CMDHB: Health Service Needs and Labour Force Projections –

Implications for the Development of the **Maori Workforce**

March 2006

COUNTIES MANUKAU DISTRICT HEALTH BOARD
A Community Partnership

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Preface

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Foreword

Earlier this year we completed Counties Manukau District Health Board's (CMDHB) Maori Health Plan with the following vision statement:

Kia whai kaha, whai mana painga
ki nga kawenga oranga iwi ki tua o rangi

Whanau inspired, enabled resourced
And in control of their own health

Nowhere does this ring more true than in the development of Maori health professionals and workforce. Improving the health of Maori people residing in our District is a strategic priority for CMDHB – we believe growing the workforce is one of a range of opportunities to reduce health inequalities among Maori populations. In addition, we believe we will provide a better service if our workforce reflects the population they are serving.

We will not, however, be able to sustain and grow services that are responsive to Maori populations unless we:

- Invest in attracting, recruitment and retention of Maori health professionals in our sector;
- Ensure Maori participation in the development of their people to join our workforce, and also communities to participate in our service developments; and
- Provide assistance in growing the cultural responsiveness of Maori health professionals.

CMDHB aims to grow the Maori health workforce for two key reasons:

- The benefits for the health system in having an ethnically diverse workforce ensures we are more responsive to the needs of the communities that enter our front door – particularly where 17% of our population are Maori and this will grow in absolute numbers in the coming 15-20 years; and
- Health is a significant industry employer in our local community. The socio-economic benefits of increasing employment and economic opportunities for our local community is one way we can impact on health inequalities.

I wish to acknowledge the work of the New Zealand Institute of Economic Research (NZIER) in completing this important analysis. This report is a companion document to a projection series looking at the Growing and Ageing Population and Pacific Peoples Workforce. It also accompanies our Community, NGO (Non-Government Organisation) and Primary Care Workforce Census.

We have engaged in a comprehensive analysis of our workforce for two key reasons:

- To inform our own planning at a local DHB level on what the size of our workforce shortage is likely to be and identify opportunities to increase this supply; and
- To inform how we work with our many partners – education institutions at both secondary and tertiary level, local community groups, health service providers and, of course, health professionals themselves – to create the health workforce that will meet the future health needs of our Maori population.

We hope you reflect on this report as an important information base for future Maori workforce development in the CMDHB area.

Bernard Te Paa
General Manager – Maori Health
Counties Manukau District Health Board

Executive Summary

This report focuses on the future health service needs of Maori in Counties Manukau; and on the implications for the development of the Maori hospital workforce. The key findings are as follows::

- Relative to the wider population locally, the Maori population is young. Nonetheless, the Maori population is ageing.
- At the same time, the Maori population is growing moderately fast.
- The share of service needs accounted for by Maori (as measured by hospital discharges) is greater than their share of the population.
- The services they use more than the wider population (Women's Health and Kidz First) and their diagnoses (related to childbirth and medical conditions in infancy) largely reflect the youth of their population. However, they seem to be treated disproportionately for diseases of the respiratory system.
- Mainly because the growing share of older people in the Maori population, their need for services will increase more rapidly than in the wider population.
- Their need for rehabilitation and intermediary care services will grow particularly rapidly, albeit from a low base. Their need for adult medical and surgical services will also grow rapidly.
- Maori are very under-represented in the hospital workforce. This under-representation is most severe amongst medical personnel, but it extends to every broad occupational category and every service area in the hospital workforce.
- In order for them to be no longer under-represented in the hospital workforce, relative to their share of need or their share of the population, their numbers would have to increase by considerably more than three-fold by 2021.
- Even if it is accepted that the Maori workforce should only be large enough to serve a proportion of the needs of the Maori population, it is difficult to see how shortages of Maori doctors, and to a lesser extent Maori nurses, can be avoided.
- Nonetheless, concerted avoiding action should be attempted. Raranga Tupuake (the MoH's Maori Health Workforce Development Plan) appears to provide a good framework for action.

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1. Introduction

1.1 Background

This report is one in set of four, prepared by the New Zealand Institute of Economic Research (NZIER) for Counties Manukau District Health Board (CMDHB). The aim of the reports collectively is to help CMDHB to consider the future health service needs of a growing, ethnically diverse and ageing population, and the consequent implications for hospital workforce development.

The set of reports is entitled **Counties Manukau Health Service Needs and Labour Force Projections.** The four reports within the set are:

1. Implications of a Growing and Ageing Population.
2. **Implications for the Development of the Maori Workforce** (i.e. this report)**.**
3. Implications for the Development of the Pacific people's Workforce.
4. Statistical Modelling Report.

The first three reports listed above are all relatively succinct, strategy-focused documents. The fourth report is a background document, which contains the statistical details that underpin the other reports.

The report on the **Implications of a Growing and Ageing Population** provides useful background to this report; and the key messages it contains about the Counties Manukau population as a whole apply equally to the Maori population in the area. In brief, it found that health service needs locally are likely to grow more rapidly than the population. It also found that, in the absence of concerted avoiding action, CMDHB will face labour shortages in the future.

As the title suggests, the focus of this report is on the changing health service needs of Maori in Counties Manukau, and on what the changes imply for the development of the workforce. Although CMDHB provides and supports some services that are specifically targeted on Maori, there is no separate "Maori workforce" as such. However, a significant, but relatively small, proportion of CMDHB staff are Maori. It is also convenient to use the term for shorthand purposes.

In the context of this report it is important to note that a guiding principle for CMDHB is that patients should be able to access culturally appropriate services. Taken to its logical conclusion, this means that the Maori workforce should be large enough to serve all of the health service needs of the local Maori population. More realistically, however, it is recognised

that not all Maori would necessarily elect to be provided for by staff from their own ethnic group in all circumstances. It is also recognised that Maori are very under-represented in some sections of the workforce at present[1], and that this will take some time to rectify. More pragmatically, therefore, it is assumed that one third or one half of Maori patients would elect to be treated by Maori staff, given the choice. A key objective of this report is, therefore to consider what this means in terms of growing and developing the Maori workforce.

1.2 Approach and Methodology

Because there is no separate Maori workforce as such, our methodology for producing the estimates and projections included in this report is slightly different from the methodology used to produce the estimates and projections in the report on the **Implications of a Growing and Ageing Population**. In particular, the latter report took a formal labour market approach and examined the demand for, and supply of, labour. In this report we talk less formally about the employment of Maori by CMDHB and the Maori working age population.

In brief, we took the following steps to project the future hospital service needs of Maori and to highlight any workforce development issues that these service needs might imply:

1. Current service provision, as represented by the number of inpatient and outpatient discharges of Maori, is assumed to represent the current service needs of Maori.
2. Using different Maori population growth scenarios, service needs are projected into the future by applying current age group- and gender-specific discharge rates to the different future populations implied by the growth scenarios.
3. Based on the projection in the report on the **Implications of a Growing and Ageing Population** that CMDHB's total demand for labour will increase form 3,514 FTEs in 2004 to 5,353 FTEs in 2021, under a medium population growth scenario, we ask a number of "what if?" questions. By answering these questions we can show what would happen to the level of Maori FTE employment, if certain hyothetical employment objectives were to be achieved.
4. The implications of the modelling outputs for CMDHB's workforce development strategy are then discussed.

We recognise that the assumptions underlying these steps might be challenged as being unrealistic. However, they are not rigid and they can be varied. The purposes of varying the assumptions are to enable alternative views of the hospital labour market to be considered, and to answer a

[1] See section 5 of this report.

number of “what if?” questions. A particular “what if” question that has already been alluded to above is: “By how much will the number of Maori in the CMDHB hospital workforce have to grow in order that, by a given date, this ethnic group is no longer under-represented relative to its service needs or population shares?

1.3 Some words of caution

Like the others in the set, this report is about projecting the magnitude of staffing problems CMDHB could face, if it does not take concerted action to avoid them. It does not contain forecasts, as such. The purpose of presenting the projections is to provide a stimulus for thinking about what priorities and initiatives could be part of a strategy to ensure that CMDHB has the workforce that will be required to serve the growing and changing needs of its community. In discussing some of the options for action at the end of the report, we acknowledge that CMDHB has already taken some important steps in this direction.

It should be emphasised that the health service needs and labour force projections examined in this report refer to **hospital service needs and the hospital workforce**. CMDHB is currently enhancing its knowledge of the primary and community health service needs of its population. For example, CMDHB has recently undertaken large scale survey work to gain better understanding of the characteristics of the community workforce and its development needs.

Greater statistical detail about health service needs of Maori, and the Maori workforce, is included in the Statistical Modelling Report.

2. The Maori population

Two of the primary drivers of need for health services by any ethnic group in the population are the size and age structure of that group, and how these are changing over time. In this section we, therefore, consider the current and future Maori populations that require, and will require, hospital services from CMDHB.

The age structure and the overall size of any population (as well as the relative numbers of male and females in each age and ethnic group) are important because each sub-group in the population group has its own characteristic service needs. For example, the service needs of young, female Maori are quite different from the needs of middle-aged, male Europeans. We know, from the CMDHB's Transition database, the current service needs of the various age/sex/ethnic sub-groups in the population. So, if we can project the size, structure and composition of the population into the future, we will be able to project likely future services needs in some detail.

2.1 The current population

The 2001 Census of Population is the most up-to-date official, non-estimated source of detailed breakdowns of specific populations by characteristics such as age, sex and ethnicity. This showed that, in 2001, the Counties Manukau area had the population summarised in Table 1. The table indicates that just over 61,000 people, or roughly one person in six, in Counties Manukau described themselves as being Maori.

Table 1 Counties Manukau population by ethnic group

Census 2001

	Number	Proportion (%)	Corresponding proportion: all NZ (%)
European (including other ethnic groups n.e.c.)	211,743	54	71
Pacific peoples	76,899	20	7
M ori	61,386	16	15
Asian (including Indian)	45,189	11	7
Total	395,217	100	100

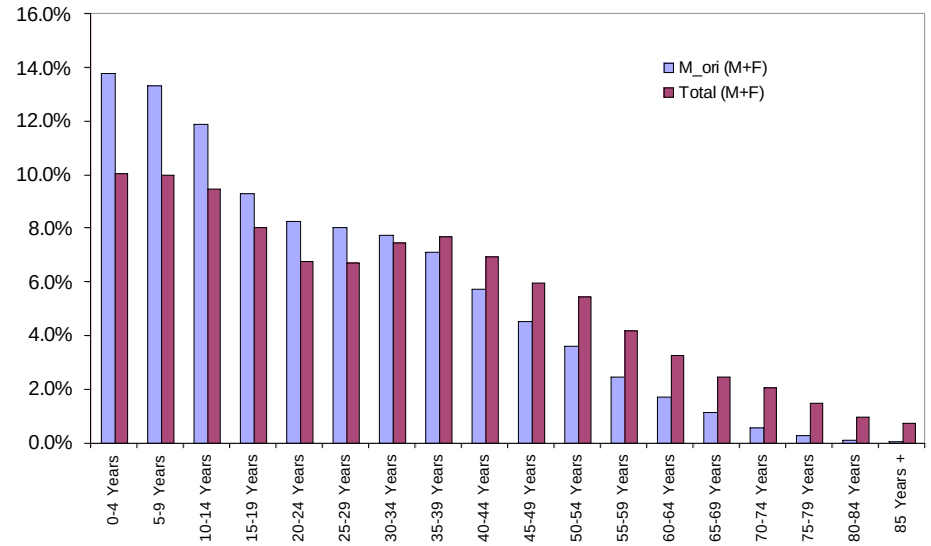
Source: Statistics New Zealand

Although the proportion of Maori in the local population is not significantly different from the proportion of Maori in the national population, the comparison data in Table 1 for New Zealand as a whole emphasise the ethnic diversity of the area. In particular, Counties Manukau has a

significantly larger proportion of Pacific peoples and a significantly smaller proportion of Europeans.

Figure 1 compares the age distribution of Maori in Counties Manukau to that of the wider Counties Manukau population. This shows that the Maori population is relatively young. For all ethnic groups combined, those aged under 20 account for nearly 38% of the population in the Counties Manukau area, but the corresponding figure for Maori is almost 50%. The equivalent figure for the whole of New Zealand is just 30%. In other words, the Maori population in Counties Manukau is relatively young in an area which itself has a relatively young population. Conversely, the Maori and the wider Counties Manukau populations have a smaller proportion of people aged 35+ and a markedly smaller proportion of people aged 60+.

Figure 1 Counties Manukau population by age group – Māori population compared to all ethnic groups
Census 2001



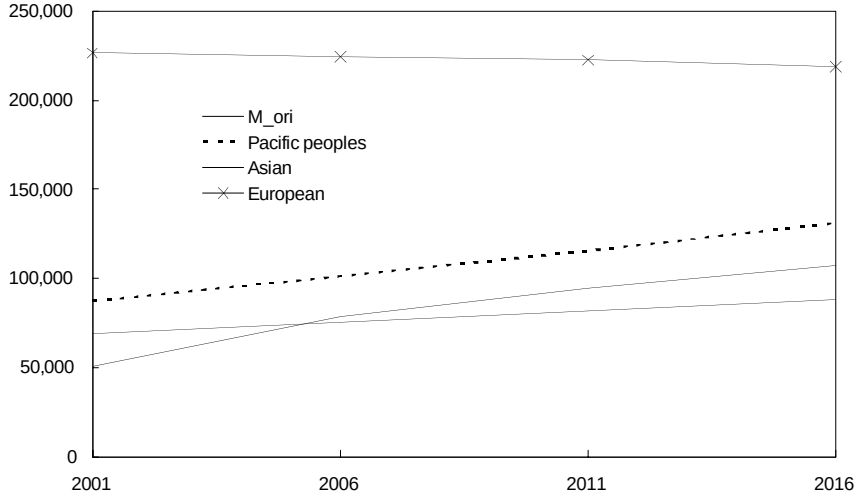
Source: Statistics New Zealand

2.2 The projected population

Figure 2 and Table 2 indicate how the numbers of Maori (and people in the other broad population groups) are projected by Statistics New Zealand to grow between 2001 and 2016. Both illustrate the fact that the Maori population is growing moderately: that is to say, more slowly than the Pacific peoples and Asian populations, both of which are growing very rapidly by national standards. By contrast, the European population is in gentle decline.

Figure 2 Counties Manukau population projections by ethnic group

Medium projections



Source: Statistics New Zealand

Table 2 also makes clear that, although the Maori population is relatively young, it is ageing nonetheless. The median age of the Maoris population will remain low, but the proportions in both the 50-64 age group and the 65+age group are projected to increase. The figures in the table imply that the number of Maori aged 50+ will more than double from just over 7,000 in 2001 to almost 15,000 in 2016. The number of Maori aged 65+ is projected to increase from a little under 1,700 in 2001 to more than 4,000 in 2016. We make particular reference here to people aged 50-64 because it is often noted that (in common with Pacific peoples) Maori tend to have patterns of disease and disability in advance of their chronological age, when compared to the population as a whole. In other words, it is said that the average 55 year old Maori (or Pacific person) has the health of the average 65 year old in the population as a whole.

Table 3 implies that, under each of the Statistics New Zealand population projections shown, the Maori population is expected to grow fractionally more rapidly than the population as a whole.

Table 2 Counties Manukau population projections by ethnicity and broad age group

Medium projection – 2001 and 2016.

	Ethnic group population	Absolute change	Average annual % change	Resident age group distribution (%)					Median age (years)
				0-14	15-29	30-49	50-64	65+	
	European								
2001	226,500	-	-	23.2%	18.4%	29.5%	16.9%	12.0%	35.7
2016	218,700	-7,800	-0.2	18.1%	16.9%	24.6%	20.9%	19.6%	43.1
	Pacific peoples								
2001	87,500	-	-	39.4%	25.1%	24.0%	8.0%	3.4%	20.9
2016	131,300	43,800	3.0	34.0%	27.2%	22.5%	10.9%	5.4%	23.1
	M ori								
2001	69,200	-	-	38.5%	25.8%	25.3%	8.0%	2.4%	21.4
2016	87,800	18,600	1.5	33.4%	26.4%	23.2%	12.2%	4.8%	23.7
	Asian								
2001	51,000	-	-	25.1%	25.7%	32.3%	12.3%	4.6%	29.4
2016	107,000	56,000	5.0	21.8%	24.1%	28.5%	17.9%	7.8%	33.2

Source: Statistics New Zealand

Table 3 Maori population projections

	Statistics NZ population scenario		
	Low growth	**Medium growth**	**High growth**
2001	69,200	69,200	69,200
2006	73,000	75,400	77,800
2011	76,300	81,400	86,800
2016	79,600	87,800	96,600
% change 2001-2016:			
Maori	15	27	40
All ethnic groups	13	25	38

Source: Statistics New Zealand

3. Current hospital service needs

In this section we describe and examine the current provision of hospital services to Maori. For modelling purposes, it is necessary to assume that the current provision of services is the same as the current need for services. They might, in reality, be different, but it would be difficult to measure "real" need because some needs are likely to be suppressed or disguised.

3.1 Inpatients

Table 4 indicates that the proportion of CMDHB inpatient discharges accounted for by Maori (18%) is slightly greater than their population share (16%).

Table 4 CMDHB inpatient discharges by ethnic group
Year ended 28/02/05

Ethnic group	Number of inpatient discharges	Proportion of total inpatient discharges, %	Proportion of local population, %
European (including other ethnic groups n.e.c.)	43,284	47	54
Pacific Islander	23,281	25	20
Maori	16,599	18	16
Asian (including Indian)	8,136	9	11
Unknown	1,235	1	-
Total	92,535	100	100

Source: CMDHB – Transition database

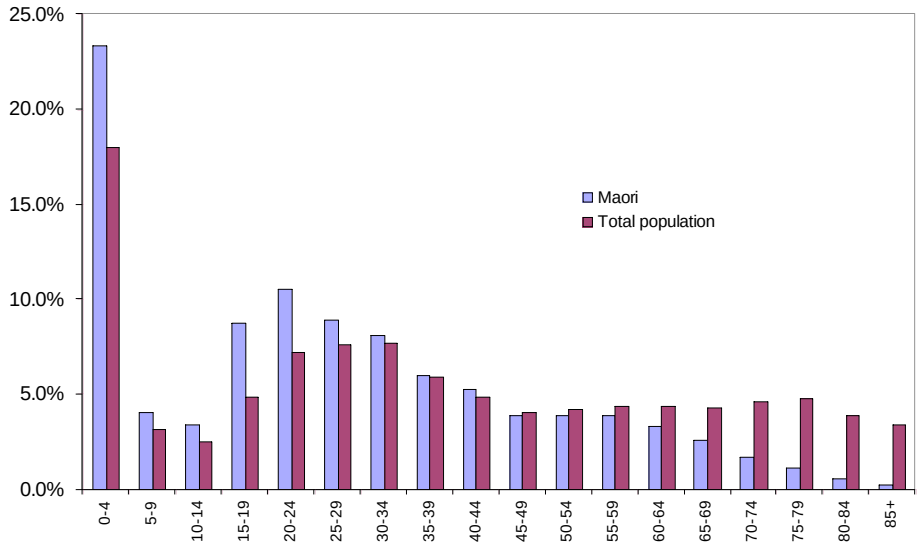
Figure 3 indicates that, compared to the pattern in the wider population, the pattern of inpatient discharges amongst Maori is skewed towards the younger age groups. However, this is not surprising, given that the Maori population is relatively young.

More interestingly, the age distribution of Maoris inpatient discharges in Figure 3 can also be compared with the age distribution of the Maori population shown in Figure 1. This comparison reveals that the pattern of inpatient discharges amongst Maori is very highly skewed towards babies and infants (i.e. aged 0-4 years) and away from children (i.e. aged 5-19).

Table 5 also hints that inpatient discharges amongst Maori are explained to a considerable extent by childbirth and medical conditions in infancy. This particular table shows that considerably more than half of all Maori inpatient discharges (58%) were from just two services: Kidz First and Women's Health. In the wider Counties Manukau population, the

equivalent proportion was considerably less than half (44%). Conversely, relative to the wider population, smaller proportions of Maori inpatient discharges were from the Adult Surgical and Adult Medical services.

Figure 3 Inpatient discharges by age group
Maori vs. total population – year ended 28/02/05



Source: CMDHB – Transition database

Table 5 Breakdown of inpatient discharges by Service area, %

	Maori	All ethnic groups
Kidz First	20%	15%
Adult Medical	20%	26%
Mental Health	2%	1%
Rehab. & intermediary care	1%	2%
Adult Surgical	20%	27%
Women's Health	38%	29%
All inpatient services	100%	100%

Source: CMDHB Transition database

3.2 Outpatients

Table 6 indicates that (in common with other ethnic groups) the share of outpatient discharges accounted for by Maori is more-or-less the same as their population share. However, Figure 1 reveals that the age distribution of Maori outpatient discharges is different from the age distribution of discharges in the population as a whole. The peak rate of outpatient

discharges occurs in a slightly younger age group amongst Maori (i.e. 55-59 years old) than it does amongst the population as a whole (i.e. 60-64 years old)[2]. The graph also shows that the age distribution of outpatient discharges amongst Maori is very different from the age distribution of their inpatient discharges shown in Figure 3. Whereas inpatient discharges amongst Maori are skewed towards babies and infants, outpatient discharges are skewed towards older adults.

Table 6 CMDHB outpatient discharges by ethnic group

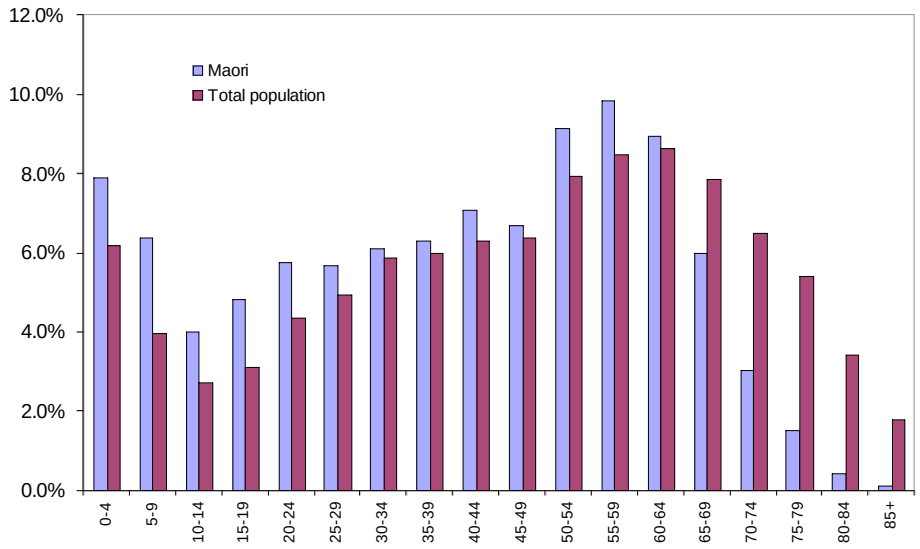
Year ended 28/02/05

Ethnic group	Number of inpatient discharges	Proportion of total outpatient discharges, %	Proportion of local population, %
European (including other ethnic groups n.e.c.)	134,410	53	54
Pacific Islander	53,940	21	20
Maori	39,039	15	16
Asian (including Indian)	25,178	10	10
Total	252,567	100	100

Source:CMDHB – Transition database

Figure 4 Outpatients discharges by age group

Maori vs. total population – year ended 28/02/05



Source: CMDHB – Transition database

[2] This lends some weight to the proposition, expressed in section 2, that Maori tend to have patterns of disease in advance of their chronological age, when compared to the population as a whole.

Table 7 indicates that, compared to the distribution of Maori inpatient discharges by service area, the distribution of their outpatient discharges by service area is more similar to the pattern of discharges in the wider population. However, the proportions of Maori outpatient discharges is relatively large in the Kidz First and Women's Health service areas, and correspondingly small in the Adult Surgical service area.

Table 7 Breakdown of outpatient discharges by Service area, %

	Maori	All ethnic groups
Kidz First	14%	9%
Adult Medical	42%	41%
Rehab. & intermediary care	0%	1%
Adult Surgical	29%	37%
Women's Health	15%	12%
All outpatient services	100%	100%

Source: CMDHB Transition database

3.3 Analysis by Major Diagnostic Category

Table 8 shows inpatient discharges broken down by the top 10 Major Diagnostic Classes for Maori compared to the wider population. The MDCs in the top 10 are no different for Maori than they are for the wider population, but the rankings are different. In particular, inpatient discharges related to perinatal problems and diseases of the respiratory system are much more highly ranked amongst Maori (i.e. 2nd and 3rd, respectively) than amongst the wider population (i.e. 4th and 6th).

The table also indicates that there is a relatively concentrated pattern of discharges by MDC amongst Maori, compared to the wider population. It also implies that Maori account for a disproportionate share of the top ranked MDCs. In fact, although their population share is 16%, they account for 23% of all Counties Manukau inpatient discharges related to pregnancy and childbirth, 23% of discharges related to respiratory disease and 22% of discharges related to perinatal conditions.

It should be noted that CMDHB's data on discharges categorised by MDC apply only to inpatients and not to outpatients. This is unfortunate, given

that, both amongst Maori and the wider population, there are more than twice as many outpatient discharges as there are inpatient discharges[3].

Table 8 Inpatient discharges by ethnicity – Top 10 MDCs

Year ended 28/02/05

	Maori		All ethnic groups	
MDC	Number	% of total	Number	% of total
PREGNANCY & CHILDBIRTH	2,666	16.1	11,607	12.5
NEWBORN DUE TO PERINATAL	1,798	10.8	7,738	8.4
DISEASE /RESPIRATRY SY	1,592	9.6	7,303	7.9
DISEASE /MUSC/SKLTL SYST	1,575	9.5	10,661	11.5
DISEASE /DIGESTIVE SYST	1,128	6.8	8,565	9.3
DISEASE /CIRCULATORY SYST	1,027	6.2	7,539	8.1
DISEASE /EAR NOSE &THROAT	955	5.8	4,820	5.2
DISEASE /SKIN & SUBC TISS	800	4.8	5,753	6.2
DISEASE /NERVOUS SYSTEM	742	4.5	4,490	4.9
INJURY,POISON &TOXIC DRUG	687	4.1	3,798	4.1
Top 10 MDCs as % of all inpatient discharges		78.1		78.1
Top 5 MDCs as % of all inpatient discharges		52.8		49.8
Top 3 MDCs as % of all inpatient discharges		36.5		33.3

Source: CMDHB – Transition database

[3] Overall, however, CMDHB has better patient and workforce data than most other DHBs.

4. Projected need for hospital services

4.1 Introduction

We now turn our attention to projections of future need for hospital services by Maori. As noted earlier, the projections, or need scenarios, are produced by applying current sex- and age group-specific hospital discharge rates to 3 Maori population projections produced by Statistics New Zealand:

1. **Lower bound scenario –** Low population growth (including an allowance for the Flatbush development), with current sex and age group-specific discharge rates assumed to continue.
2. **Middle ground scenario –** Medium population growth (including an allowance for the Flatbush development), with current sex and age group-specific discharge rates assumed to continue.
3. **Higher bound scenario –** High population growth (including an allowance for the Flatbush development), with current sex and age group-specific discharge rates assumed to continue.

The scenarios are expressed in terms of need broken down by service area. An analysis of service need by Maori broken down by MDC can be found in the Statistical Modelling Report.

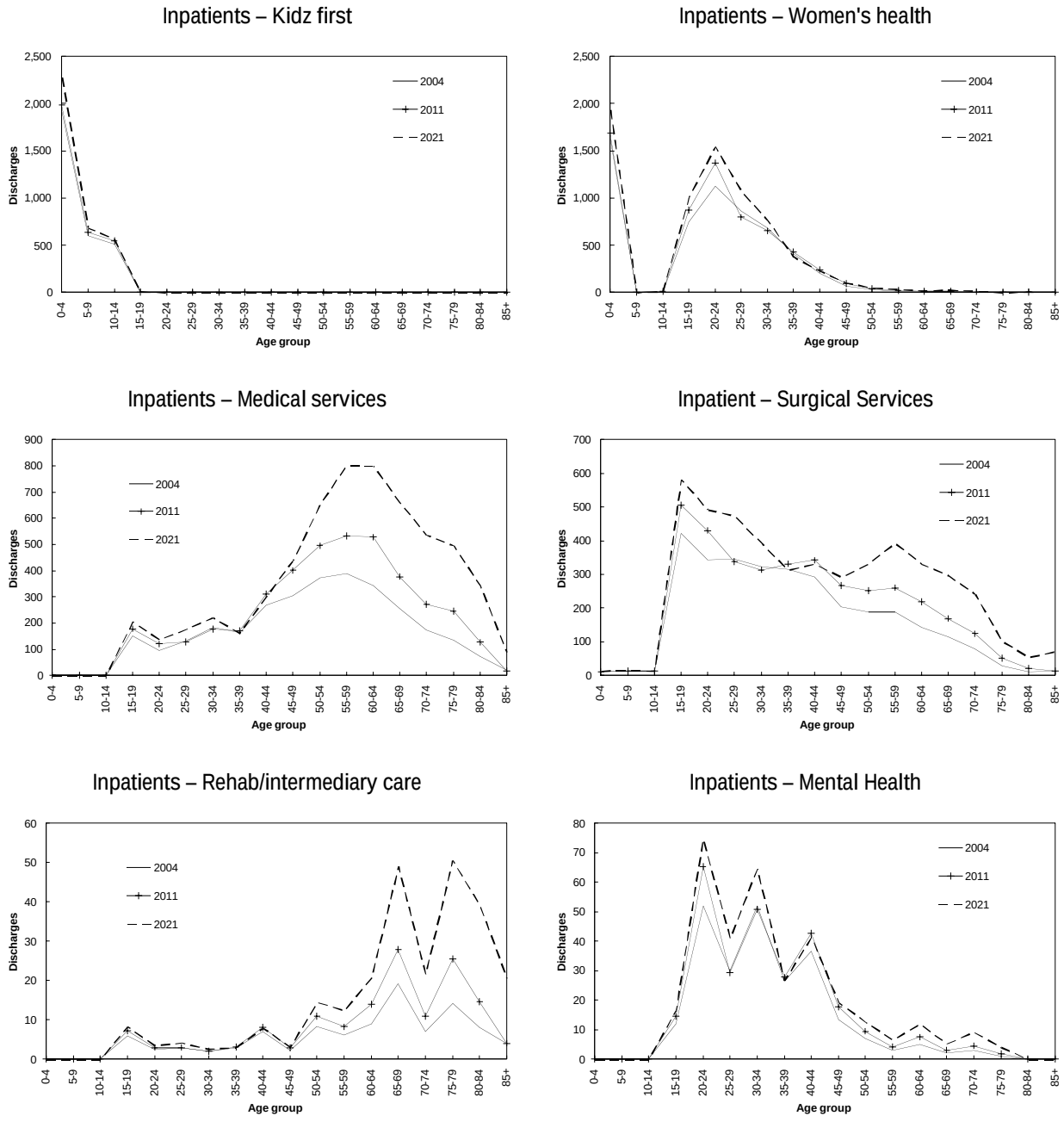
4.2 Analysis by service area

Using the approach outlined above, we are able to project need by Maori by service area. Figure 5 and Figure 6 indicate, based on the middle ground scenario, how need for each of the service areas is assumed to change over time. In each chart, a separate line for 2004, 2011 and 2021 is shown to indicate how the pattern and absolute level of need broken down by age group changes over time for each service area.

The area under each line represents the volume need for the services shown, where the volume of need is measured by the number of discharges. In general, the age-related peaks in need that exist in 2004 (the base year) are typically accentuated by the population growth and ageing over time. This is particularly the case for service areas where a large proportion of the need relates to those in older age groups (i.e. 50+). Bearing in mind that the vertical scale for each service area is different, the projected increases in need for inpatient and outpatient Medical services and Surgical services look especially large. The projected increases in need for inpatient and outpatient Rehabilitation and intermediary care services are also large, but it will be noted that they are from a very low base.

Figure 5 Projections of need (inpatient discharges) by service area – middle ground scenario for Maori

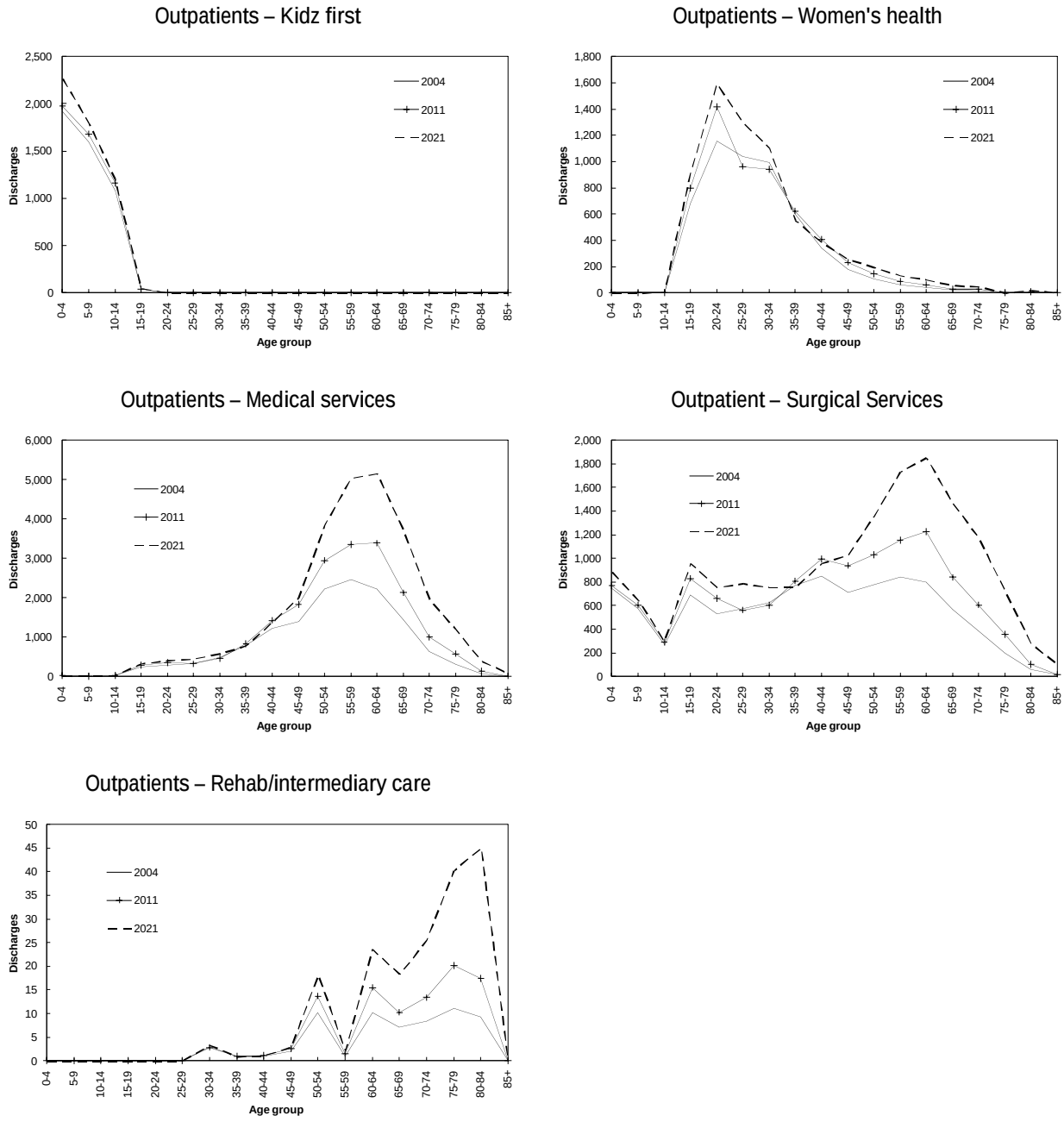
Medium population scenario (Flatbush included) – current incidence.



Source: Statistics New Zealand, CMDHB, NZIER

Figure 6 Projections of need (outpatient discharges) by service area – middle ground scenario for Maori

Medium population scenario (Flatbush included) – current incidence.



Source: Statistics New Zealand, CMDHB, NZIER

Table 9 converts the information underlying Figure 5 and Figure 6 into indices for different service areas under the three scenarios. The table implies that, taking all service areas together, need by Maori will increase by between 46% and 70% by 2021. By comparison, need in the wider population will increase by between 39% and 62%. In other words, the increase in need for services by Maori will be appreciably greater than the increase in need for services in the population as a whole, even though the

Maori population is projected to grow only fractionally faster than the population as a whole (see Table 3). This is because the proportion of older people in the Maori population is growing relatively fast, albeit from a low base.

The table also confirms that the growth in need will vary markedly by service area. For example, under the middle ground scenario, the need for Rehabilitation and intermediary care services by Maori will considerably more than double, whereas their need for Kidz First services will grow only slightly. Under this scenario, the need by Maori for Adult acute medical services will also almost double.

Table 9 Indexes (2004=100) of need in 2021 by service area (in and outpatients)
(Flatbush included).

	Lower bound scenario		Middle ground scenario		Upper bound scenario	
	Maori	All ethnic groups	Maori	All ethnic groups	Maori	All ethnic groups
Adult acute medicine	183	160	193	170	203	180
Rehab / Intermediary care	249	183	267	194	277	205
Kidz first	101	96	115	111	132	127
Mental health	125	125	137	136	150	147
Surgical services	151	142	163	152	175	163
Women's health	113	113	125	126	139	139
TOTAL	146	139	158	150	170	162

Source: Statistics New Zealand, CMDHB, NZIER

4.3 Change in the share of total need accounted for by Maori

Together, Table 4 and Table 6 in the previous section implied that Maori accounted for 16% of all inpatient and outpatient discharges in 2004. In combination with these tables, Table 9 implies that the Maori share of all discharges will rise to 17% by 2021 under the middle ground scenario.

5. Employment of Maori by CMDHB

In this section we initially examine the current pattern of employment of Maori by CMDHB; and we compare this with the pattern of employment in the wider hospital workforce. We then consider how the level of Maori employment in the hospital workforce would need to change, if certain hypothetical objectives were to be achieved.

5.1 Current employment of Maori

At the time of the CMDHB hospital workforce census there were 3,514 FTE staff in total, although the "head count" number of employees was 5,236.

Table 10 shows that just 7% of the staff who disclosed their ethnicity in the census were Maori. The table also shows the ethnic breakdown of the local population. However, we emphasise that the percentages in the final two columns of the table are not strictly comparable because 'other' ethnicities were identified separately in the hospital workforce census, but included with Europeans in the summary 2001 census tables. It is also possible that 'other' tended to mean one thing in the 2001 census (e.g. African or American), but another in the hospital workforce census (e.g. mixed ethnicities). Nonetheless, the table does seem to suggest that Maori (as well as Pacific peoples) are significantly under-represented in the hospital workforce, relative to their share of the local population.

Table 10 CMDHB full-time equivalent staff by ethnic group

Ethnic group	Number	Proportion of those who disclosed an ethnicity, % (Hospital workforce census)	Proportion of local population, % (2001 Census)
Not disclosed	749	n/a	-
NZ European	1,454	53	54
Asian	501	18	11
Other	372	13	-
Pacific	249	9	20
M ori	190	7	16
Total	3,514	100	100

Note: The proportions in the last two columns in the table are not strictly comparable – see text
Source: CMDHB – survey of CMDHB workforce, Statistics New Zealand

Table 11 indicates the occupational distribution of the hospital staff and, again, it compares Maori with the wider workforce. Relative to the pattern in the wider workforce, the Maori workforce comprises a very small proportion of medical personnel, but large proportions of allied health

personnel and management/admin workers. It should be noted that the table assumes that staff who did not disclose their ethnicity had the same occupational distribution as those who did.

Table 11 Occupational breakdown of FTE staff

Occupational group	Proportion, % Maori	Proportion, % all ethnic groups
Medical Personnel	4	16
Nursing personnel	45	48
Allied health personnel	22	14
Support personnel	3	2
Management/admin	27	19
Total	100	100

Source: CMDHB – survey of CMDHB workforce

Similarly, Table 12 assumes that the occupation by service area breakdown of staff who did not disclose an ethnicity was the same as the breakdown of those who did. Hence, the number of Maori FTEs is shown in this table as 242 (rather than 190, as in Table 10). The table indicates that almost all Maori staff in Medical services, Intermediate care / rehabilitation and women's health were nurses. It also shows that Maori were much more likely to be employed in the Support services and in mental health than in the other service areas.

More importantly, by showing the numbers of staff from all ethnic groups in each occupational group or service area, the table also implies that Maori are under-represented, relative to their 16% share of the local population, in every section of the workforce. In terms of occupational group, the proportion of staff who are Maori ranges from just 1.6%, in the case of Medical personnel, to 10.6%, in the case of Allied health personnel. In terms of service area, the proportion of staff who are Maori ranges from just 3.7%, in the case of women's health, to 14.6%, in the case of mental health.

Table 12 Estimated breakdown of Maori full-time equivalent staff by service area and occupational group

	Medical Personnel	Nursing personnel	Allied health personnel	Support personnel	Management / admin	Total: Maori	Total: All ethnic groups
Medical services	1	21	3	0	3	28	729
Intermediate care / rehab	1	16	3	0	0	20	263
Kidz first	0	8	5	1	6	21	264
Mental health	3	26	14	1	17	61	417
Surgical services	4	21	9	0	6	40	689
Women's health	0	7	0	0	2	9	241
Supporting services	0	10	19	5	29	64	911
Total: Maori	9	109	53	7	64	242	
Total: All ethnic groups	576	1,686	502	86	664		3,514

Source: CMDHB – survey of CMDHB workforce

5.2 Hypothetical employment outcomes for Maori

In the report on the Growing and Ageing Population, we projected that, under the middle ground scenario, the overall demand for labour (i.e. total employment) by CMDHB would grow, in line with the population's service need, to 5,353FTEs. Here we ask a number of "what if?" questions related to the employment of Maori, based on this projection.

The questions we can ask and answer are "by how much would employment of Maori in CMDHB's hospital workforce increase between 2004 and 2021 if …

- …. their share of total hospital employment remains at the 2004 level?" (i.e. 7% of total FTEs)
- …. their FTE numbers increase as rapidly as their population?" (i.e. by 31%)
- …. their FTE numbers increase as rapidly as their working age population?" (i.e. by 39%)
- …. their FTE numbers increase as fast as their need for services?" (i.e. by 58%)
- …. their share of employment increases to become the same as their population share?" (i.e. 16% in 2021)

- …. their share of employment increases to become the same as their share of service need?" (i.e. 17% of all discharges by 2021)

Table 13 shows the range of hypothetical employment outcomes for Maori based on the "what if?" questions above. Given that the Maori working age population in Counties Manukau is projected to increase by well over a third between 2004 and 2021, the first four hypothetical outcomes appear to be achievable. However, the last two both imply extremely large increases in the numbers of Maori employed; and it is difficult to imagine that these magnitudes of increase could be achieved, even over a 17 year time period.

Table 13 Hypothetical employment outcomes for Maori

"By how much would employment of Maori in CMDHB's hospital workforce increase between 2004 and 2021 if …

Hypothesis:	Base level of Maori FTE employment, 2004	Implied level of Maori FTE employment, 2021	Implied % change 2004-2021
…their share of employment remains at the 2004 level?"	242	375	55
…. their FTE numbers increase as rapidly as their population?"	242	317	31
…. their FTE numbers increase as rapidly as their working age population?"	242	336	39
…. their FTE numbers increase as fast as their need for services?"	242	382	58
…. Their share of employment increases to become the same as their population share?"	242	856	254
…. Their share of employment increases to become the same as their share of service need?"	242	910	276

Source: NZIER

The base level of Maori employment is simply too low to make the last two hypothesised outcomes in Table 13 look credible. Hence, the more pragmatic assumption expressed in section 1, i.e. that the Maori workforce should be large enough to meet between a third and a half of Maori service needs. This implies that the Maori workforce would need to grow to between 303 FTEs (an increase of 25%, compared to the 2004 level of 242) and 455 FTEs (an increase of 88%) by 2021.

6. The size and nature of the challenge

Expressed in terms of the pragmatic assumption (i.e. that the Maori workforce should be large enough to meet between a third and a half of the health service needs of the Maori population), a 25%-88% increase in the Maori hospital workforce by 2021 does not look too formidable, especially when it is considered that the Maori population of working age in Counties Manukau is projected to increase by 39%. However, there is no room for complacency, as a closer look at the figures demonstrates.

No workforce can be regarded as effective in relation to needs unless it is balanced, i.e. includes an appropriate mix of staff across all broad occupational areas. This means that the key question is whether there will be sufficient representation by Maori in each occupational group that directly cares for patients.

We doubt whether this will be possible for the following reasons:

- Our report on the implications of a growing and ageing population indicated that the hospital workforce would need to grow to 875 medical personnel, 2575 nurses and 764 allied health professionals by 2021.
- Maori are projected to have a 17% share of need by 2021. Having enough Maori doctors to serve all Maori needs implies that CMDHB will require 149 Maori doctors (compared to just 9 in 2004). Having enough Maori doctors to enough to serve 33% of Maori needs implies that CMDHB will require 49 (an increase of 444% compared to the 2004 baseline). Having enough Maori doctors to serve 50% of Maori needs implies that CMDHB will require 75 (an increase of 733%).
- Based on the same share of need, having enough Maori nurses to serve all Maori needs implies that CMDHB will require 434 Maori nurses (compared to a baseline figure of 109 in 2004). Having enough Maori nurses to enough to serve 33% of Maori needs implies that CMDHB will require 146 (an increase of 34% compared to the 2004 baseline). Having enough Maori nurses to serve 50% of Maori needs implies that CMDHB will require 219 (an increase of 101%).
- Similarly, having enough Maori Associate Health Personnel (AHPs) to serve all Maori needs implies that CMDHB would have to employ 130 by 2021 (compared to a baseline of 53). Having enough Maori AHPs to serve 33% of needs implies that CMDHB will require 43 (i.e. fewer than are already employed). Having enough to serve 50% of Maori needs implies that CMDHB will require 65 (an increase of 23%).

These figures suggest that it should be not be too formidable a challenge for CMDHB to have enough Maori AHPs to serve 33% or 50% of the needs of the Maori. Also, given a projected 39% increase in the Maori working age population by 2021, it is not too difficult to imagine that CMDHB could find enough nurses to serve 33% of the needs of the Maori population, although meeting a 50% target would be more testing.

However, it is extremely difficult to imagine a situation where CMDHB could find enough Maori doctors. Given the time needed to train doctors to equip them to fill senior roles, it is almost impossible to envisage having enough Maori doctors to serve even 33% of needs of the Maori popn because this implies more than a five fold increase in their number.

7. The implications for CMDHB

CMDHB might be able to apply ad hoc solutions in the face of mismatches between demand and supply in its Maori hospital workforce, but this is unlikely to obviate the problem spelled out above. Undoubtedly, a range of co-ordinated actions will be needed, if CMDHB is to live up to the guiding principle discussed in section 1.1 of this report.

Finding the necessary number of Maori doctors to serve the needs of Maori will clearly be the most difficult problem to tackle. But it is also important not to overlook the challenges that will have to be addressed, if CMDHB is to have sufficient numbers of Maori nurses to serve Maori needs appropriately. Although the task of finding sufficient numbers of Maori AHPs seems achievable, it would be unwise to assume that there will be no problems in this area. In the face of growing health service needs in the population as a whole, CMDHB will face stiff competition in the market for AHP skills.

When considering solutions to problems of the sort outlined above, it is important to bear in mind that the problems CMDHB faces, are to a large extent, acute local manifestations of wider national problems. This implies that CMDHB ought to seek local solutions (and, at the same time, contribute towards national solutions) by working in ways that are consistent with national policy frameworks.

7.1 Key conclusions from the report on the implications of a growing and ageing population

In discussing the implications for CMDHB, the report on the implications of a growing and ageing population considered the scope for avoiding labour shortages by means of both demand-side and supply-side actions. It concluded that future increases in the demand for labour could potentially be constrained by reducing the local population's need for services and /or by increasing labour productivity. However, other CMDHB strategic priorities (e.g. increasing quality of, and access to, services) could actually have the effect of magnifying increases in labour demand. Accordingly action on the supply-side, combining efforts to improve the recruitment and the retention of hospital staff, were thought to be more likely to be effective in minimising or avoiding labour shortages.

We believe that this logic applies equally to the service needs of Maori and CMDHB's Maori hospital workforce. Despite efforts to ameliorate the situation, Maori often have worse access to, and lower utilisation of, health services than the population as a whole. If actions to improve access and uptake are successful, they are likely to increase the demand for labour and, hence, make projected labour shortages even worse. Actions to improve the quality of services to Maori are likely to have the same effect.

Reducing the demand for Maori health service workers does not seem to be a realistic goal. Although opportunities to secure efficiency and productivity gains should not be overlooked, the emphasis, the emphasis needs to be on increasing the supply, through better recruitment, development and retention of Maori staff. The desire to develop new models of care is not driven by the productivity and efficiency issues, but their potential for helping CMDHB to avoid Maori and other skills and labour shortages should be explored.

7.2 The importance of Raranga Tupuake

Because we believe that CMDHB ought to seek local solutions by working in ways that are consistent with national policy frameworks, we attach particular importance to Raranga Tupuake. This is the name given to the Ministry of Health's Maori Health Workforce Development Plan, about which a discussion document was which was published in May 2005.

Raranga Tupuake acknowledges that Maori Workforce Development is a key aspect of He Korowai Oranga (the Maori Health Strategy). Almost by definition, the emphasis of Raranga Tupuake is on the supply side; and it focuses on developing the Maori provider community and on increasing the number and level of training of Maori in the health and disability workforce. The aim of Raranga Tupuake is to create a strategic framework to guide the development of the Maori health and disability workforce over the next 10-15 years.

The main conclusion of this report (see section 7.1) is consistent with Raranga Tupuake. CMDHB is also looking towards broadly the same longer term horizon as Raranga Tupuake. It would make sense, therefore, for CMDHB to take action to develop its Maori workforce within the strategic framework that Raranga Tupuake aims to create. This would ensure that action by CMDHB harmonises with action promoted at national level. It would also make it easier for CMDHB to attract funding and other resources needed to enable actions to happen.

In saying this we note that Raranga Tupuake explicitly states that it envisages that the 3 goals and 11 associated actions it proposes will be achieved through collaboration between health and education organisations at national and local level. We also note that it is explicitly stated that the Ministries of Health and Education, the DHBs and other funders and providers are expected to prioritise implementation of Raranga Tupuake in their funding allocations.

As far as we are aware, Raranga Tupuake remains a draft plan; and the actions it proposes are still somewhat sketchy. We believe that CMDHB will wish to work within the framework that the plan provides. But, before

the plan is rolled out, there are likely to be opportunities for CMDHB to influence its contents.