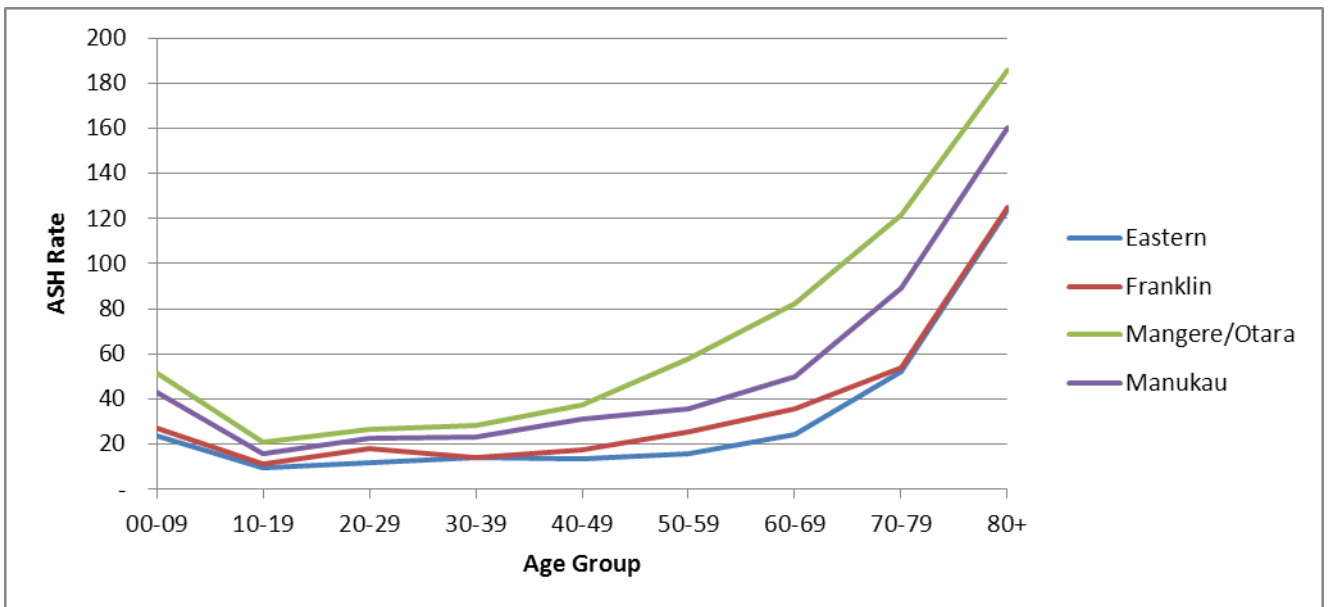


Table 18 below gives the number of ASH admissions to Middlemore Hospital only. There were 12,770 weighted ASH discharges (14,609 unweighted) for people enrolled in practices in Counties Manukau, giving a crude rate of 29 per 1,000. This is 82% of total weighted ASH discharges (Table 16 above). Note that 94% of the enrolled patients are Counties Manukau residents; and that means a significant percentage of ASH discharges for the Counties Manukau residents were not from Middlemore Hospital. Some of this will be accounted for by dental admissions for children, which are done at Auckland Hospital. Patterns for Middlemore Hospital were similar to the total ASH, except that the volume of admissions for children was higher in Manukau than Mangere/Otara, although the crude rate was still higher in Mangere/Otara

As demonstrated in Table 17, the localities vary as to the demographic spread of the total ASH discharges. For example Mangere/Otara has 72% of the enrolled Pacific population and a just a slightly higher percentage of ASH for both Pacific children and adults. Manukau has 43% of the enrolled Indian population and Indian peoples make up similar percentages of Manukau's adult ASH and child ASH discharges (38% and 42% respectively).

**Table 18: Number and percentage of ASH weighted discharges for the enrolled population localities, by ethnicity and age group, 2012**

Age Group	Ethnicity	Eastern		Franklin		Mangere/Otara		Manukau		TOTAL
		Number	% for ethnicity	Number	% for ethnicity	Number	% for ethnicity	Number	% for ethnicity	Number
0-14	Maaori	39	4%	79	8%	351	36%	512	52%	981
	Pacific	39	2%	24	1%	1,222	74%	369	22%	1,653
	Indian	34	14%	8	3%	103	44%	90	38%	235
	Other Asian	76	39%	5	3%	53	27%	60	31%	194
	European/ Other	219	34%	102	16%	70	11%	253	39%	644
15+	Maaori	115	3%	231	9%	890	35%	1,265	53%	2,501
	Pacific	-	3%	19	1%	2,512	75%	673	22%	3,204
	Indian	63	11%	18	5%	320	43%	267	42%	668
	Other Asian	167	39%	9	1%	85	26%	97	33%	357
	European/ Other	1,502	30%	702	14%	524	10%	2,197	46%	4,924
<b>TOTAL</b>		<b>2,254</b>	<b>15%</b>	<b>1,197</b>	<b>8%</b>	<b>6,130</b>	<b>40%</b>	<b>5,783</b>	<b>37%</b>	<b>15,457</b>

Source: Ministry of Health NMDS, analysed by CM Health May 2013

These patterns are similar if Middlemore Hospital ASH discharges are considered separately.

## ASH by Disease Category

As demonstrated in Table 19 below, the high volume ASH disease categories for all enrolled population localities were cellulitis, angina and chest pain, pneumonia and gastroenteritis/dehydration. 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.

**Table 19: Number of ASH discharges (any publicly funded hospital facility in New Zealand) by category and enrolled population locality, 2012**

ASH Disease category	Eastern	Franklin	Mangere/Otara	Manukau	Total
Angina and chest pain*	272 (543)	126 (252)	451 (902)	524 (1,047)	1,372 (2,744)
Asthma	131	53	528	459	1,171
Bronchiectasis	-	-	17	17	36
Cellulitis	287	155	1,031	878	2,351
Cervical cancer	8	-	7	9	28
Congestive heart failure	108	75	223	303	709
Constipation	87	40	152	138	417
Dental conditions	80	74	348	260	762
Dermatitis & eczema	20	19	74	72	185
Diabetes	97	68	365	296	826
Epilepsy	76	30	159	169	434
Gastroenteritis/dehydration	364	132	701	713	1,910
GORD (Gastro-oesophageal reflux disease)	86	30	99	139	354
Hypertensive disease	31	11	39	58	139
Kidney/urinary infection	183	86	406	381	1,056
Myocardial infarction*	95 (189)	45 (119)	115 (280)	205 (361)	475 (949)
Nutrition Deficiency and Anaemia	76	22	111	117	326
Other ischaemic heart disease*	5 (5)	- (5)	19 (15)	22 (20)	24 (47)
Peptic ulcer	17	14	57	47	135
Respiratory infections - Pneumonia	160	114	565	494	1,333
Rheumatic fever/heart disease	6	12	77	44	139
Sexually transmitted Infections	-	5	43	30	82
Stroke*	60 (126)	25 (47)	60 (138)	90 (223)	267 (534)
Upper respiratory tract and ENT infections	95	41	449	330	915
Vaccine-preventable disease –other than MMR	-	-	8		11
<b>TOTAL (weighted)</b>	<b>2,350</b>	<b>1,197</b>	<b>6,129</b>	<b>5,782</b>	<b>15,457</b>

Source: Ministry of Health NMDS, analysed by CM Health May 2013

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

The category of vaccine-preventable disease - MMR is not included as numbers were 0 or <5 for all localities

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

Table 20 below shows the percentage of unweighted ASH discharge categories (any publicly funded hospital facility in New Zealand) contributed by each enrolled population locality. Bearing in mind that Manukau represent 35% of the enrolled population, Mangere/Otara 31%, Eastern 23% and Franklin 10%, it

highlights that people enrolled in Mangere/Otara are hospitalised more frequently for a number of conditions. Manukau hospitalisations are also proportionately higher for a number of conditions. Eastern and Franklin are proportionately low for most conditions.

**Table 20: Percentage of ASH discharges (any publicly funded hospital facility in New Zealand) by category, contributed by each enrolled population locality, 2012**

ASH Disease category	Eastern	Franklin	Mangere/Otara	Manukau	Total
Angina and chest pain*	20%	9%	33%	38%	100%
Asthma	11%	5%	45%	39%	100%
Bronchiectasis	-	-	47%	47%	100%
Cellulitis	12%	7%	44%	37%	100%
Cervical cancer	29%	-	25%	32%	100%
Congestive heart failure	15%	11%	31%	43%	100%
Constipation	21%	10%	36%	33%	100%
Dental conditions	10%	10%	46%	34%	100%
Dermatitis & eczema	11%	10%	40%	39%	100%
Diabetes	12%	8%	44%	36%	100%
Epilepsy	18%	7%	37%	39%	100%
Gastroenteritis/dehydration	19%	7%	37%	37%	100%
GORD (Gastro-oesophageal reflux disease)	24%	8%	28%	39%	100%
Hypertensive disease	22%	8%	28%	42%	100%
Kidney/urinary infection	17%	8%	38%	36%	100%
Myocardial infarction*	20%	13%	30%	38%	100%
Nutrition Deficiency and Anaemia	23%	7%	34%	36%	100%
Other ischaemic heart disease*	11%	2%	40%	7%	100%
Peptic ulcer	13%	10%	42%	35%	100%
Respiratory infections - Pneumonia	12%	9%	42%	37%	100%
Rheumatic fever/heart disease	4%	9%	55%	32%	100%
Sexually transmitted Infections	5%	6%	52%	37%	100%
Stroke*	24%	9%	26%	42%	100%
Upper respiratory tract and ENT infections	10%	4%	49%	36%	100%
Vaccine-preventable – Non-MMR	-	-	73%		100%

Source: Ministry of Health, NMDS, analysed by CM Health May 2013

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

The category of vaccine-preventable disease - MMR is not included as numbers were 0 or <5 for all localities

## Use of Emergency Care (EC)

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. Some people are admitted directly to a relevant hospital service; hence the number of acute hospital admissions is larger than the number of admissions from EC. Whether the EC attendances were GP or self-referred is not recorded in NNPAC; this information is available from the CM Health EC database although that database only captures information on people seen at or admitted to CM Health facilities so will miss attendances at ECs at other hospitals.

### All Facilities

There were 82,465 visits to EC departments at publicly funded health facilities in New Zealand by people enrolled in CM Health practices. 21,806 of these visits were by children aged less than 15 years (Table 21). 61% of these attendances resulted in either an admission to an inpatient ward or a statistical admission (where the person was under the care of hospital staff for longer than 3 hours from the first time seen by a health professional).

**Table 21: EC attendances by locality, age and ethnicity, 2012**

Age Grp	Ethnic Grp	Eastern	Franklin	Mangere/ Otara	Manukau	TOTAL
0-14	Maaori	214	387	2,051	2,690	5,342
	Pacific	247	102	6,714	2,096	9,159
	Indian	153	29	564	530	1,276
	Other Asian	603	31	291	314	1,239
	European/ Other	1,550	771	527	1,942	4,790
<b>0-14 Total</b>		<b>2,767</b>	<b>1,320</b>	<b>10,147</b>	<b>7,572</b>	<b>21,806</b>
15+	Maaori	515	932	4,314	6,023	11,784
	Pacific	444	110	11,684	3,421	15,659
	Indian	307	83	1,612	1,543	3,545
	Other Asian	1,140	43	645	599	2,427
	European/ Other	8,016	3,830	3,178	11,807	26,831
<b>15+ Total</b>		<b>10,422</b>	<b>4,998</b>	<b>21,433</b>	<b>323,393</b>	<b>60,246</b>
<b>All ages Total</b>		<b>13,189</b>	<b>6,318</b>	<b>31,580</b>	<b>30,965</b>	<b>82,052</b>

Source: Ministry of Health NNPAC, analysed by CM Health May 2013

As demonstrated in Table 22 following, attendances were more likely to result in admission for people enrolled in the Eastern and Franklin localities than those in Mangere/Otara and Manukau, and admission rates varied by ethnicity and age.

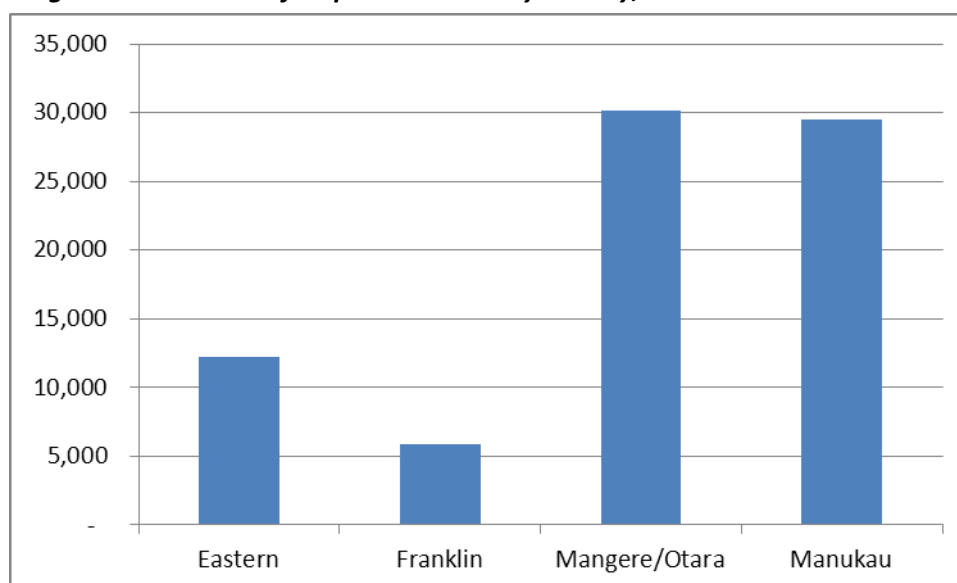
**Table 22: Percentage of people presenting to EC who were admitted - by locality, age and ethnicity, 2012**

Age Grp	Ethnic Grp	Eastern	Franklin	Mangere/ Otara	Manukau	TOTAL
0-14	Maaori	48%	58%	48%	50%	50%
	Pacific	40%	61%	45%	45%	45%
	Indian	48%	57%	41%	37%	40%
	Other Asian	37%	47%	40%	39%	38%
	European/ Other	47%	51%	44%	44%	46%
<b>0-14 Total</b>		<b>44%</b>	<b>54%</b>	<b>45%</b>	<b>45%</b>	<b>46%</b>
15+	Maaori	65%	72%	63%	64%	64%
	Pacific	67%	72%	63%	59%	63%
	Indian	68%	63%	65%	57%	61%
	Other Asian	63%	52%	59%	58%	60%
	European/ Other	72%	75%	65%	69%	70%
<b>15+ Total</b>		<b>71%</b>	<b>74%</b>	<b>64%</b>	<b>65%</b>	<b>66%</b>
<b>TOTAL</b>		<b>65%</b>	<b>70%</b>	<b>58%</b>	<b>60%</b>	<b>61%</b>

Source: Ministry of Health NNPAC, analysed by CM HEALTH May 2013

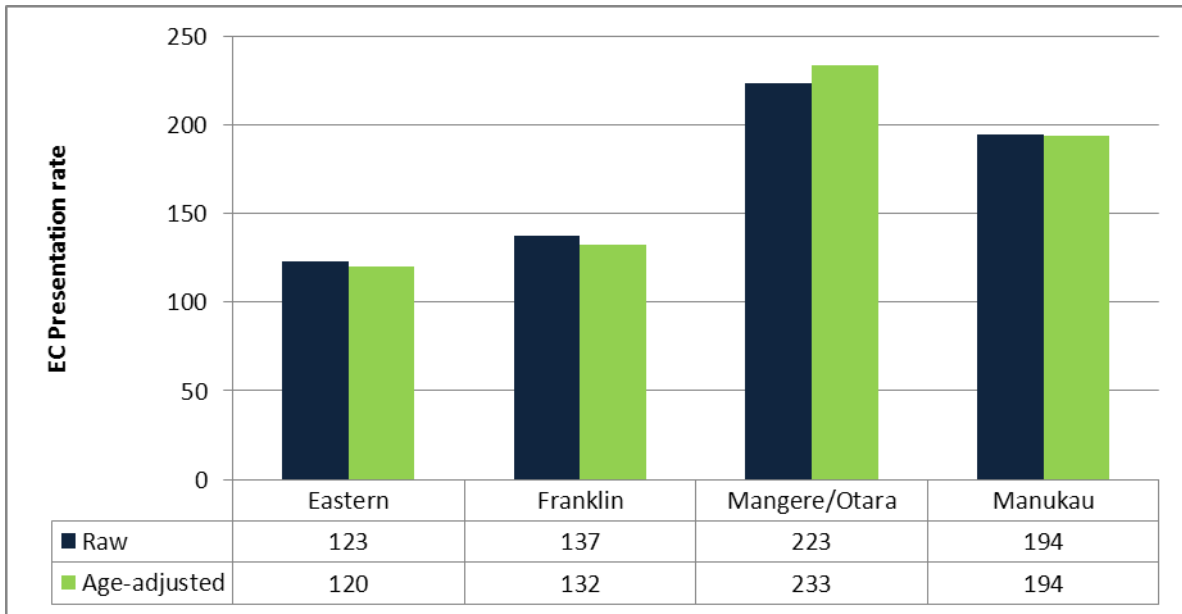
Although the number of EC presentations is highest in Mangere/Otara and higher in Eastern than Franklin, the crude rate per 1,000 of presentations is highest for Mangere/Otara and higher in Franklin than Eastern (Figure 13).

**Figure 13: Number of EC presentations by locality, 2012**



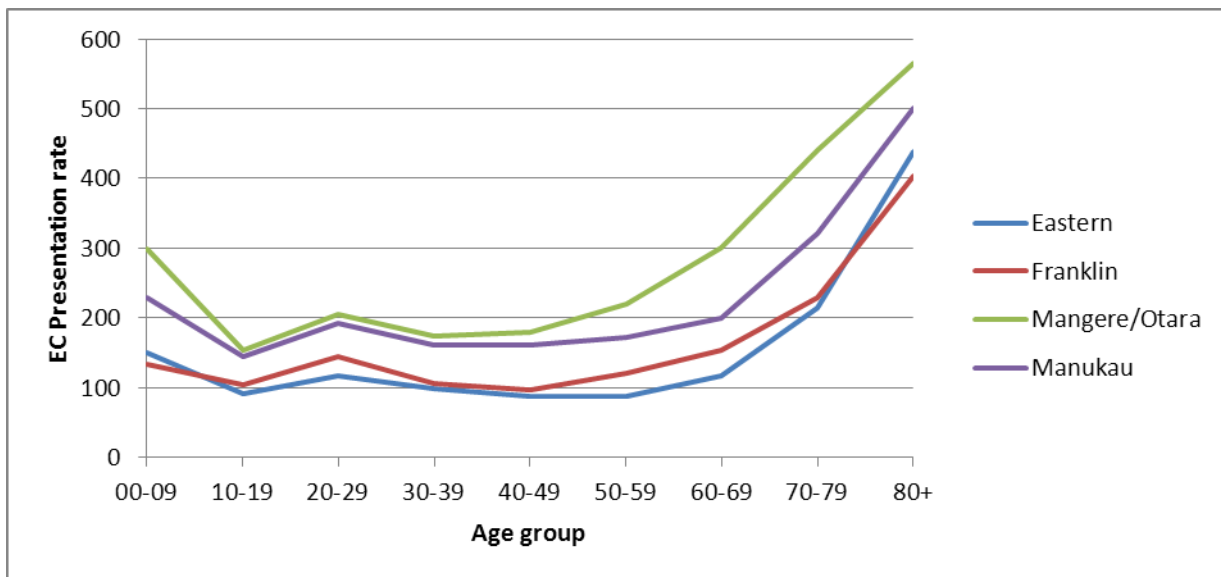
Source: Ministry of Health, NNPAC, analysed by CM Health, May 2013

**Figure 14: EC presentation rates per 1,000 enrolled patients by locality, 2012**



Source: Ministry of Health, NNPAAC, analysed by CM Health, May 2013

**Figure 15: EC presentation rates per 1,000 enrolled patients by age group and locality, 2012**



Of the 82,465 visits to ECs at publicly funded health facilities in New Zealand by people enrolled in the four CM Health localities, 67,930 (82%) were to Middlemore Hospital.

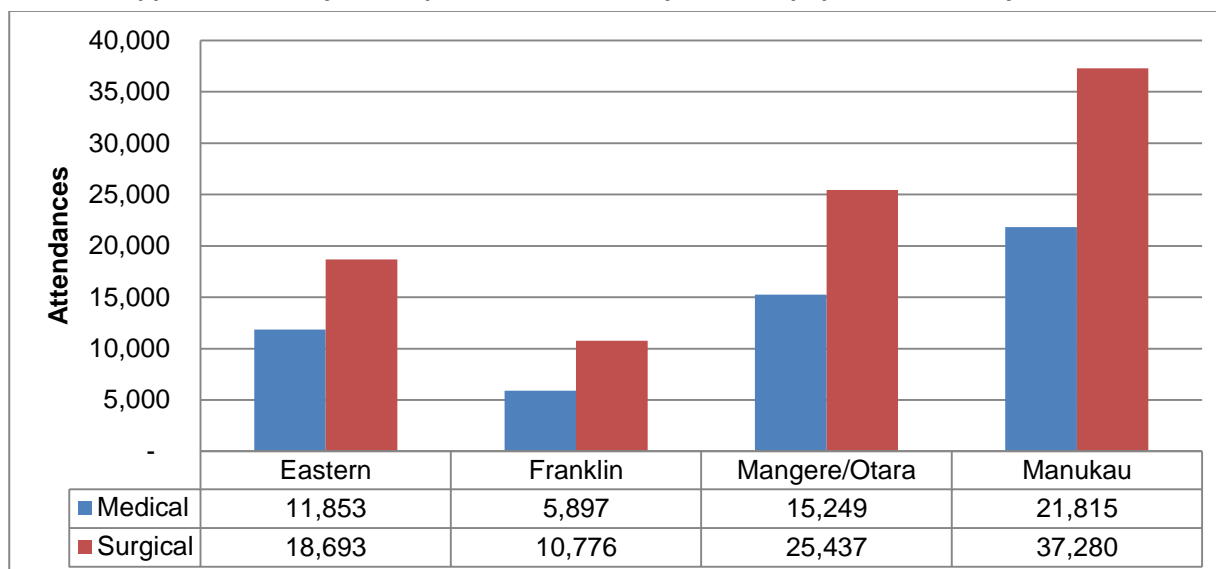


## Outpatient Activity

Outpatient visits are recorded in the National Non-Admitted Patient Collection (NNPAC). Allied health and support service activity is not consistently reported in NNPAC by all DHBs so they are not part of the figures cited below. Those visits could be analysed for CM Health facilities. Mental health outpatient visits are recorded in a separate database and are not included in the following analysis. Total numbers depend very much on definitions, which sub-specialities are included, and how visits are coded so the following numbers are indicative only.

During 2012 there were 147,630 adult medical and surgical first and follow-up specialist clinic attendances. This number excludes “did not attends” (DNAs) and any clinic or session not classified as a first or follow up consultation in terms of the Ministry of Health’s purchase unit codes (PUCs). Please note that some activity performed in an outpatient setting is therefore excluded here. Examples of activity excluded are renal dialysis, endoscopy, education sessions, chemotherapy, sleep studies. As this other activity is quite varied in terms of both resource utilisation and units of activity, the following focusses on “standard” first and follow-up consultations only.

**Figure 16: Numbers of attendances at the main medical and surgical services outpatient clinics, first appointments & follow up visits combined, by enrolled population locality, 2012**



Source: Ministry of Health NNPAC, analysed by CM Health May 2013

A breakdown by specialty is shown in tables 23 and 24 following.

**Table 23: First and follow-up adult MEDICAL outpatient attendances by enrolled locality, 2012**

Specialty	Eastern	Franklin	Mangere/Otara	Manukau	TOTAL
Cardiology	2,210	1,324	3,161	4,898	11,593
Respiratory	1,211	649	2,015	2,658	6,533
Medical Oncology	1,548	823	1,287	2,405	6,063
Renal Medicine	974	488	2,231	2,071	5,764
Gastroenterology	1,390	601	1,144	2,154	5,289
Radiation Oncology	901	451	906	1,547	3,805
General Medicine	702	353	1,254	1,480	3,789
Dermatology	747	328	984	1,377	3,436
Haematology	915	441	723	1,161	3,240
Endocrinology	470	161	582	712	1,925
Neurology	441	205	457	812	1,915
Diabetes	279	57	350	386	1,072
Other Medical	65	16	155	154	390
<b>TOTAL</b>	<b>11,853</b>	<b>5,897</b>	<b>15,249</b>	<b>21,815</b>	<b>54,814</b>

Source: Ministry of Health NNPAC, analysed by CM Health May 2013

**Table 24: First and follow-up SURGICAL outpatient attendances (including Gynaecology) by enrolled locality, 2012**

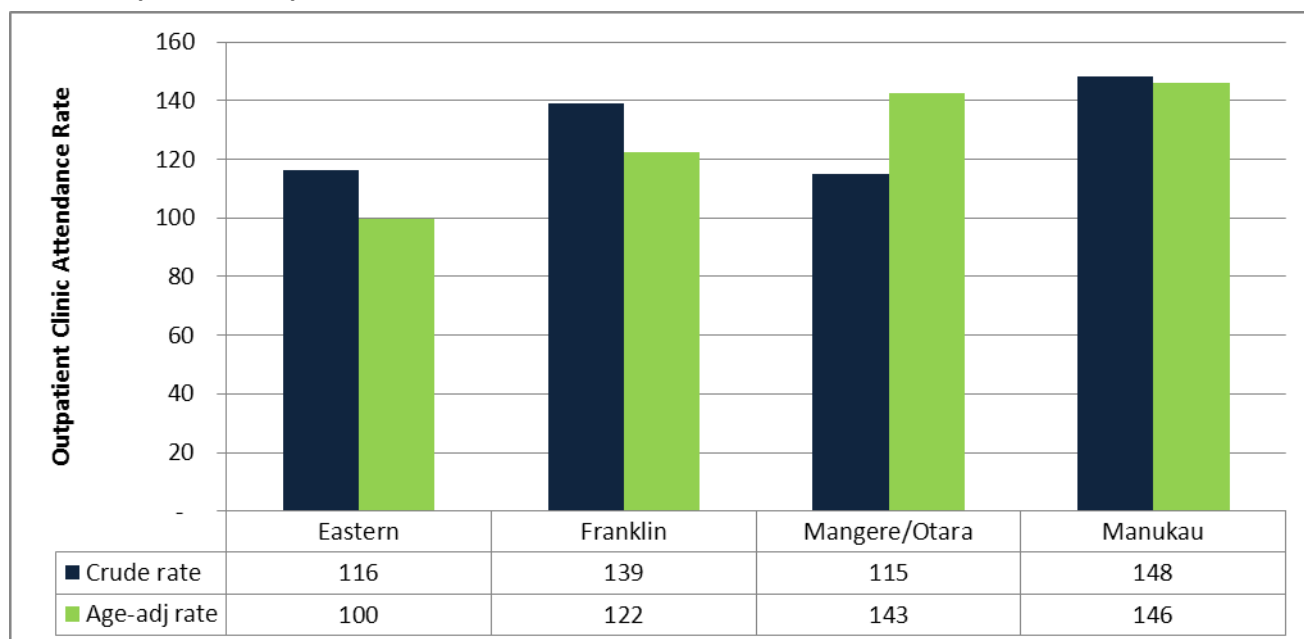
Specialty	Eastern	Franklin	Mangere/Otara	Manukau	TOTAL
Ophthalmology	4,642	2,195	7,460	8,471	22,768
Orthopaedic Surgery	3,794	2,456	4,882	7,885	19,017
General Surgery incl Vascular Surgery)	3,453	2,000	3,983	6,922	16,358
ENT	2,219	1,243	3,974	4,981	12,417
Plastic Surgery (including Burns and Maxillo-Facial Surgery)	2,538	1,830	2,208	4,947	11,523
Gynaecology	1,134	556	1,888	2,276	5,854
Urology	698	375	729	1,355	3,157
Neurosurgery	171	105	251	349	876
Cardiovascular Surgery	44	16	62	94	216
<b>TOTAL</b>	<b>18,693</b>	<b>10,776</b>	<b>25,437</b>	<b>37,280</b>	<b>92,186</b>

Source: Ministry of Health NNPAC, analysed by CM Health May 2013

The above figures exclude DNAs. DNA rates vary widely across the four localities and by specialty. In general, Mangere/Otara locality's DNA rates are the highest and Eastern locality's the lowest.

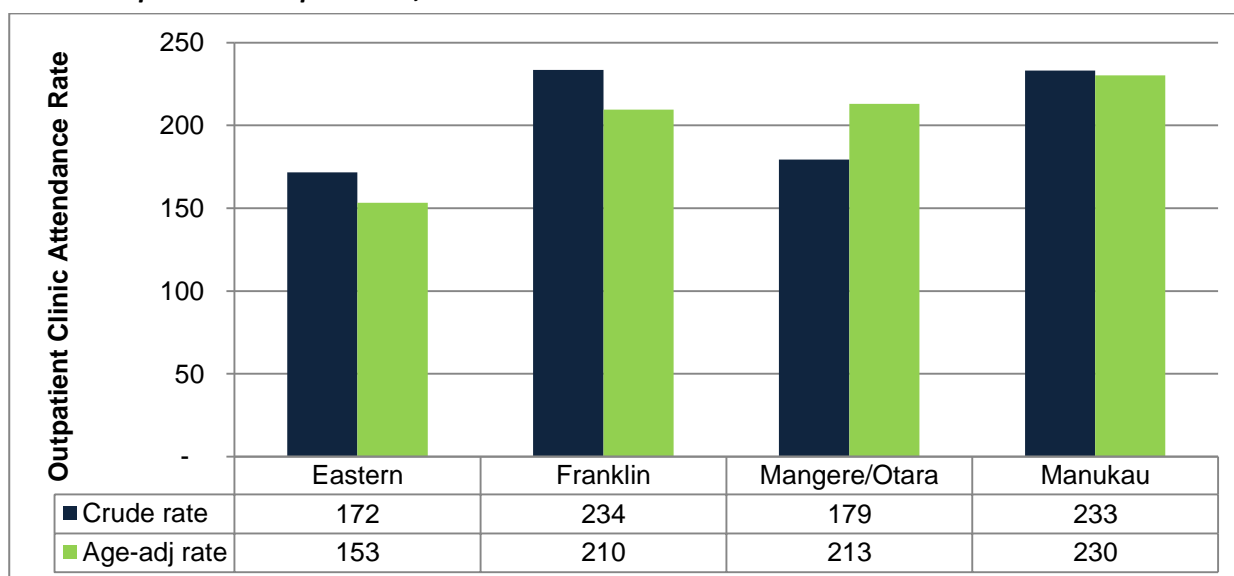
The above outpatient clinic attendances are shown as rates per 1,000 enrolled patients in figures 17 and 18 following.

**Figure 17: Outpatient clinic attendance rates per 1,000 enrolled patients by locality - first and follow-up MEDICAL specialties, 2012**



Source: Ministry of Health NNPAC, analysed by CM Health May 2013

**Figure 18: Outpatient clinic attendance rates per 1,000 enrolled patients by locality – first and follow-up SURGICAL specialties, 2012**



Source: Ministry of Health NNPAC, analysed by CM Health May 2013

Franklin and Manukau enrolled localities have the highest crude usage rates of both medical and surgical outpatient services. This is again related to the Mangere/Otara’s age-adjusted rate of use of medical outpatient services is similar to Manukau and Franklin’s.

## Deliveries

In 2012 there were 7,648 deliveries to women enrolled in practices in the four CM Health service localities (Table 25). Nine per cent of these deliveries were to young women under the age of 20 years. 202 mums were under the age of 18 years.

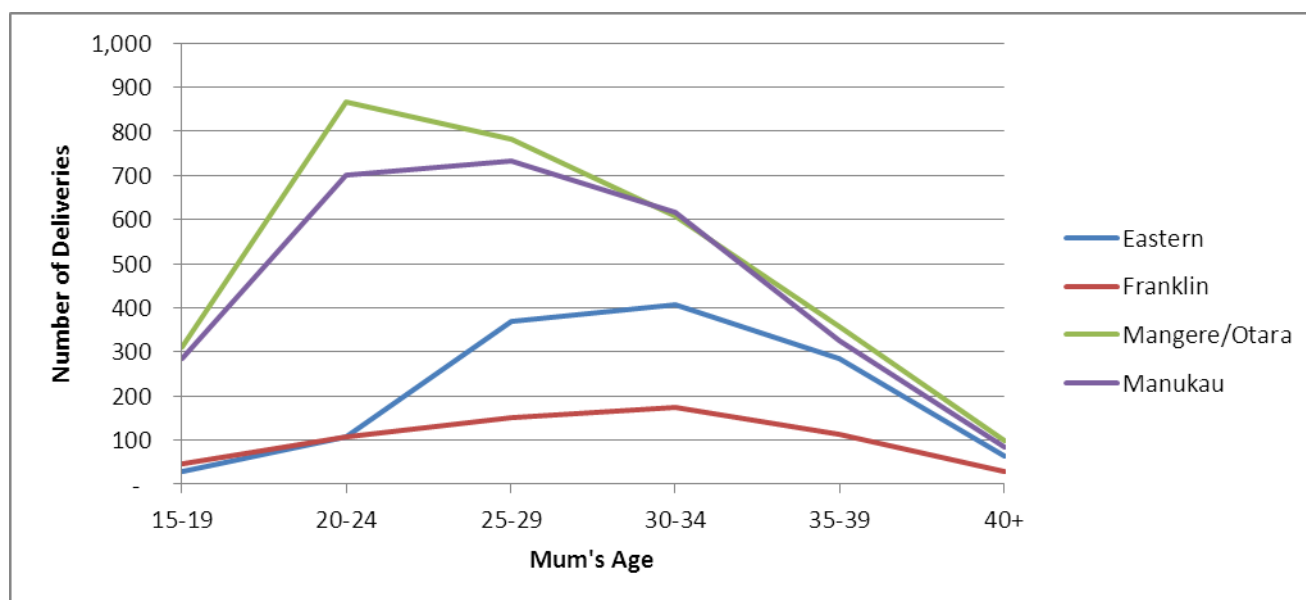
**Table 25: Age of women giving birth and enrolled in CM Health service localities by maternal age, 2012**

Mum's Age	< 20	20-24	25-29	30-34	35-39	40+	Total (%)	% mums < 20
Eastern	29	106	368	406	285	63	1,257(16%)	2%
Franklin	46	107	151	173	112	30	619 (8%)	7%
Mangere/Otara	311	868	782	608	358	100	3,027 (39%)	10%
Manukau	286	700	734	616	325	84	2,745 (36%)	10%
<b>Total</b>	<b>672</b>	<b>1,781</b>	<b>2,035</b>	<b>1,803</b>	<b>1,080</b>	<b>277</b>	<b>7,648</b>	<b>9%</b>

Source: Ministry of Health, NMDS, analysed by CM Health May 2013

The age profile of the mothers is shown in Figure 19. In Mangere/Otara the peak age of mothers giving birth was in the 20-24 years age group, while it was the 25-29 years age group for Manukau, and 30-34 years for Eastern and Franklin. This difference lies in the different fertility patterns of Maori and Pacific women compared to women of other ethnicities. The two areas with the older peak have higher proportions of women of European/Other ethnicities.

**Figure 19: Age of women giving birth and enrolled in CM Health service localities, 2012**



Source: Ministry of Health NMDS, analysed by CM Health May 2013

Pacific mothers formed the single largest ethnicity cluster, making up 33% of all deliveries. These women were principally women from Mangere/Otara (Table 26). Women from European/Other ethnicities were the next largest group with Eastern and Manukau being their main localities of enrolment. The highest number of Maaori deliveries was to women from Manukau.

**Table 26: Ethnicity of women giving birth and enrolled in CM Health service localities by ethnicity, 2012**

	<b>Maaori</b>	<b>Pacific</b>	<b>Indian</b>	<b>Other Asian</b>	<b>European/ Other</b>	<b>Total</b>
Eastern	60	41	47	354	755	1,257
Franklin	151	30	13	15	410	619
Mangere/Otara	682	1,839	220	105	181	3,027
Manukau	971	592	208	167	807	2,745
<b>Total</b>	<b>1,864</b>	<b>2,502</b>	<b>488</b>	<b>641</b>	<b>2,153</b>	<b>7,648</b>

Source: Ministry of Health NMDS, analysed by CM Health May 2013

## Appendix One: Distribution of practices with discrete registers across the four enrolled population service localities as at 31 December 2012

<b>Council Board</b>	<b>PHO/Business Case</b>	<b>Locality</b>	<b>Practice / Register name</b>
Franklin	Procure (GAIHN)	Franklin	Pukekohe Family Doctors***
Franklin	Procure (GAIHN)	Franklin	Pukekohe Family Health Care / Centre
Franklin	Procure (GAIHN)	Franklin	Seddon St Medical Centre***
Franklin	Procure (GAIHN)	Franklin	Tuakau Health Centre
Franklin	Procure (GAIHN)	Franklin	Waiuku Medical Centre
Franklin	Procure (GAIHN)	Franklin	Palms Health (Rest home)
<b>1. Franklin Locality: 6 practices - all Procure (GAIHN)</b>			
Franklin	East Health (GAIHN)	Eastern Suburbs	Clevedon Village Medical Centre
Franklin	East Health (GAIHN)	Eastern Suburbs	Beachlands Medical Centre
Howick	East Health (GAIHN)	Eastern Suburbs	Aviemore Drive Medical Centre
Howick	East Health (GAIHN)	Eastern Suburbs	Crawford Medical Centre
Howick	East Health (GAIHN)	Eastern Suburbs	Eastside Family Doctors
Howick	East Health (GAIHN)	Eastern Suburbs	Highgate Surgery
Howick	East Health (GAIHN)	Eastern Suburbs	Highland Park Medical Centre
Howick	East Health (GAIHN)	Eastern Suburbs	Howick House Medical Centre
Howick	East Health (GAIHN)	Eastern Suburbs	Howick Medical Centre
Howick	East Health (GAIHN)	Eastern Suburbs	Juliet Avenue Surgery (Dr Wong s Surgery)
Howick	East Health (GAIHN)	Eastern Suburbs	Marina Medical Rooms
Howick	East Health (GAIHN)	Eastern Suburbs	Millhouse
Howick	East Health (GAIHN)	Eastern Suburbs	Medical Centre
Howick	East Health (GAIHN)	Eastern Suburbs	Pakuranga Medical Centre
Howick	East Health (GAIHN)	Eastern Suburbs	Picton Street Surgery
Howick	East Health (GAIHN)	Eastern Suburbs	Botany Junction Medical Ltd (Radius Botany Junction)
Howick	East Health (GAIHN)	Eastern Suburbs	Selwyn House Medical Centre
Howick	East Health (GAIHN)	Eastern Suburbs	Sommerville Surgery
Howick	East Health (GAIHN)	Eastern Suburbs	Ti Rakau Medical and Accident
Howick	East Health (GAIHN)	Eastern Suburbs	Vincent Street Family Doctors – Dr Fung
Howick	East Health (GAIHN)	Eastern Suburbs	Vincent Street Family Doctors – Dr Williams
Howick	East Health (GAIHN)	Eastern Suburbs	Botany Terrace Medical Centre
Howick	East Health (GAIHN)	Eastern Suburbs	Community Medical Centre Dannemora
Howick	East Health (GAIHN)	Eastern Suburbs	The Doctors Ti Rakau
Howick	Procure (GAIHN)	Eastern Suburbs	Dr Hanne Family Practice
Howick	Procure (GAIHN)	Eastern Suburbs	Family Health Care Medical Centre
Howick	Procure (GAIHN)	Eastern Suburbs	Howick Health and Medical Centre
Howick	Procure (GAIHN)	Eastern Suburbs	Howick Medical Practice Ltd
Howick	Procure (GAIHN)	Eastern Suburbs	John's Lane Surgery
Howick	Procure (GAIHN)	Eastern Suburbs	Botany Doctor Medical Practice
Howick	Procure (GAIHN)	Eastern Suburbs	Botany Town Centre Medical Practice
<b>2. Eastern Locality: 28 GAIHN practices - East Health(23) and ProCare(7)</b>			
Howick	Total Healthcare Trust	Mangere/Otara	ETHC Dannemora
Otara	Total healthcare Trust	Mangere/Otara	ETHC Dawson Road
Otara	Total healthcare Trust	Mangere/Otara	ETHC- Bairds Road
Otara	Total Healthcare Trust	Mangere/Otara	ETHC East Tamaki Road
Mangere	Total Healthcare Trust	Mangere/Otara	ETHC Mangere Town Centre
Otara	NHC	Mangere/Otara	Otara Union Health
Mangere	NHC	Mangere/Otara	Bupa Care (David Lange Rest Home)
Mangere	NHC	Mangere/Otara	Te Puea Marae Clinic

Mangere	Alliance Health +	Mangere/Otara	Mangere Family Doctors
Otara	Alliance Health +	Mangere/Otara	South Seas Healthcare
Mangere	Alliance Health +	Mangere/Otara	Bader Drive Health Care
Mangere	Alliance Health +	Mangere/Otara	The Airport Drs Ltd
Otara	Procure (GAIHN)	Mangere/Otara	Otara Family & Christian Health Centre (formerly Bairds Rd Family & Christian Health)
Mangere	Procure (GAIHN)	Mangere/Otara	Mangere Health Centre
Mangere	Procure (GAIHN)	Mangere/Otara	Dr Kala Magan
Mangere	Procure (GAIHN)	Mangere/Otara	Dr Patel s Surgery
Mangere	Procure (GAIHN)	Mangere/Otara	Mangere Bridge Surgery
Mangere	Procure (GAIHN)	Mangere/Otara	Mangere Bridge Village Family HC
Mangere	Procure (GAIHN)	Mangere/Otara	Mangere East Medical Centre
Mangere	Procure (GAIHN)	Mangere/Otara	Turuki Health Care
Papatoetoe	Procure (GAIHN)	Mangere-/Otara	Dr Upsdell's Surgery
Otara	East Health (GAIHN)	Mangere-Otara	MIT Health & Counselling Centre

### 3. Mangere/Otara Locality: 21 practices - NHC(3) AH+(4), THO (5) EH (1) and ProCare(9)

Papakura	Procure (GAIHN)	Manukau	Caliburn Medical Centre (Selwyn Rest Home patients)
Papakura	Procure (GAIHN)	Manukau	Clevedon Road Medical Centre
Papakura	Procure (GAIHN)	Manukau	Dr R Madhav
Papakura	Procure (GAIHN)	Manukau	Drs Holmes & MacKay (Papakura East Medical Clinic)
Papakura	Procure (GAIHN)	Manukau	Papakura Christian Medical Centre L (Rosehill Christian Medical Centre)
Papakura	Procure (GAIHN)	Manukau	Papakura Family Health Centre
Papakura	Procure (GAIHN)	Manukau	Papakura Family Medicine Clinic
Papakura	Procure (GAIHN)	Manukau	Papakura Family Medical Practice
Papakura	Procure (GAIHN)	Manukau	Roseland Doctors
Papakura	Procure (GAIHN)	Manukau	The Wood Street Doctors
Papakura	Procure (GAIHN)	Manukau	Tiakina Te Ora
Papakura	Procure (GAIHN)	Manukau	Conifer Grove Medical Centre
Papakura	Procure (GAIHN)	Manukau	Takanini Family Medical Centre (Takanini Family Health Care)
Franklin	Procure (GAIHN)	Manukau	(The) Drury Lane Surgery
Franklin	Procure (GAIHN)	Manukau	Drury Surgery
Manurewa	Procure (GAIHN)	Manukau	Christian Medical Centre
Manurewa	Procure (GAIHN)	Manukau	Clendon Family Health Centre
Manurewa	Procure (GAIHN)	Manukau	Clendon Medical Centre
Manurewa	Procure (GAIHN)	Manukau	Dr Peter Guy (The Gardens Medical Centre)
Manurewa	Procure (GAIHN)	Manukau	Fellbrook Medical Centre
Manurewa	Procure (GAIHN)	Manukau	Greenstone Family Clinic
Manurewa	Procure (GAIHN)	Manukau	Hillpark Family Medical Centre
Manurewa	Procure (GAIHN)	Manukau	Leabank Health Centre
Manurewa	Procure (GAIHN)	Manukau	Manurewa Family Doctors Ltd
Manurewa	Procure (GAIHN)	Manukau	Manurewa Healthcare Medical Group
Manurewa	Procure (GAIHN)	Manukau	Manurewa Medical Centre
Papatoetoe	Procure (GAIHN)	Manukau	652 Doctors
Papatoetoe	Procure (GAIHN)	Manukau	Manukau City Accident & Medical Centre (Bakersfield)
Papatoetoe	Procure (GAIHN)	Manukau	Manukau City Health and Medical Ltd (Manukau Family Doctors Accident & Medical)
Papatoetoe	Procure (GAIHN)	Manukau	Manukau City Health Centre (Manukau Medical Associates)
Papatoetoe	Procure (GAIHN)	Manukau	Puhinui Medical Centre
Papatoetoe	Procure (GAIHN)	Manukau	Papatoetoe Family Doctors
Papatoetoe	Procure (GAIHN)	Manukau	Papatoetoe Medical Centre

Papatoetoe	Procure (GAIHN)	Manukau	Papatoetoe South Medical Centre Your Health Centre - Dr Naresh Sandhu (Sandhu Doctors Ltd)
Papatoetoe	Procure (GAIHN)	Manukau	Your Health Centre - Peter Cameron
Papatoetoe	Procure (GAIHN)	Manukau	Hunters Corner Medical Centre
Papatoetoe	Procure (GAIHN)	Manukau	Hunters Corner Medical Centre (28)
Papatoetoe	Procure (GAIHN)	Manukau	Rangitoto Medical Centre
Papakura	Nat Hauora Coalition	Manukau	Papakura Marae
Manurewa	Nat Hauora Coalition	Manukau	ETHC Manurewa (Browns Rd)
Manurewa	Nat Hauora Coalition	Manukau	Dr Wong (Mahia Rd Medical Centre)
Manurewa	Nat Hauora Coalition	Manukau	People's Centre - Manurewa
Manurewa	Nat Hauora Coalition	Manukau	Manurewa Trust Health Care
Manurewa	Nat Hauora Coalition	Manukau	RHOT Clendon Clinic (Clendon Medical Centre – Waikato)
Manurewa	Nat Hauora Coalition	Manukau	RHOT – Te Manu Aute

**4. Manukau Locality: 46 practices - Procure(39) and NHC(7)**



## Appendix Two: Age-standardization of rates

The following population profile has been used to age standardise hospitalisation, EC presentation and other secondary care utilisation rates throughout this document:

Age Group	Popn	% of Total
00-09	78,090	17%
10-19	70,953	16%
20-29	64,977	14%
30-39	58,888	13%
40-49	64,356	14%
50-59	52,633	12%
60-69	36,825	8%
70-79	19,755	4%
80+	10,194	2%
<b>TOTAL</b>	<b>456,671</b>	<b>100%</b>

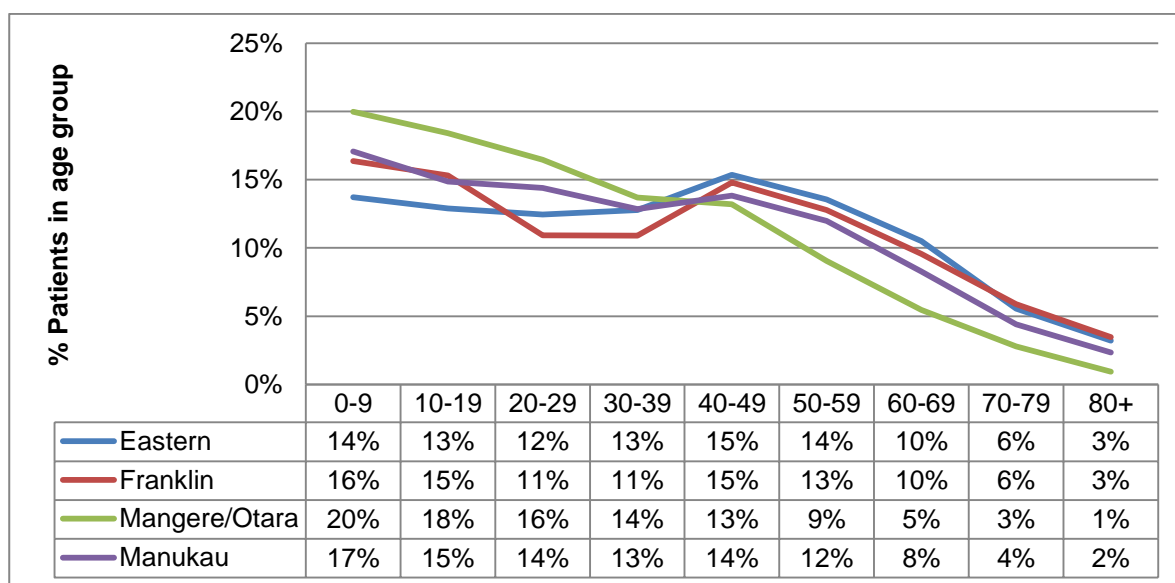
This is the total combined population of all CM Health enrolled localities as at 31 December 2012.

### Method

Age-specific utilisation rates were calculated for each per enrolled locality using the above 10 year age groups. These age-specific rates were then weighted by the above percentages and summed per locality to obtain a total age-standardised rate per locality.

The following table shows the actual age distribution per locality.

### Age distribution of enrolled patients per locality



Source: Ministry of Health encrypted PHO Registers as at 31 December 2012, analysed by CM Health May 2013