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**FACULTY OF MEDICAL AND  
HEALTH SCIENCES**

# Project SPLICE

Taranaki District Health Board

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Matthew Parsons  
John Baird  
Nicolette Sheridan

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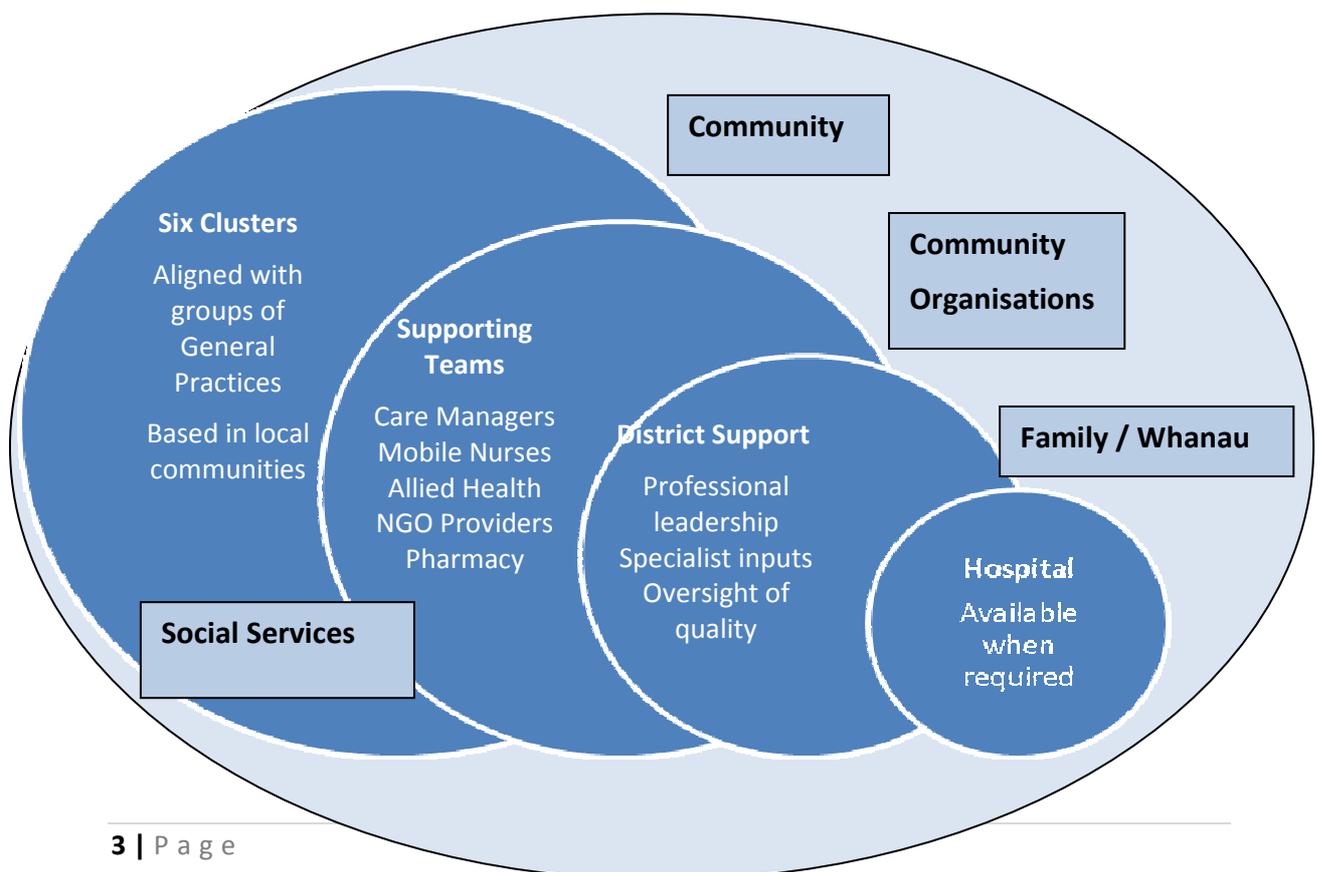
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## Executive summary

Project SPLICE has been initiated by Taranaki District Health Board to address the projected health needs of its older population and people who have a long term condition such as cardiovascular disease, diabetes and respiratory disease. Supporting the growth in demand for services associated with a growing older population and associated growth in the number of people with a long term condition is a national and international issue. Taranaki District Health Board is however faced with a significant complicating problem. Overall the population of Taranaki is projected to decrease by over 8% from 2001 to 2021 while at the same time the New Zealand population will grow by over 17%. While many other districts in New Zealand will gain additional health funding associated with demographic increases and be able to direct this towards service growth for long term conditions management and older people, Taranaki, will receive a reduced future funding track and must support growth by refocusing existing service activity.

The aim of this paper is to outline a structure that will, within currently available funding, on an evolutionary basis enable services to refocus around the needs of people with long term conditions and of older people as their health deteriorates. The recommended structure involves building on the strengths of general practice and existing community based service delivery to enable improved integration between services, reduced duplication and reduced risk of disconnect between multiple services that may be involved in supporting a person’s care.

Simply put the recommended approach will mean people with complex needs will have an identified care manger who has an excellent relationship with their general practice and will work to ensure that all of the care they are receiving is connected. This person will work with a defined cluster of General Practices to allow relationships to develop and will be supported by a locally based team of nursing, allied health and non government organisations providing support services. Further support will be provided across the six proposed clusters through a District support and development unit that will include professional leadership, specialist input from nursing and doctors and provide oversight of care processes and professional development.



This is not a radical change. While significant, what is recommended builds on much of the infrastructure that is already in place in the Taranaki region. District Nursing services already operate in geographical clusters, Nurse educator services are already evolving to provide a mix of locally based service delivery and district wide delivery, General Practice is already looking at consolidating activity around Integrated Family Health Centres, and there are already examples of specialist services that are significantly community based. Innovative examples already exist where District Nursing is better integrated with General Practice and these are well regarded provided the isolation issues are addressed.

This project is being undertaken in parallel to the development of the Primary Care Midland Business Case for the Better, Sooner, more Convenient Initiative. The work is intended to be complementary and some developments will be dependent on progress made across both pieces of work. Due to development occurring in parallel some reconciliation in approach may be required.

Key changes that will be seen based on what is recommended in this report include the following:

- Further refinement of clusters to develop up to six clusters across the district including (i) Hawera and surrounding areas; (ii) Stratford and surrounding areas; (iii) Three New Plymouth clusters, one also covering western areas, and one supporting Inglewood; and (iv) Waitara and surrounding areas;
- Alignment of District Nursing, Community Allied Health, NGO and Pharmacy provision to these clusters;
- Develop primary and community nursing into practice/clinic based nursing and mobile nursing functions and extension to navigation activity for people under 75 with long term conditions;
- Development of NASC function into Care Management delivered in the clusters for people aged over 75 with complex needs and in the District support and development unit for people with non complex needs;
- Introduction of *interRAI* to support comprehensive assessment for older people;
- Integration of triage and coordination for District Nursing, Short Term Home Based Support and non complex long term home based support<sup>1</sup>;
- Establishment of a District Support and development unit including professional leadership, specialist nursing and medical input, alignment of limited FTE disciplines and establish quality oversight function; and
- Establishment of restorative home support services.

It is expected that these changes will improve the experience of older people and those with long term conditions when they are accessing the health system. More services will be based locally and, once someone has visited their general practice, it will be easier for them to find their way to other services they need. If people are not accessing general practice then they will be more likely to connect with the mobile nursing functions. People with complex needs will only need to tell their story once to their care manager and this person will work alongside their general practice to make

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<sup>1</sup> Requirement for this function will be particularly dependant on the Midlands BSMC Business Case

sure they are getting the best response possible. People with less complex needs will be able to access prompt efficient advice and support via the phone or face to face when required.

General Practitioners and practice nurses will know who their local care manager is and they will be able to call them directly regarding any patient issues. As capacity builds they will also have access to navigators to assist people who have long term conditions. Support staff including district nursing, allied health and NGO staff will also be known to general practice. Overtime the role of district nurses will evolve into a mobile nursing function with clinic based activity supporting patients who are able to attend practice clinics. Specialist services will focus more on providing advice and oversight of care managers dealing with complex people. Discipline specific clinical leadership will be available district wide along with education and development opportunity for staff.

These changes are designed to address the current and future needs of older people and those with long term conditions in the Taranaki region. Taranaki DHB is already a high performer in related Health Targets involving management of people with diabetes and screening for cardiovascular disease. The recommended changes will provide the basis for supporting the increasing population of older people and prevalence of long term conditions within the resources that are currently available.

## Authors

*Matthew Parsons PhD MSc BSc (Hons) RGN.* Matthew has a PhD and Masters in Gerontology from The Institute of Gerontology, The University of London and a BSc (Hons) in Psychology and Human Biology from King's College London and is a registered nurse. In the UK, he developed and managed numerous community based rehabilitation teams, of which the supported discharge team model was implemented across the UK. He is an Associate Professor in Gerontology at The Faculty of Medical and Health Sciences. He has participated in numerous national strategy development groups including the Health of Older Person and the Specialist Health Services for Older People and has numerous contractual obligations around service development and evaluation to both DHBs and Non Government Organisations in New Zealand and Australia.

*John Baird BMedSci MBA.* John has extensive operational management and service review experience within health and disability services over the past 20 years. This has recently included operational and funding reviews for District Health Boards, Hospitals, Primary Health and other Non Government Organisations. He has a particular interest in service development and change management and has lead development processes in secondary care, primary care, disability services and mental health. He is currently working with several District Health Boards and provider organisations to support operational and strategic reviews of services including specialist, primary health and other community based services.

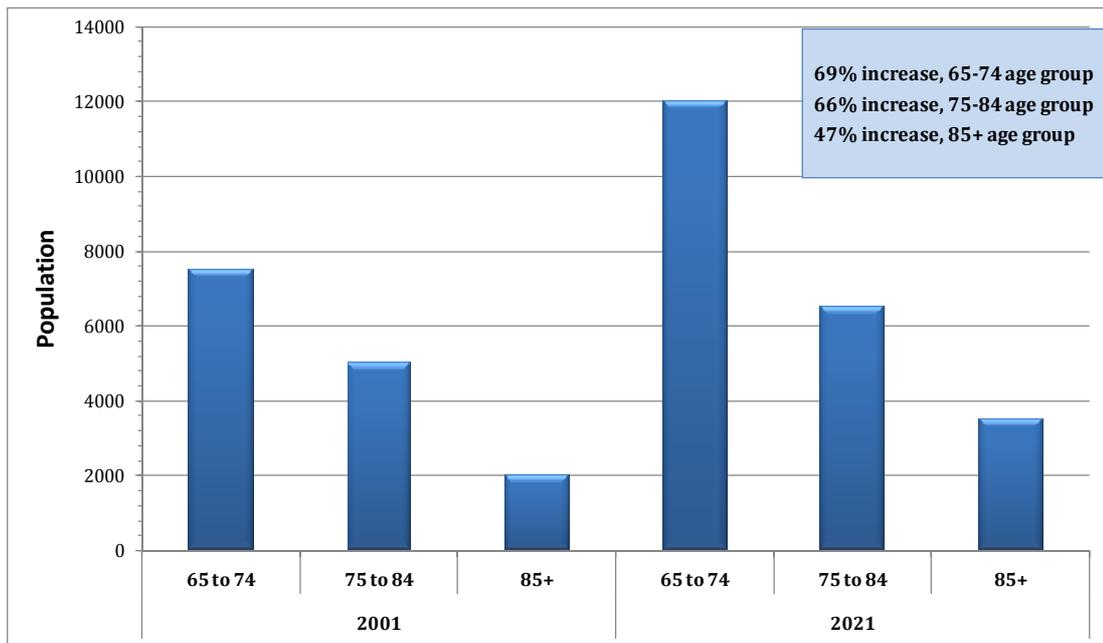
*Nicolette Sheridan PhD MPH (Hons) RGN.* Nicolette is of Ngapuhi descent and has a PhD and Masters in Public Health from The University of Auckland and is a registered nurse. She has experience in primary health care and has worked as an advisor and consultant in New Zealand. Nicolette is Associate Dean Equity for the Faculty of Medical and Health Sciences and a senior lecturer in the School of Nursing, The University of Auckland. She is a researcher with the Integrated Care Research Group, South Auckland Clinical School, Middlemore Hospital, The University of Auckland. Nicolette has chaired the MOH Expert Advisory Group on Primary Health Care Nursing and was appointed to the Access to Services Steering Committee in 2006 by the District Health Board Research Fund Governance Group. Nicolette's doctoral research in primary health care and chronic conditions was awarded the Te Amorangi: National Māori Excellence Award in 2007. She researches and lectures in primary health care; was an associate investigator in the HRC funded study 'Evaluating the Primary Health Care Strategy' and co-author of the 2009 report 'Nursing Developments in Primary Health Care 2001-2007'. In 2001 she coordinated a postgraduate programme in long term condition management for 41 Māori nurses providing mobile services across New Zealand; at present she is the NZQA academic monitor of the Te Ōhanga Mataora Paetahi (Bachelor of Health Sciences Māori Nursing) offered by Te Whare Wānanga o Awanuiārangi.

## 1.0 Project outline

### 1.1 Context

Long term conditions are 'the health care challenge of this century'. The World Health Organization estimates that globally, 60 to 75 percent of all deaths are due to long term conditions [1]. Over the next ten years, the number of deaths attributable to long term diseases is projected to rise by 17 percent [2]. The cost to a country of long term conditions includes direct costs (subsidising providers, pharmaceuticals, providing income support), underlying costs (capital and equipment), and indirect costs (reduced employment or social productivity). Costs borne by the person with the long term condition and their family / whānau can include direct costs (visits to general practitioners and other health professionals / specialists, medication, aids, modifications, services such as home help, development of physical or mental co-morbidities) and indirect costs (including a loss or reduction in income, lowered participation in work and society, and the physical and emotional toll on family/whānau and other informal carers).

International studies show that long term conditions are the leading cause of unequal health outcomes amongst social groups [3, 4]. In New Zealand, it has been demonstrated that long term conditions contribute the major share of inequalities in life expectancy for Māori, people with low incomes and Pacific peoples [5]. The prevalence rates of long term conditions increases with age. The New Zealand Health Survey [6] estimates that the incidence of long term conditions increases 3.5 times from 50 to 85. Currently, older people (65+) make up 14% of the population in Taranaki. This is anticipated to rise to over 20% by 2020 [7]. Of more significance however, is the doubling in the numbers of 85+ year olds over the same time period. Figure 1 highlights the anticipated changes in age structure over the next decade. Advancing age is associated with declines in physiological reserve and physical functioning and a higher risk of disability and dependency [8-13]. Consequently, 85+ year olds utilise three times the health care resources of other age groups and the influence of this increasing age group is anticipated to have a considerable impact on health and disability resources [14].



**Figure 1: Predicted older population changes across the Taranaki region**

Whether the current orientation and distribution of services can manage this burgeoning population and the resulting increase in long term conditions is questionable and has been the focus of multiple guidelines [15-21] and reports [15, 16, 22-26] over the past ten years. Addressing capacity issues in secondary care and Aged Residential Care (ARC) is highly pertinent now and can only become more pressing with the changing age structure. Age related long term conditions are an area of focus given the change in demographics however the needs of younger people with chronic conditions such as type 1 diabetes, multiple sclerosis and cystic fibrosis also need to be considered.

This picture is complicated for Taranaki as a result of the overall decline in population projected at a 9% drop from 2001 to 2026 (See appendix II). This overall decline in population means that Taranaki DHB will not on average obtain demographic increases in funding. Other Districts in New Zealand which obtain demographic increases can target these specifically toward the management of long term conditions and support for the elderly. Taranaki will have similar increases in demand for these services but will need to achieve a shift in focus of existing services from the declining under 65 age group to older people with long term conditions. Balancing this challenge is the strength that is already evident in service provision in the Taranaki region. Current Health Targets directly relevant to management of long term conditions provide an indication of this with Taranaki DHB leading all other DHBs in performance against these targets in the first Quarter of 2009/10 with an average achievement of 79%<sup>2</sup>

For an older person, primary care most often remains the key access point for health care. Redesign of primary care and the wider health system to support primary care activity offers the most viable means to address capacity concerns now and in the future. Indeed, New

<sup>2</sup> Relevant health targets include: (a) an increased percent of the eligible adult population will have had their cardiovascular disease risk assessed in the last five years; (b) an increased percent of people with diabetes will attend free annual checks; and (c) an increased percent of people with diabetes will have satisfactory or better diabetes management.

Zealand based evidence clearly indicates that focusing older person services within primary care can significantly reduce the risk of institutionalisation for older people [22]. Notwithstanding the shift in the actual numbers of older people, there is an anticipated and imminent change in the characteristics of health care consumers [27, 28], moving to a situation where the majority are more health literate and discerning around health care provision. These combined factors are likely to stretch organisations that are already at capacity and this is on a backdrop of a lower availability of health care workers [29].

In response to these factors, the New Zealand government has indicated that Primary Care Services in New Zealand must be more personalised, closer to home and reduce pressure on hospitals. New models of care are required to improve both the efficiency and sustainability of the health system in Taranaki and provide an improved client focus. Taranaki District Health Board (DHB) cannot continue to fund existing service models given the projected growth in the population of Older People, many of whom have long term conditions. The new models of care required for these people must provide integrated health care across the primary and secondary care spectrum and facilitate supported self-management through better health literacy.

### 1.1.1 The Project

The Taranaki DHB District Annual Plan (DAP) 2009 / 2010 identified five priority areas. This project is relevant to three of the five priorities. Priorities focussed on older people and long term conditions are directly relevant however the priority relating to disability and access also has significance for this work. The focus on disability is two fold, firstly that people with disability experience difficulty in accessing health services and secondly those people with a long term condition often experience disability in the course of their condition<sup>3</sup>. To inform the establishment of new client focussed integrated models of care in these areas, this project involves an evidence based review of community and primary services currently available to older people as well as people with long term conditions. As part of this work, the current models of care have been explored and an analysis undertaken on how these services currently integrate, identifying what works well and what does not work well for both the client group to support their independence and also the healthcare providers. This has been considered alongside national and international evidence for the development of relevant services. The overall aim of the project is to provide evidence based recommendations on how health services in Taranaki, for older people and those with long term conditions, could be reconfigured to provide improved outcomes within the resources available.

This paper is the first phase of this project and is intended to provide the basis for a consultation process on how the proposed models of care could be implemented.

## 1.2 Methodology

The review team undertook on-site visits and interviews over a four month period (October 2009 through to January 2010) with identified key stakeholders (See Appendix III). Discussions were semi structured based on identifying how services were organised, what people felt was working well and not so well, and what options people saw for the future to

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<sup>3</sup> Of particular note are those people who have chronic conditions for a longer period of their life such as type 1 diabetes, asthma, and multiple sclerosis.

improve service provision. Interviews were analysed to identify key drivers and enablers for change and findings were integrated with available evidence. This report outlines the key drivers and enablers for change as well as the proposed model of care.

### 1.2.1 Māori engagement and consultation

Specific attention has been paid to engagement with Māori. Dr Sheridan is of Ngapuhi descent and because of her existing networks and experience in working with Māori primary health care provider organisations, particularly those providing nursing services, was responsible for consultation with Taranaki Māori health provider organisations. Other members of the team, Associate Professor Matthew Parsons and John Baird have strong records of prior relationships with Māori health providers and consumers. Both have worked on a number of DHB projects involving Māori such as the 'Tairawhiti Services for Older Person Project' and have established links with Māori research organisations, such as The James Henare Research Centre, The University of Auckland.

Six Māori primary health care provider organisations were visited during 21 and 22 October 2009 and kanohi ki te kanohi (face-to-face) interviews of up to 120 minutes were conducted by Dr Sheridan. The main purpose was to find out from providers about the Māori populations they served and their experiences of service provision. Specifically, we were interested in what worked well, why and the degree of sustainability. Also what was less successful, why, and whether any action had been taken or needed to be taken to address this. These conversations indicated a high interest in integrated service provision and a readiness to contribute to future health care frameworks for implementation to ensure cultural relevance and safety for Māori. The individuals and organisations visited are included in Appendix III.

## 1.3 Project objectives

The government has indicated that Taranaki DHB is expected to provide better, sooner more convenient health care for the population of Taranaki. This project seeks to provide the evidence to implement innovative and affordable models of service delivery to people with long term conditions and for older people. The expectation is that this report will provide recommendations on where these health services are best situated, to enable improved client focussed models of care aimed at better health outcomes for people.

This new model of service delivery is expected to reduce avoidable hospital and residential care admissions by providing a supported and integrated health service to older people and those people with long term conditions living in the community. Further it will reduce the dependence of those living with long term disability and long term conditions, ensuring interventions and services can deliver effective holistic outcomes.

More specifically, Project SPLICE<sup>4</sup> sought to:

1. Explore the current health services in the community provided to older people and people living with long term conditions;
2. Recommend evidence based and sustainable models of service delivery to provide this identified population with health services which enable them to have the best possible quality of life while living in the community;

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<sup>4</sup> Splice is defined by The Oxford English Dictionary as "join (a rope or ropes) by interweaving the strands at the ends."

3. Identify how services can be integrated to deliver optimum care; and
4. The report deliverables will include an action plan and an implementation plan for a new model of service delivery.

The project was undertaken in light of a series of key assumptions. Firstly, that any model of service delivery change was required to meet the government's priorities and to provide services that address the current areas of high health need. Clearly, all new models of care would be required to provide culturally appropriate health services to address the current health inequalities in Taranaki. In addition, in consideration of current practices and future care delivery models, it was acknowledged by Taranaki DHB that current disability and health services provided to older people and those with long term conditions in the community were siloed, often lacked co-ordination and common goal setting. Furthermore, it was documented that many older people and people with long term conditions were unaware of the services available to assist them to remain healthy in the community. While this project is focussed on health related services the broader context of the impact of whanau, social and community supports particularly for those experiencing disability is clearly recognised. Finally, evidence firmly supports the notion that supported self management for people with long term conditions and older people will improve their health literacy and therefore there was a belief that such an approach would be inherent with any model of care development.

### 1.3.2 Scope

This project examined current service delivery within the Taranaki region to older people and people with long term conditions living in the community against evidence based best practice health services. Those services examined included:

- ❖ Taranaki DHB District Nursing Services (including short term Home Support);
- ❖ District Nursing Services provided through Primary Health Care Organisations;
- ❖ General Practice;
- ❖ Disease State Management Nursing Services;
- ❖ Outreach Nursing Services;
- ❖ Needs Assessment Service Coordination Services;
- ❖ Kaiawhina Services;
- ❖ Kaumatua Services;
- ❖ Māori Healing Services including Rongoa and Mirimiri; and
- ❖ Home Based Support Services.

The scope explicitly excludes the examination of secondary care services and wider social service delivery

### 1.3.1 Deliverables

- ❖ An evidence based systems review of current health services;
- ❖ A proposed new model of care incorporating workforce issues, IT requirements and Te Pae Mahutonga; and
- ❖ An implementation plan that includes details of the training and mentoring necessary for success.

## 2.0 Key drivers and enablers for change

### 2.1 Introduction

A total of eight days were spent by the review team in Taranaki interviewing individual stakeholders as well as multiple organisations through one-on-one interviews and focus groups as appropriate (as described in Appendix III). Key drivers and enablers have been identified on the basis of these discussions and a review against the evidence.

### 2.2 Key Enablers

The 2007 National Health Care Committee report [15] notes that there are two major foci of chronic care models. The first is proactive support for people in a community setting, which emphasises the central role of primary health care. The second looks for a redesign of the health system to deliver a continuum of care across hospital and community-based services. Both areas of change are required to successfully address issues for people with chronic conditions. Taranaki DHB is therefore seeking a way forward that is comprehensive in its approach to addressing chronic conditions. It looks to build on, and consistently implement, work under way and achieve an integrated health sector. The findings identified here clearly point to a focus on primary health care and indeed means to address health divides, as evidenced by the success against the Ministry of Health (MoH) Health Targets.

#### 2.2.1 Local strengths identified

The following key local strengths were identified:

##### *Primary Care*

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- ❖ Significant nursing development activity for Practice Nurses through PHO Nurse Coordinators and Flinders Training;
- ❖ Project underway using an “optimising the patient journey” approach in three practices one of which involves exploring the district nursing interface;
- ❖ Four planned Integrated Family Health Centres as part of the Better, Sooner, More Convenient process;
- ❖ Most of the population is still served by well established General Practice; and
- ❖ Emergent long term conditions focus with an emphasis on screening, practice nurse development and some development on additional coordinated allied service delivery.

##### *Community Services*

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- ❖ Innovative examples of rural locally delivered community nursing supported by Trusts and / or local General Practice that have achieved significantly improved integration with Primary Care and enhanced the role of nursing within the practice and community. In particular this has provided some indication that a greater role could be taken by mobile nursing in support of people with long term conditions and the elderly. Likewise there is an indication that the practice nursing role can be developed to provide further clinic based activity;

- ❖ Home Based Support Service (HBSS) delivery has strengthened over the past two to three years with the availability of some additional funding and the current workforce market improving recruitment and retention. Innovative examples of support for shopping and transport have also been established;
- ❖ District Nursing is clustered into three areas resulting in effective geographical efficiency and providing the basis for improved linkage with primary care delivery. Emergent geographically based organisation of programmes for nurse educator activity;
- ❖ Strong interest expressed by allied health staff in taking on a greater community based focus;
- ❖ Community focused psycho-geriatric service providing in reach to the hospital but predominantly working with people in a community based setting;

#### *Primary - Community Linkages*

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- ❖ Innovative rural examples of district nursing and general practice integration; and
- ❖ Diabetes nurse educator role noted as connecting with general practice as part of the care process for patients. This was noted as involving liaison as part of individual patient care, availability for advice in relation to care being provided by the practice and involvement is case specific discussions at a practice level.

#### *Māori nurses: long term condition management*

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- ❖ Māori primary health care nurses in the specialty area of 'long term condition management' believed they were improving access to services for Māori clients who had either been diagnosed with a long term condition and were not receiving routine follow up care at a general practice (for many reasons, including cost) or who on presentation were found to have a long term condition;
- ❖ Many Māori nurses had postgraduate qualifications in primary health care and long term condition management;
- ❖ Comprehensive health and social histories taken by DSM nurses during clinical assessment were reported to uncovered information not known or recorded in either hospital or general practice records; and
- ❖ Māori nurses provided placements for nursing and medical students in primary health care and supervised other nurses and midwives, for example, in cervical screening.

#### *Kaiawhina roles*

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- ❖ Some Kaiawhina had gained certificates and diplomas at NZQA levels 3 and 4 (whānau ora);
- ❖ Kaiawhina in community pandemic planning roles engaged Māori leaders and communities, bringing people together to agree on a way of managing 'H1N1 influenza'. This strengthened community action and also unexpectedly resulted in the identification of a number of older socially isolated, unwell adults who needed health care; and
- ❖ Kaiawhina roles that strengthen whānau and community networks can be utilised in community engagement and action on other issues.

### *Kaumatua programmes*

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- ❖ Kaumatua programmes - Social cohesion is being developed through shared activities, trust and creating whānau and community networks;
- ❖ Māori providers follow up with Kaumatua who do not attend and provide a level of care and security;
- ❖ Kaumatua undertake a number of activities that are physical and social; transport is a barrier to accessing programme activities;
- ❖ Māori providers because of their wide ranging activities have useful knowledge about Kaumatua, not found in other clinical records; and
- ❖ There is potentially a role in translation between health professional and Kaumatua / whānau that can assist in improving health literacy.

## **2.3 Key Drivers**

### **2.3.1 Local drivers identified**

The following drivers for change were identified from the discussions held locally:

#### *Primary Care*

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- ❖ General Practice continuity has been lost in some areas and workforce sustainability issues exist. Rural General practice is highly dependent on continuation of existing workforce and may not be sustainable in the medium term;
- ❖ Model of care within general practice still largely reflects a standard consultation model with adjunct nursing support;
- ❖ Ageing workforce with potential medium term attraction and retention issues within the city as well as rural areas;
- ❖ Potential for significant further development of nursing and allied roles. Some roles currently isolated within primary care due to rurality or disconnect from other services; and
- ❖ Significant perception of general practice variability from specialist services resulting in retention of patients within specialist community services. Limited structured interaction to resolve this.

#### *Community Services*

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- ❖ Low community allied health presence;
- ❖ Multiple points of entry, assessment and coordination for different services for example district nursing, short term home based support, NASC, long term home based support and allied health. Significant time wasted between services investigating what other service delivery is occurring for patients;
- ❖ Fragmented rural delivery poses person dependant risks to quality, ongoing training and development, oversight and sustainability. In particular isolated district nursing services

- have difficulty accessing training and support due to funding, time availability and travel distance;
- ❖ Duplication and overlap between multiple home based support providers resulting in size and travel inefficiencies and risk of service discontinuity. Inconsistent availability of service delivery in some rural areas;
- ❖ Highly unusual patterns of home based support utilisation (see appendix I). Some indication of higher rest home utilisation in comparison to other parts of New Zealand;
- ❖ Direct entry to residential care post acute / AT&R hospital stay not providing the best platform for considering community based options;
- ❖ Home based support funding model provides perverse incentives. No defined care management process in conjunction with Needs Assessment Services Coordination (NASC) or other services such as specialist health services for older people and general practice. Underutilisation of support workers as part of chronic care management and advanced personal care;
- ❖ Absence of clearly defined supported discharge or rapid response services with district nursing providing supported discharge services by default as the major focus of their activity. Rapid response of urgent assistance is a distinct gap in service delivery;
- ❖ Variable model of support for medication management with a lack of integration between home based support, other community providers of support, pharmacy and general practice; and
- ❖ Absence of any community based restorative services, intermediate and transitional care services.

#### *Primary - Community Linkages*

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- ❖ District nursing and primary care services are not integrated in urban areas and different service areas are providing support and treatment without good coordination;
- ❖ Nurse educator roles are predominantly providing discrete episodes of care in parallel to other primary care activity without any liaison or integration; and
- ❖ Needs Assessment Service Coordination (NASC) is isolated from specialist health services, general practice, district nursing and short term home based support management. NASC does not include a clinical focus.

#### *Māori nurses: long term condition management*

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- ❖ The same general practices referred patients to the DSM nurses, the vast majority of general practices did not refer nor did hospital discharge planning services; nurses recognise the need to market their services;
- ❖ District nurses did not usually share information (but did generally responded to patient referrals from Māori providers and nurses)
- ❖ Overall Māori nurses found chronic condition management contracts focus on achieving clinical outputs and these were not the same as health outcomes; frustrations were expressed at the “limited scope” of some contracts, and
- ❖ Patients’ hospital record could not consistently be accessed by some nurses and could never be accessed by others; general practice records were more often accessible to Māori nurses.

- ❖ Many Māori nurses were referring patients' back to secondary services, returning patients to general practice and assisting patients to access social services, like home help which proved difficult in rural areas as carers travel costs are not reimbursed;

#### *Kaiawhina roles*

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- ❖ Although nurses and Kaiawhina working collaboratively in many organisations, concerns were raised about the overlap of some Kaiawhina activity with nurse activity;

#### *Kaumatua programmes*

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- ❖ Māori providers believe Kaumatua programmes are not accessed (under-utilised) by mainstream providers such as general practice and hospital services and would welcome referrals; and
- ❖ Māori providers want access into Kaumatua programmes at a younger age for Māori; a wider range of activities contracted for, and programme evaluation undertaken.

#### *Traditional Māori and other alternative therapies*

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- ❖ Miri miri (traditional Māori massage), kawakawa (Rongoa Māori), champissage (Indian head massage), and reiki (healing energy) were some of the therapies offered to as many as 50 people weekly. However referrals are received mainly from Māori providers within the Tui Ora Ltd. Structure; a referral by a mainstream health provider has never been received

## 3.0 A description of the model of care

### 3.1 Introduction

All New Zealanders are affected by long-term conditions, whether as carers for family and whānau, taxpayers, health professionals or managing their own chronic condition. Mismanagement of chronic conditions is the leading cause of hospitalisations, accounts for 80 percent of all preventable deaths and is estimated to consume a major proportion of our health care funds [15]. Chronic conditions are also a barrier to independence, participation in the workforce and in society – social and economic costs we are yet to calculate as a nation. Chronic conditions account for a higher proportion of illness and deaths among Māori, people on low incomes and Pacific peoples than among the general population. The need to reduce health inequalities remains urgent. For example, from 2007 to 2011, the prevalence of diabetes is predicted to increase by 148 percent among Pacific peoples and 132 percent among Māori. Work to prevent and manage chronic conditions should ensure outcomes for groups at greatest disadvantage improve earliest and most significantly. If this approach is not taken, health inequalities are likely to grow.

The most widely known framework for providing care to people with long term conditions is the Chronic Care Model, first enunciated by Wagner in 1998 [30]. The model attempted to draw together all the activities being used up to that time to care for patients with chronic illnesses and for which there was some evidence of effectiveness. The model describes an informed and activated patient in partnership with a prepared and pro-active health care team. It consists of six components; community resources; the healthcare system; patient self-management; decision support; delivery system (re)design; and clinical information systems. A recent meta-analysis of 112 studies concluded that interventions that contain at least one Chronic Care Model element improve clinical outcomes, processes of care and quality of life for patients with chronic illnesses [31]. Nevertheless, the six components are each relatively broad, and what might be classified as, for example, decision support in one programme might be very different from decision support in another programme. Examples are shown in the following table. Such elements are intrinsic to the development of the Model of Care within Taranaki DHB.

**Table 1: Strategies included within each category of the Chronic Care Model (From Tsai 2005 [31])**

Delivery System Design	Decision Support
<ul style="list-style-type: none"> <li>Care management roles</li> </ul>	<ul style="list-style-type: none"> <li>Institutionalization of guidelines/prompts</li> </ul>
<ul style="list-style-type: none"> <li>Team practice</li> </ul>	<ul style="list-style-type: none"> <li>Provider education</li> </ul>
<ul style="list-style-type: none"> <li>Care delivery/coordination</li> </ul>	<ul style="list-style-type: none"> <li>Expert consultation support</li> </ul>
<ul style="list-style-type: none"> <li>Proactive follow-up</li> </ul>	<ul style="list-style-type: none"> <li>Clinical Information Systems</li> </ul>
<ul style="list-style-type: none"> <li>Planned visit</li> </ul>	<ul style="list-style-type: none"> <li>Patient registry system</li> </ul>
<ul style="list-style-type: none"> <li>Visit system change</li> </ul>	<ul style="list-style-type: none"> <li>Use of information for care management</li> </ul>
<ul style="list-style-type: none"> <li>Self-management Support</li> </ul>	<ul style="list-style-type: none"> <li>Feedback of performance data</li> </ul>
<ul style="list-style-type: none"> <li>Patient education</li> </ul>	<ul style="list-style-type: none"> <li>Community Resources</li> </ul>
<ul style="list-style-type: none"> <li>Patient activation/psychosocial support</li> </ul>	<ul style="list-style-type: none"> <li>For patients</li> </ul>

• Self-management assessment	• For community
• Self-management resources and tools	• Health Care Organization
• Collaborative decision making with patients	• Leadership support
• Guidelines available to patients	• Provider participation
	• Coherent system improvement and spread

Indeed, the Chronic Care Model may best describe primary care. The World Health Organization (WHO) adapted the model to develop the Innovative Care for Chronic Conditions Model which focuses more on community and policy aspects of improving chronic care.

There is always a challenge to match the needs of different population groups and invariably health care delivery is a compromise. The model of care is no exception, as it attempts to meet the needs of all people with long term conditions as well as older people who often have multiple co-morbidities. In this instance however, the key recommendations from evidence for optimal long term condition management as well as meeting the needs of a growing older population is similar. The model of care described here therefore blends these two elements. The service developments described here are underlined and emphasised by the need for services to be integrated, interdisciplinary, individualised and localised. The model will provide the building blocks for consumer co-creation<sup>5</sup> and positive ageing [18]. All people with long term conditions as well as older people will have access to health professionals who know and work as a team in collaboration with their General Practitioner, in their local community. People with long term conditions and older people will have access to services which focus on promoting and supporting active recovery and rehabilitation and preventing unnecessary loss of independence within the wider picture of the need for long term condition management. Health services for people with long term conditions and older people in the Taranaki DHB region will be guided by the principles described in Table 2:

**Table 2: Principles guiding the model of care in Taranaki**

<b>Descriptors</b>	
<b>1</b>	<b>Information systems will be utilised to access key data on individuals and populations;</b>
<b>2</b>	<b>Proactive case finding;</b>
<b>3</b>	<b>Systematic and multidimensional assessment of health and social care needs;</b>
<b>4</b>	<b>Risk stratification to provide appropriate and timely intervention;</b>
<b>5</b>	<b>Involvement of consumer and their whānau / family in care;</b>
<b>6</b>	<b>Active coordination / navigation using a named Care Manager;</b>
<b>7</b>	<b>Inter-disciplinary teams will be locally based and when required, work together to meet the needs of the individual and their whānau / family;</b>
<b>8</b>	<b>Specialist and generalist care will be integrated across organisational boundaries;</b>
<b>9</b>	<b>Services will aim to minimise unnecessary visits and admissions to hospitals; and</b>
<b>10</b>	<b>Care will be provided in the least intensive setting.</b>

<sup>5</sup> Co-creation is the practice of health care delivery that is collaboratively developed and delivered by health professionals and consumers together.

Drawing on the models of international best practice outlined above, the key elements of the services proposed for the Taranaki DHB region are:

- a. Comprehensive assessment;
- b. Enhanced care management functionality;
- c. Active client management and individualised lifestyle and support planning;
- d. Integration across health and social care; and
- e. Clinical leadership and workforce development.

The proposed model has three distinct aspects, Care Clusters of health professional teams aligned to General Practice that are locally based, a District Support and Development Unit and consolidation of triage and coordination functions.

## 3.2 Assessment systems

Assessment for people with long term conditions who are not older tends to specific to the disease state in questions. For instance, a 45 year old man with Heart Failure may be assessed using a tool such as the Self Care of Heart Failure Index, where as older people, due to the increase in co-morbidities with age and increase in frailty require a more comprehensive assessment approach. Comprehensive health assessment covers several domains of health and welfare including: physical, psychological, social, community support and functional status and is beneficial for older people as their problems span broad areas of need [32-35]. Assessment leads to recommendations for interventions appropriate to the older person's needs. To be effective, assessment must be followed by implementation of recommendations [36]. Comprehensive assessment and management have been proven for older people [37, 38].

Specific to older people is the development of *interRAI*, a United States based not-for-profit organisation with membership from notable international gerontologists and clinicians. The organisation has developed and implemented a range of assessment tools specific to older people. Following a systematic review of the literature on comprehensive geriatric assessment instruments [39] and trial implementation and evaluation across six DHBs [40], two tools (MDS-HC or Minimum Data Set Home Care and Contact assessment) are being supported by the Ministry of Health for national implementation. Carpenter [41-43] reports that the tools have significant benefits in that:

- a. They facilitate the consistent and comprehensive assessment of older people;
- b. The use of the tools support assessors to consider the whole person;
- c. Care is based on accurate, reliable information;
- d. The results of the assessment assist clinicians in identifying problems and potential for improvement; and
- e. Inter-disciplinary staff involvement in assessment and care planning is improved. Further, the data arising from the assessment facilitates the monitoring of indicators of quality of care, which in turn allows for evaluation of impact on case mix and resource management as well as clinical effectiveness.

The MDS-HC is electronic and is undertaken with the older person and their whānau / family through a face-to-face interview, where as the Contact assessment is designed as a first contact assessment and can be undertaken via telephone.

The Ministry of Health funding that is to support the national roll out of *interRAI* will come online in Taranaki DHB in 2011. The adoption and utilisation of the two tools will support a standardised midlands response to older person assessment, but moreover it will provide the basis for streamlined responses to service access for older people and for those assessed as like age and interest.

### 3.1.1 Proactive case finding and screening

For some time, it has been recognised that considerable unmet need amongst older people and indeed people with long term conditions remains unassessed and unidentified [44-47]. This issue has subsequently been the subject of 41 trials of proactive home based assessment, 15 systematic reviews and four meta-analyses [37, 48-50] and is not yet settled as evidence from systematic reviews have been mixed [51, 52]. When results of individual trials are combined, meta-analyses show the positive impact of in-home assessment such as reduced mortality [48] and admissions to residential homes [48, 49]. Indeed, since the 1990s, routine visits to people aged 75 and over have been publicly funded and required of health professionals in the United Kingdom, Denmark and Australia. However, despite the positive evidence, at least one series of large trials not included in the meta-analyses have resulted in increased placement in residential care after health assessment and case management [53]. The Australian Coordinated Care Trials enrolled over 1000 patients with long term conditions and / or complex care needs and tested a variety of assessment and care coordination models of care. Overall, there was no significant difference in the cost of medical care, hospitalisation rate or mortality [53]. Similarly, another study of 1000 Australian Veteran beneficiaries showed increased admission to nursing homes, without effect on hospital admissions or mortality after three years of comprehensive assessment [54].

More pertinent to the Taranaki Model of Care is whether it may be possible to identify those in special danger of deterioration [45], in other words, target assessment activities to those in most need as opposed to offering assessments to everybody (targeted assessment vs. universal assessment). Indeed, this question was addressed by a recently published MRC assessment trial from the UK. Over 40,000 people over the age of 75 years were followed for three years. General Practices were randomised to undertake comprehensive assessment for all, or target assessment using a two-stage case-finding process. Older people were assessed based on responses to a lengthy self-report questionnaire [55]. There was no benefit to universal assessment over a targeted approach, except a very small improvement in quality of life.

The evidence to date for proactive case finding therefore remains mixed and on the basis of this very significant unanswered question, The Health Research Council funded BRIGHT, a large trial of proactive case finding across New Zealand due for completion in 2011, which will provide answers within the New Zealand context around the value of screening amongst older people. In the face of these factors, it is sensible to await the findings of BRIGHT prior to supporting implementation of any form of pro-active case finding.

## 3.3 Care Referral & Coordination

The draft Midlands Business Case for Better, Sooner, more Convenient primary care includes the development of a Regional Referral Centre. Regardless of the outcome of the Business

Case, there are core functions that require management and coordination that occur at a central level. Whether these activities are grouped across the region or are kept within Taranaki is a subsequent discussion. The Model of Care presented here outlines the approach and this can be configured either as a standalone unit within Taranaki DHB or in partnership with the other Midlands DHBs (Waikato, Tairāwhiti and Lakes). Care referral and coordination will focus on five pertinent functions for older people and those with long term conditions:

**Table 3: Referral and Coordination functionality**

Function <sup>6</sup>	Description
1. Triage	Referrals for older people referred for disability support
2. Short term care assessment & coordination:	Access point for clients requiring District Nursing and short term home care
3. Non-complex assessment	Of older people (or like age and interest) using the <i>interRAI</i> Contact tool, via telephone <sup>7</sup> by health professional assessors. Figure 2 illustrates the criteria for categorisation of disability support, using Levels I through to V <sup>8</sup> . Older people assessed within Levels I to III will be managed through the non-complex assessors within Care referral and coordination service and older people assessed as Levels IV or V will be passed to the care clusters for assessment by the care managers using the <i>interRAI</i> MDS-HC.
4. Non-complex coordination	Of older people (or like age and interest) assessed as requiring support (i.e. Home Care) through the <i>interRAI</i> Contact Assessment.
5. Administration and interface with national payment systems	For all older people <sup>9</sup> (or like age and interest) receiving disability support services (HBSS, Carer Support or ARC). The administration function will manage provider allocations, payment systems and databases.

<sup>6</sup> There are several other services that would lend themselves to inclusion in such an access point such as allied health and disease specific services. However, given the Midland Business Case developments, it is prudent to await the decisions around this proposal prior to investing heavily in further consolidation

<sup>7</sup> In those instances when a telephone based assessment is inappropriate, such as when the older person has a hearing loss, or when a face to face assessment is a more culturally appropriate option, the client will be passed to the care manager based within the clusters.

<sup>8</sup> This leveling system has been developed from the IN-TOUCH programme, a partnership between ten DHBs, Nurse Maude and The University of Auckland and is discrete from the Support Needs Level and *interRAI* Contact Acuity Scale. It is currently in operation in Multiple DHBs.

<sup>9</sup> Whether non-complex, assessed through the *interRAI* Contact assessment through the care referral and coordination service or complex assessed using the MDS-HC by the Care Cluster based Care Managers.

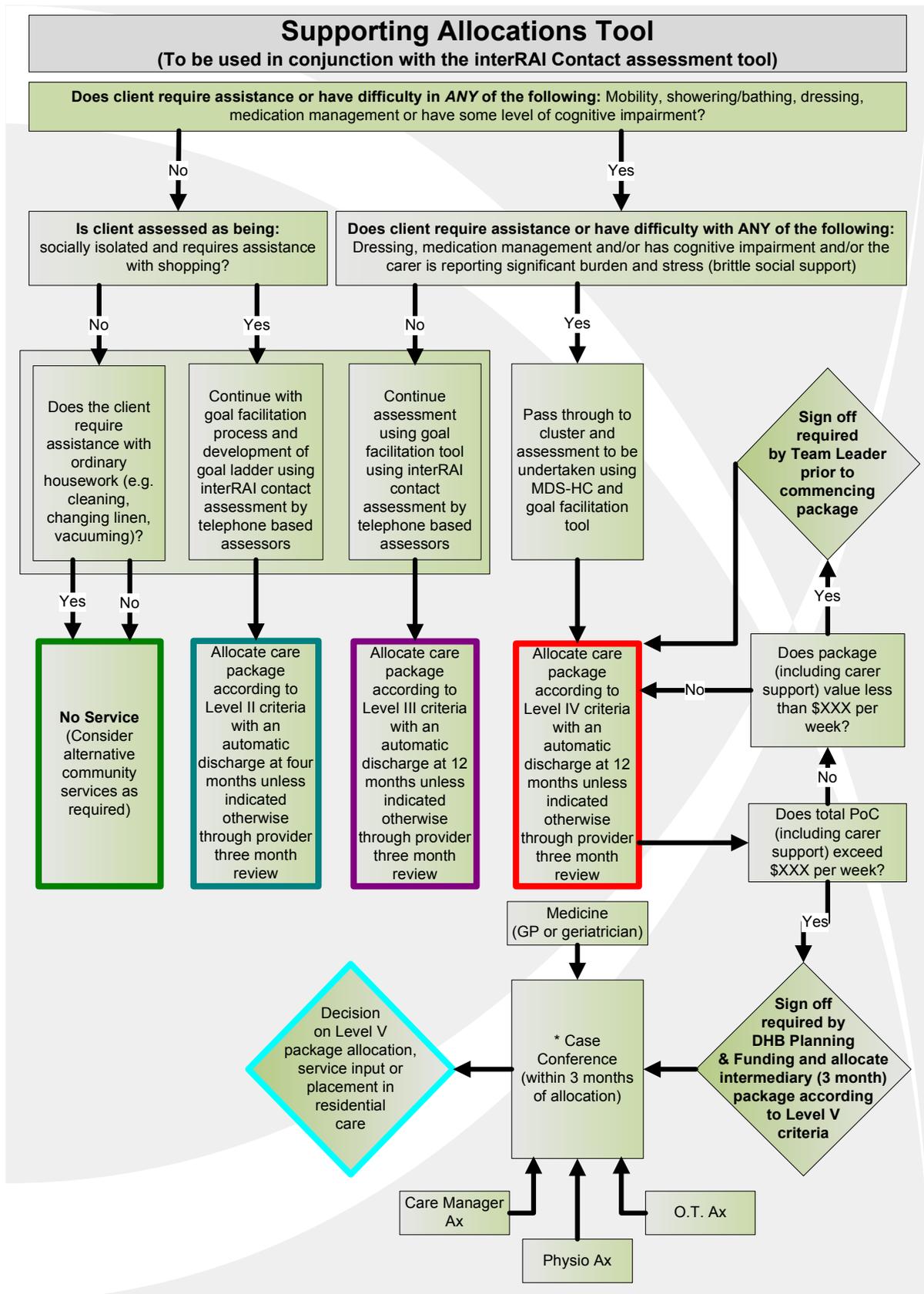


Figure 2: Assessment process for disability support services (HBSS and ARC)

### 3.4 Care Clusters

A total of six Care Clusters are proposed across the DHB and will be aligned to emergent Integrated Family Health Centres (IFHC). In the absence of such, Care Clusters will be developed according to a mixture of general practice alignment, local geography and population sizes.

#### 3.4.1 Care Cluster location

Given the geography and population density of Taranaki, it is proposed that there will be six Care Clusters. However, it is recognised that several other factors may influence the final boundaries and therefore the proposition here is seen more to initiate discussion. The indicative locations are described below:

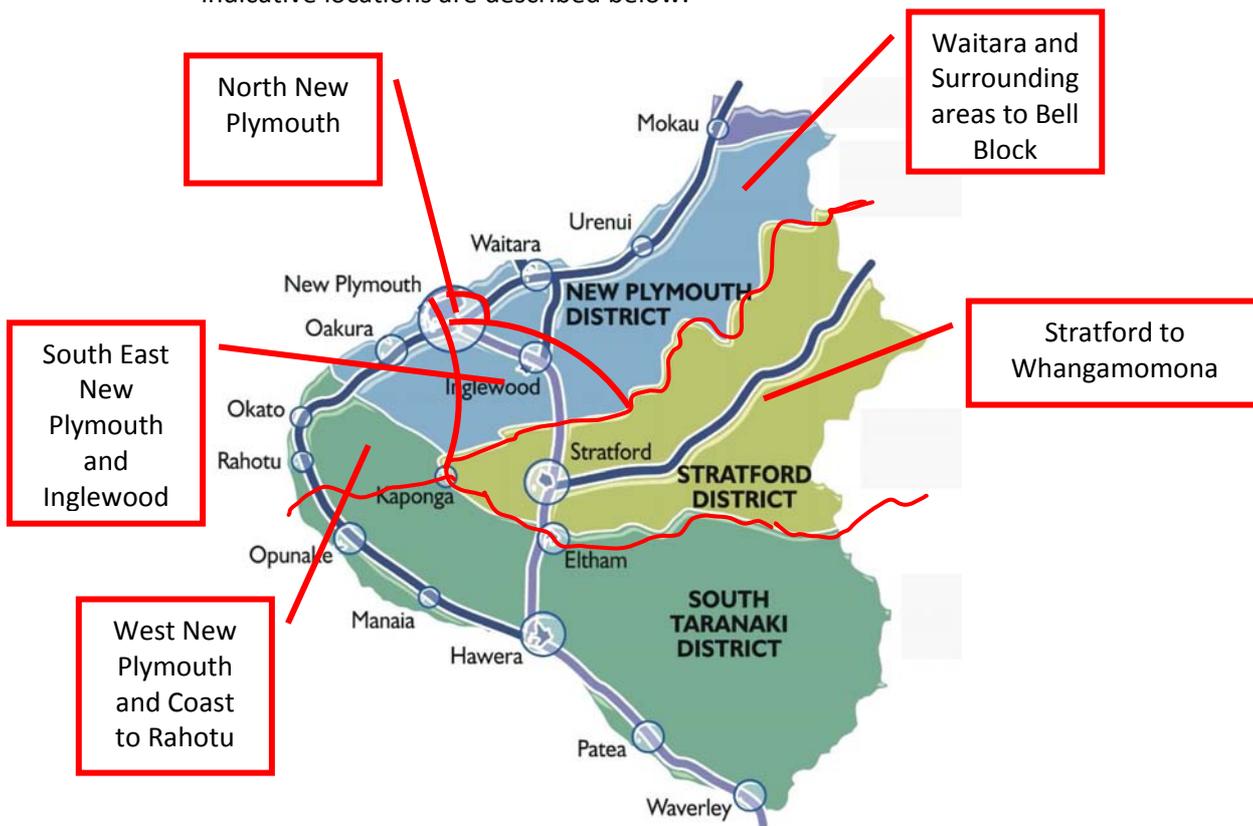


Figure 3: Illustration of Care Clusters

#### 3.4.2 Care management and navigation

Navigation and care management are critical components to successful long-term condition management or older person specific services. The Taranaki DHB Model of Care will incorporate both elements. For older people, working alongside General Practitioners and aligned to each Care Cluster will be a health professional Care Manager who will provide care management for all older people 75+ with complex needs including disability support provision. The Care Manager will assess people using the MDS-HC and coordinate care according to their needs. The model is well supported by evidence at both a national level [22], as well as internationally [56-59]. People requiring long term disability support such as

HBSS, Carer Support, day programmes, ARC and respite care and who are triaged as complex via the care referral and coordination service will be assessed and their care coordinated by the Care Managers<sup>10</sup>. The Care Manager will have an integral working relationship with the older person's General Practitioner and will be able to provide an immediate and flexible response when required. This model has been demonstrated to significantly reduce risk of institutionalisation for older people, whilst not detrimentally impacting on carer stress and well being [22].

Disability Support Services, namely ARC and HBSS providers will be similarly integrated within the Care Clusters to ensure appropriate response and care delivered in a timely manner. Table 1 outlines the relationship and roles of the disability sector in relation to the cluster.

The need for navigation and care management increases as disease complexity increases as there is an associated need for consumers to access different services. Figure 3 highlights this relationship. As risk factors emerge, the GP and Practice Nurse (clinic nurse) will provide care and navigation as appropriate. For people under 75, if conditions worsen, the need for navigation and or care management increases and this will continue to be focussed within the cluster, arising from an assigned District Nurse (mobile nursing), for those who are housebound or Practice Nurse (Clinic Nurse) for those who are mobile. All will operate within a co-creation / self management model such as Flinders. Kaiawhina and Disease State Management (DSM) roles are particularly pertinent within such a framework.

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<sup>10</sup> An augmented Needs Assessment Service (NASC) Coordination response for clients assessed with complex needs. Indications from other DHBs operating using the split of non-complex / complex described in Figure 2 is that approximately 50% of all clients receiving long term disability support are assessed as complex therefore will be managed by the Care Cluster based Care Manager, with the remaining assessed and coordinated through the non-complex team working within the care referral and coordination service.

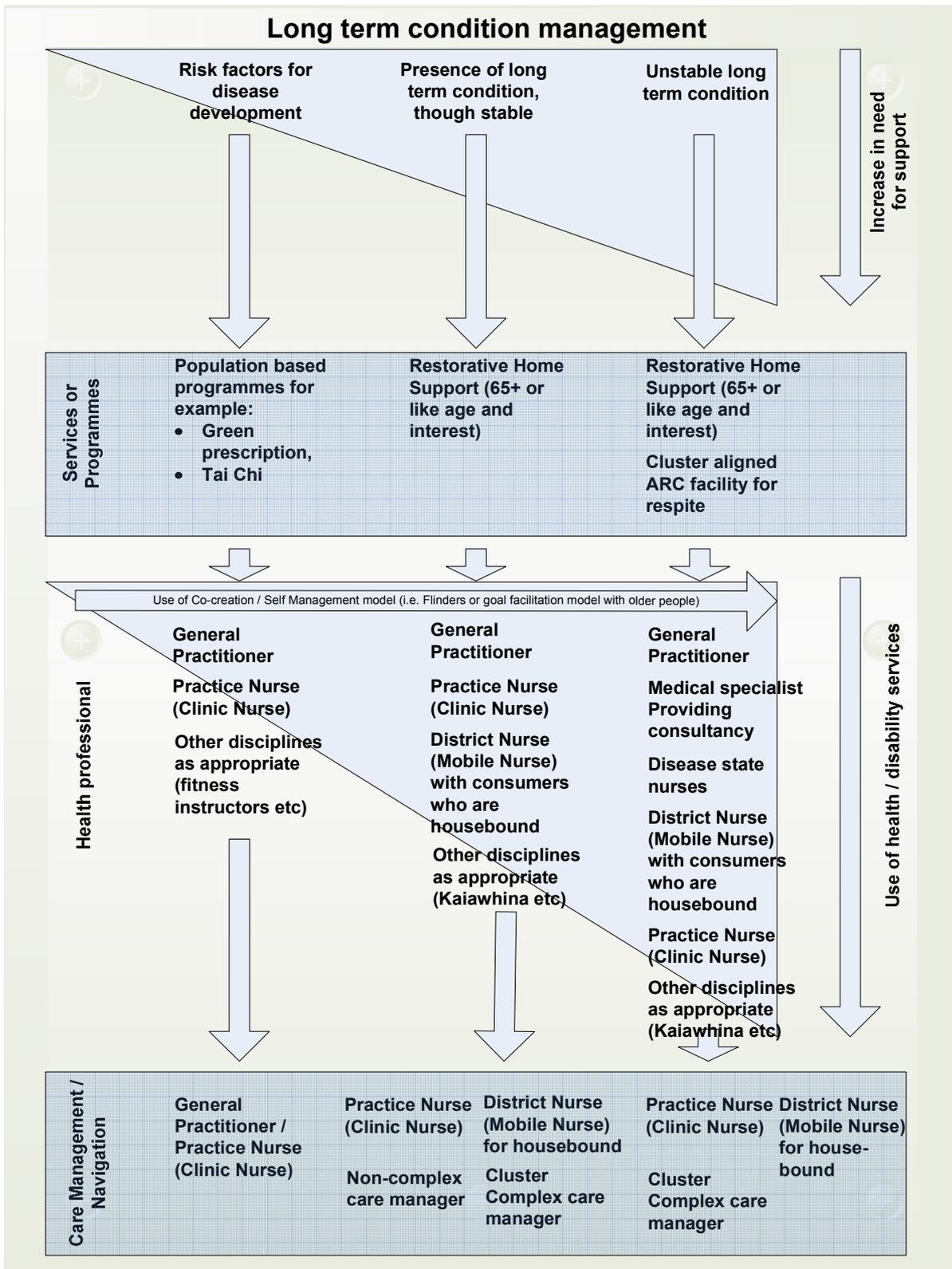


Figure 4: Illustration of Navigation / Care Management interface

### 3.4.3 Generic long term condition functions

Working as an inter-disciplinary team within each Care Cluster will be allied health, namely Physiotherapy, Occupational Therapy, Social Work and Pharmacy. Each discipline will operate with those living within the Care Cluster boundaries and will work both in a uni-discipline manner as well as inter-disciplinary. Social Work will have a specific remit for working with older people who are not engaged with primary care and will utilise well evidenced techniques such as those associated with the Flinders model [60] (motivational interviewing, counselling, goal facilitation) to support engagement as required. A further focus for Social Work would be around developing a local response to increase social engagement and community development<sup>11</sup>, such as local shopping deliveries, reading volunteers at local schools, older people contributing to walking school bus as conductors.

Nursing services will be organised around the Care Clusters, with traditional District Nursing being re-focussed from a centrally organised structure to the Care Clusters. The role of Practice and District Nursing will be reframed around activity associated with home visiting versus clinic based<sup>12</sup>. Any client who can attend the surgery for treatment (continence assessment, wound dressings etc) will be attended to by the clinic based nursing team (previously Practice Nurse) and any client who is housebound will be seen by the mobile nursing team.

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<sup>11</sup> As defined as the process of supporting a community to strengthen itself and develop towards its full potential.

<sup>12</sup> Examples already exist nationally of District Nursing being organised around clinic versus housebound services, i.e. in Counties Manukau, District Nursing home visits are limited to those that are unable to attend a clinic.

Table 4: Care cluster staffing components

Role	Description
<b>General Practitioner</b>	A Care Cluster may align several practices and General Practitioners dependent on geography and population.
<b>Care Manager</b>	Health professional working at an advanced level with augmented Needs Assessment Service Coordination (NASC) function. A total of 8 will be employed across the district, (1 FTE per population of 1500 older people). The Care Manager will utilise the <i>interRAI</i> MDS-HC assessment tool and will actively care manage a defined group of older people with complex needs. The Care Manager will provide access to disability support services, carer support and respite for older people with complex needs within the care cluster
<b>Physiotherapy, Occupational Therapy, Social Work and Pharmacy</b>	Physiotherapy, Occupational Therapy, Pharmacy and Social Work will be aligned to Care Clusters and will provide care to the older people within their cluster. As with the Care Manager, allied health may provide care across a number of smaller Care Clusters. Social Workers will be anticipated to work directly with disengaged older people utilising Flinders principles, motivational interviewing techniques as well as counselling as appropriate. Social Workers will take responsibility for community development within each cluster as well as maximising social connectivity for older people at a community level.
<b>Nursing : Clinic and mobile component</b>	Nursing services from District Nursing and Practice Nursing will be integrated; District Nursing will be based within the Care Cluster and will continue to deliver services to housebound clients in their own home. Practice Nursing will be surgery or clinic based and will provide a range of services to clients who are mobile and can attend the surgery or clinic. Nursing services will be supported by the DHB professional leadership operating through the District Support and District Support & Development unit.
<b>Residential care facility</b>	The Care Clusters will be aligned to one or more ARC facilities within the local geographical boundaries to provide transitional care capability <sup>13</sup> , a form of intermediate or slow stream rehabilitation as well coordinated residential respite care. Clients accessing these services will be actively care managed by the Care Manager located within the Care Cluster. These facilities will have full access to the inter-disciplinary team for clients receiving care and the team will have a focus not only on direct care for clients within these contracts but indirectly for quality improvement across the facility.
<b>HBSS</b>	The Restorative Home Support model has been implemented in many DHB regions across New Zealand. The model in the main comes from a quality improvement drive for home care. There are several key components and these include: geographically based health professional coordinators and support workers; Nationally recognised training for Support Workers; three monthly reviews with clients; individualised goal setting with clients; Integration with the Care Manager; functional rehabilitation integrated as required with allied health.

<sup>13</sup> As already in place in Waikato DHB

### 3.5 The District Support and Development (DSD) unit

The DSD unit will have a core professional leadership and education role for nursing and allied health across the DHB. The function will extend to staff based within the Care Clusters. Figure 3 highlights this relationship. Specialist services will operate from the secondary care in the usual fashion. However, the links between Specialist Health Services for Older People (SHSOP) with the clusters will be actively maintained through the Care Manager who will although be physically based within the Care Cluster will have a direct reporting relationship through SHSOP. The linkage and professional guidance for the Care Manager will most likely occur through peer reviews and case conferences with SHSOP and in particular the appropriate community Geriatrician, as well as professional leadership provided through DSD (nursing and allied health). This will enable a quality and oversight role to be developed.

The DSD unit will also be involved in low FTE or volume service delivery as follows:

- Limited FTE roles: for example, Speech language Therapy, Dietetics; and
- Low volume specialist programmes: for example, cardiac rehabilitation, Supported Discharge and Rapid Response.

#### 3.5.1 Hospital avoidance and supported discharge

Supported discharge teams typically operate by taking a sub-group of frail older people who are at risk of readmission to hospital or to residential care and providing a short term period of intensive home based support. The teams typically take referrals from AT&R facilities and medical and surgical wards. Hospital Avoidance or Rapid Response teams provide a response to primary care and / or emergency departments and support admission avoidance. The population of Taranaki is such that it would be difficult to justify a discrete team providing such responses. However, although out of scope, the Case Management Nurses currently operating within Taranaki Base Hospital would potentially provide in-reach into the Emergency Department. If such roles were able to assess older people using the interRAI Contact assessment, they could have direct access to HBSS as appropriate through the care referral and coordination services described in this document.

#### 3.5.2 Quality assurance and monitoring

The DSD unit will undertake a quality assurance and monitoring role. Specifically this will be in relation to the Care Cluster activity through activities such as facilitated peer review processes, supported practice development, disability support allocation, complaints management and monitoring of exceptions. Several DHBs have also engaged in performance management and quality improvement initiatives such as IN-TOUCH, the HBSS benchmarking exercise run by The University of Auckland. In addition roles specifically reviewing quality improvement such as across the ARC sector would be based within this structure.

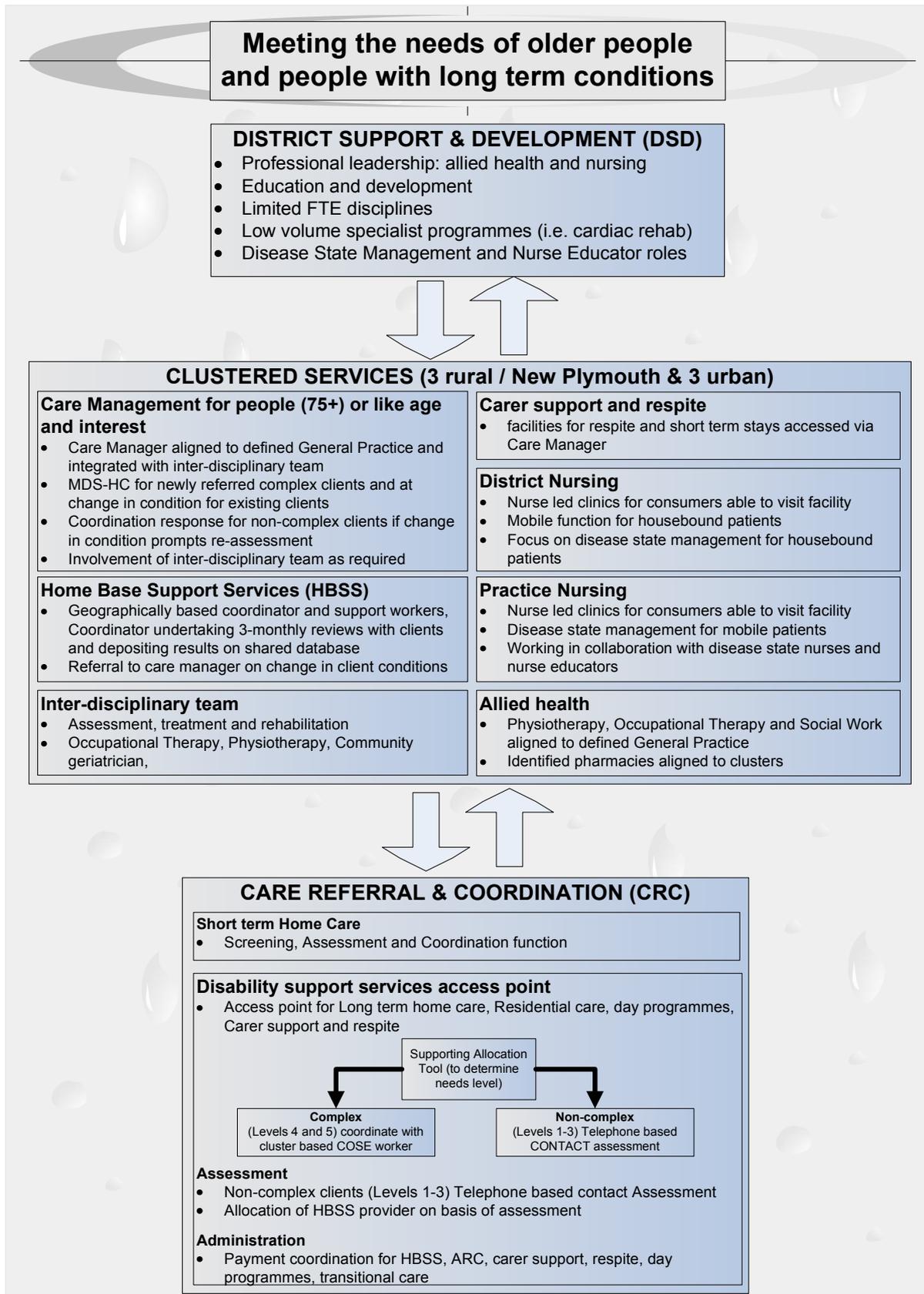


Figure 5: Illustration of described services

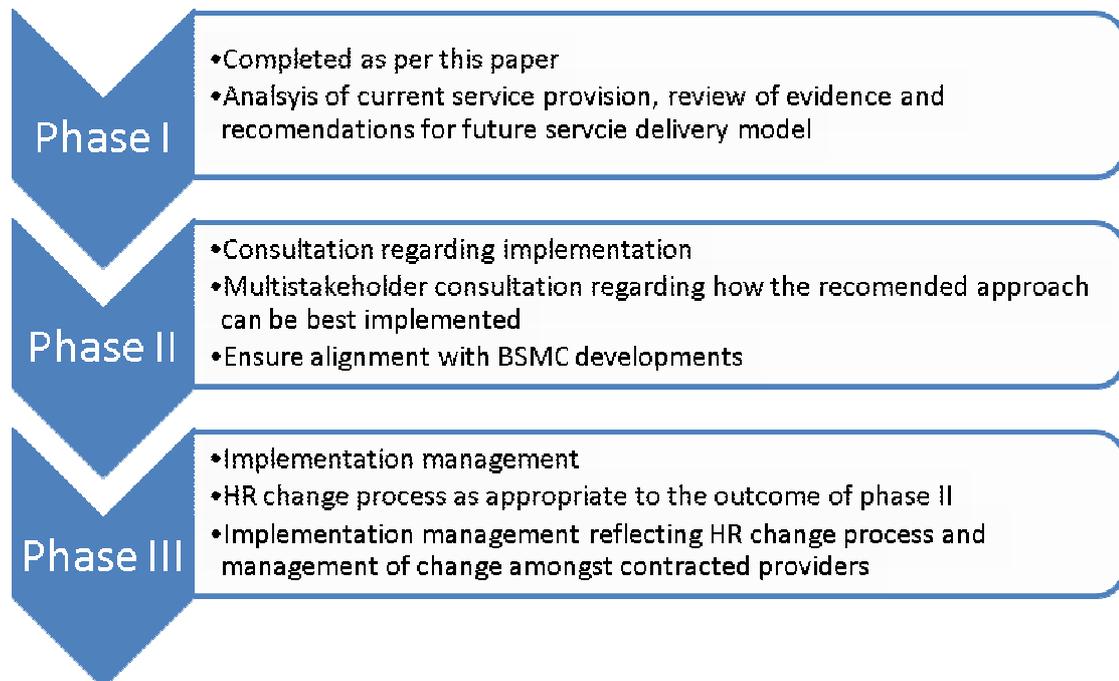
### 3.6 Case study

Mr. R is 83 years old and lives with his wife who is ten years younger than him. He has a host of long term conditions such as heart disease and respiratory disease which has been managed well for some time by his GP. He continues to drive his car and both he and his wife have an active social life with their friends and extensive family. However, whilst picking apples in his back garden, he trips, falls off a ladder and fractures his hip. He is taken to hospital and a hip replacement is performed and after 14 days is discharged home. Initially, all goes as planned, however after six months, Mrs. R visits her GP for something unrelated though at the mention of her husband becomes very upset and tells the GP that he no longer drives, is depressed, rarely gets out of bed and is insisting that Mrs. R helps him wash and dress. She herself now rarely gets out and hasn't seen her friends for months. She is desperately trying to keep this from her family as she doesn't want to burden them. When Mrs. R finishes her consultation, the GP and clinic nurse discuss the situation and the clinic nurse places an e-referral through to The Regional Referral Centre and the referral is electronically transferred to the Disability Support Services Access Point and triaged as complex Level IV or V. The referral is transferred through to the Care Cluster Care Manager. The next day, the Care Manager who is co-located with the practice briefly discusses the situation with the clinic nurse and GP and after arranging a time with Mr. and Mrs. R, visits and using the MDS-HC and goal facilitation process identifies that Mr. R desperately wants to return to driving once again, but more importantly hates being dependent and wants to be able to return to gardening and shopping once again. The Care Manager tries to walk with Mr. R but he manages only to walk to the toilet and then back to bed. The Care Manager completes the assessment and identifies a series of risks such as falls, carer burden, personal care issues, mobility (both inside and outside) and social isolation. The Care Manager that lunchtime discusses the situation with the cluster based physiotherapist and occupational therapist and also liaises with the Care Referral and Coordination team administrator to place a referral for eight hours HBSS input. Within four days, Mr. R had received a joint assessment from Physiotherapy and Occupational therapy and the HBSS coordinator was also present. Collectively, they developed a plan which focused on using HBSS Support Workers to graduate an improvement in walking distance, provision and ongoing return to independence in washing and dressing as well as graduated improvement in outdoor walking. At the weekly case conference in the Care Cluster, Mr. R was discussed and the GP identified a few medical areas of concern and followed this up with a direct referral to the Geriatrician. Following the three month face-to-face review by the HBSS coordinator, the Care Manager was able to identify from viewing the electronic records that Mr. R was improving and that Mrs. R's sense of carer burden was reducing. The Care Manager briefly updated the GP at the weekly case conference.

## 4.0 Implementation

### 4.1 Key implementation steps

This paper outlines phase 1 of Project Splice. Two subsequent phases are intended as outlined in the diagram below



### 4.2 Transition management

The proposed model includes a mix of planned change and an evolutionary approach to development. The shift to a cluster and district based structure, and the enhancement of care management activity are planned changes whereas the development of practice and mobile primary care nursing, and further development of the cluster functionality is expected to be evolutionary as funding allows and as is supported by general practice. Work that may be required dependant on the outcome of consultation regarding what is recommended in this paper is outlined in the subsections below.

#### 4.2.1 Establishment of Cluster and District based structure

Detailed design work will be required to inform the development of the cluster and district based structure. Changes will also need to be aligned to the developments that will have been agreed as part of the Midlands BSMC primary care business case.

Key activities would involve the following:

- Detailed boundary mapping for the clusters and identification of aligned NGO and pharmacy provision;
- Alignment of district nursing and short term home based support clusters;
- Resolve integration of current small rural contracts e.g. for District Nursing;

- Establish interfaces between mainstream and Kaupapa Māori service provision (as per lead key worker concept);
- Detailed description of roles within the clusters and within the district support and development unit;
- Identification of appropriate facility bases for clusters and the district support and development unit (expected to largely be existing locations);
- Description of care process and team management across clusters and the district support and development unit;
- Identification of appropriate leadership roles; and
- Follow appropriate HR change processes (major change is not anticipated at this stage).

#### **4.2.3 Enhancement of care management activity**

Care management activity would need to be developed within the clusters and for non complex clients within the DSD unit. This would involve the following

- Change process for currently contracted NASC services;
- Process to contract or employ care managers and establish consolidated care referral and coordination function (as appropriate to BSMC developments);
- Develop relationships within the cluster as per 4.2.5, in particular relationship between complex care managers and general practice;
- Training in assessment, goal based care management and restorative home support; and
- Progressive established enhanced LTC role and rollout of restorative home based support.

#### **4.2.4 Development of practice / clinic and mobile primary care nursing**

This would require a detailed review of activity to determine what may be clinic based and what needs to be mobile. Role descriptions may require review through appropriate HR change process but this is not expected to involve major change. Balance of work would be expected to shift over time but the nature of this should still align with primary and community nursing role descriptions. Further training will be required in Flinders type approach to long term conditions management. Additional development opportunity may be possible dependant on the degree of change in the base general practice model as part of BSMC.

#### **4.2.5 Development of cluster functionality**

Key steps that would be involved in cluster development are as follows:

- Develop interdisciplinary care process;
- Train all cluster staff in goal oriented care process;
- Develop operational manual for detailed service process between teams;
- Agree / develop interfaces with externally contracted NGO and pharmacy providers; and
- Undertake HR change process as appropriate.

#### 4.2.6 Development of DSD functionality

Development of the DSD functionality would essentially involve the extension of current activity / development with the following points of emphasis

- Clear definition of professional discipline and nursing leadership roles;
- Establishment of a district wide development plan for cluster based teams (building on development plans for these staff which will already be in place); and
- Development of quality and oversight functionality utilising existing staffing and benchmarking / quality improvement programmes linked with other DHBs.

#### 4.2.7 Implementation of restorative home support

The following key steps are recommended for the establishment of restorative home based support

- Development of service specifications and funding model (based on experience and work completed elsewhere in NZ);
- Request for proposal process for home based support provision to the service specification and funding model;
- Training for coordinators undertaken in parallel to care managers as part of enhancement of care management activity; and
- Progressive development of experience with new clients and review of existing clients matched to provider based rollout of systems, enhanced coordination and support worker training.

### 4.3 Financial Implications

Financial implications will be worked through in detail following consultation regarding implementation approach. Initial costings are outlined in Appendix IV and assumptions are outlined in the table below. The net impact of the proposed approach will provide a significant improvement in service delivery within current available funding. An investment in Care management activity is proposed, in part as a development of NASC and can be further offset by management of the mix of home based support and residential care service delivery.

Table 5: Implications of change

Proposed component	Anticipated cost	Financial impact
Cluster based care managers	Calculated at 8FTE based on a ratio of 1 staff member to 1500 people over 65. Includes allowance for disability related care management and long term conditions care management for people over 75. Costing \$648,304	Development of NASC  Investment in care management activity based in the clusters will improve coordination of care, reduce duplication of assessment, provide more timely intervention and result in on average less costly intervention. In particular growth in hospital admissions, emergency department attendance, residential and home care utilisation that would be expected on a straight age standardised projection will be reduced.
Triage and Non Complex Care Management	Calculated based on population comparison to CDHB. Total Staffing 3.5 FTE. Costing \$219,523	Development of NASC  More efficient basis for triaging and coordinating work. Potential for further efficiency by combining with DN and short term home based support coordination.  Net additional impact of the above two items \$246,122 in addition to existing NASC expenditure
Compensatory savings	Savings are expected as a result of the additional investment in care management  Net Savings up to \$790,664	Savings arise from the following shift in mix and focus of services <ul style="list-style-type: none"> <li>• Home based support services are refocused onto those who have urgent and complex needs as opposed to those who are receiving low level cleaning services</li> <li>• Higher end packages enabled as part of this transition support people to remain at home and reduce relative residential are utilisation toward the national average</li> </ul>
Home Support	As per current	As above. Change in client mix for long term home based support to enable higher packages for people with complex needs. Analysis in Appendix I clearly shows unusual current utilisation and potential for an improved mix.  Change in funding model to support restorative service provision  No change expected in short term home based support
Mobile Nursing	As per current	No additional funding immediately available. Gains are possible in respect of ALOS, number of hospital admissions and ED attendance but the value of these will only be able to be realised by preventing growth and avoiding the need for additional hospital beds.  Shift in mix of mobile versus practice / clinic nursing is

possible

**Table 5 (continued): Implications of change<sup>14</sup>**

Proposed component	Anticipated cost	Financial impact
Practice / Clinic based nursing	As per current	As above but in addition a shift in the mix of general practice staffing is likely overtime to a greater ratio of nurses.  The proposed bundled funding pool that may be available as part of the BSMC initiative may support additional Primary Care nursing activity. This is likely to be targeted around high need, disconnected and long term condition populations
Navigator function for under 75 long term conditions	As funding allows	May be supported by the proposed bundled primary care funding pool and / or any prioritised discretionary DHB funding.  This function is expected to impact positively on ED and hospital admission growth but this value will be realised over time as noted under other areas
Residential care	As per current	Expect continued decline in rest home level care and increase in hospital care. Improved home based support packages for people with complex needs and improved care management processes is expected to result in a further reduction in growth of rest home level care for a period of two years. Analysis in Appendix I supports potential improvement in mix between high end home support and rest home level care.
Allied Health	Potential additional investment	Aligning allied health within clusters can be achieved within current resources however it is noted that the DHBs compared against as a part of the recent Allied Health review have low levels of community allied health presence. Additional resources may be required to support restorative community based care.
District Support and Development Unit	As per current	This unit will essentially be a realignment of existing resources. Some additional investment in the quality oversight function may be deemed appropriate and this will be reviewed after consultation regarding implementation.

<sup>14</sup> In addition to the table described here, Appendix IV also outlines potential one off external transitional costs. These are estimated at \$184,000

## 4.4 Risks

**Table 6: Risks and mitigation**

Risk	Mitigation
Concern from DHB employed staff regarding potential shift or change in employment	<p>Nothing outlined in this document requires a shift in employer. Any change in employment would require a full change process to be followed as outlined in MECAs.</p> <p>Retention of current staff will be critical to support the proposed evolutionary approach. If any change in employer were to be considered then staff would need to be satisfied that they would be appropriately supported by any new employer.</p> <p>While nothing in this document requires a change in employer an evolution of current roles is expected across the sector. Exploring and defining these changes will require MECA change processes to be followed by the DHB and appropriate processes to be followed by other organisations.</p>
Stranded overhead costs left with DHB provider arm if there are any service shifts to other organisations	<p>Nothing outlined in this document requires a shift in employer. If there were to be any service transfers then the implications of this would need to be fully costed including consideration of stranded overheads.</p> <p>It is noted that the Ministry of Health is currently planning work in this area that should be available if required within the timeframe for implementation of this project.</p>
Constraints to full integration of services due to the involvement of multiple organisations	<p>The consultation phase is designed to get input from all stakeholder organisations regarding implementation.</p> <p>Contracting approaches are available that support multiparty service delivery and would aid integration between organisations. These involve defining common aspirations, partnership arrangements and respective accountabilities.</p>
Availability of staff	<p>Retention of existing staff is critical. The proposed approach will require the ongoing retention and attraction of general practitioners, primary health care nurses working both within practices and as part of mobile nursing functions, specialist nurses and allied health staff working in a primary and community environment.</p> <p>Employment terms and conditions, the nature and culture of the workplace, and the availability of support for development and career growth will all be important. In the proposed approach the environment and team culture within the clusters and the support from the support and development unit with both be important.</p>
Loss of focus on supporting discharge from hospital	<p>District nursing and the home support unit are critical to supporting rapid discharge from the hospital. The proposed approach aims to enhance this by improving the connection with general practice, providing more capacity for community based care management and making restorative services available. The redesign of practice/clinic and mobile nursing functions will need to ensure</p>

that an enhanced supported discharge function is available.

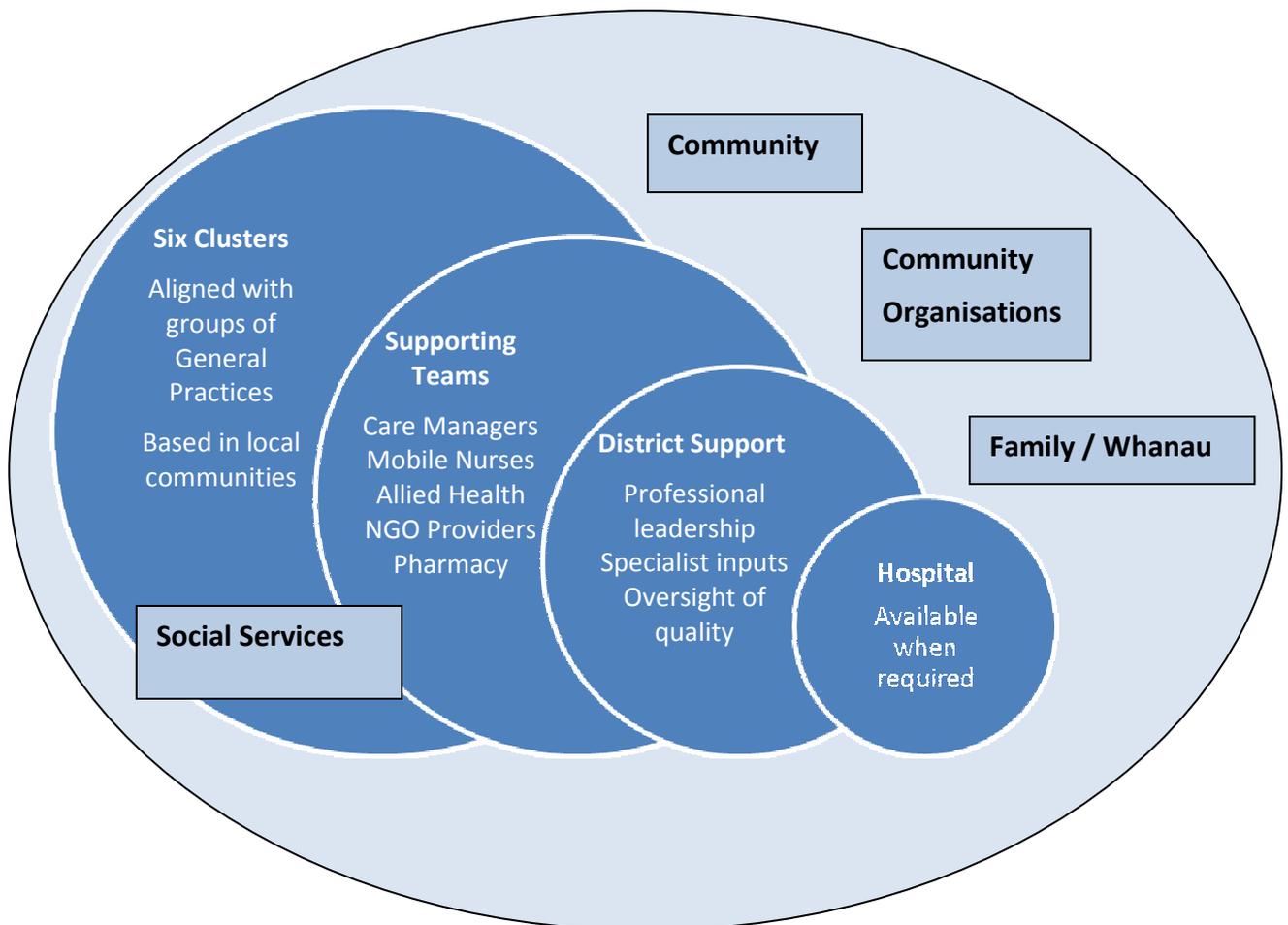
**Table 6 (continued): Risks and mitigation**

Risk	Mitigation
Loss of base stable General Practice	The approach proposed is reliant on continuity at a general practice level. The risks around short to medium term sustainability of rural as aspects of urban general practice have been highlighted. Evolution of the general practice model into one that is sustainable and attractive to replacement workforce is vital. IFHC development and the associated development of the model of care is critical to this.
Lack of clarity and overlap between nursing roles	Clear definition required of practice/clinic based versus mobile primary care nursing roles. Clear distinction required between primary care nursing and specialist nursing roles. The care process for specialist nursing roles must not be parallel or disconnected from primary care delivery.
Overlap between mainstream and Kaupapa Māori service provision	Clear identification of responsible key worker required. Whether this key worker is mainstream or Kaupapa Māori based the role must include a focus on coordinating care across all areas. Determination of key worker should reflect client choice.  Population health responsibility is to sit with the organisation of enrolment. Case finding / working with non enrolled population will be undertaken by a range of organisations and as part of this work the organisations involved need to reconnect people with enrolled care provision wherever possible.

## 5.0 Summary

The aim of this paper is to outline a structure that will on an evolutionary basis enable services to refocus around the needs of people with long term conditions and of older people as their health deteriorates. The recommended structure involves building on the strengths of general practice and existing community based service delivery to enable improved integration between services, reduced duplication and reduced risk of disconnect between multiple services that may be involved in supporting a person’s care.

Simply put the recommended approach will mean people with complex needs will have an identified care manager who has an excellent relationship with their general practice and will work to ensure that all of the care they are receiving is connected. This person will work with a defined cluster of General Practices to allow relationships to develop and will be supported by a locally based team of nursing, allied health and non government organisations providing support services. Further support will be provided across the six proposed clusters through a District support and development unit that will include professional leadership, specialist input from nursing and doctors and provide oversight of care processes and professional development.



This is not a radical change. While significant, what is recommended builds on much of the infrastructure that is already in place in the Taranaki region. District Nursing services already operate in geographical clusters, Nurse educator services are already evolving to provide a mix of locally based service delivery and district wide delivery, General Practice is already

looking at consolidating activity around Integrated Family Health Centres, and there are already examples of specialist services that are significantly community based. Innovative examples already exist where District Nursing is better integrated with General Practice and these are well regarded provided the isolation issues are be addressed. Key recommendations arising from the approach are outlined in the next section.

## 6.0 Recommendations

1. The development of six care clusters across the district including;
  - a. Hawera and surrounding areas;
  - b. Stratford and surrounding areas;
  - c. Three New Plymouth clusters, one also covering western coastal areas, and one supporting Inglewood; and
  - d. Waitara and surrounding areas.
2. Alignment of District Nursing, Community Allied Health, NGO and Pharmacy provision to these clusters;
3. The establishment of a District Support and development unit including professional leadership, specialist nursing and medical input, alignment of limited FTE disciplines and establish a quality oversight function;
4. Development of primary and community nursing into practice/clinic based nursing and mobile nursing functions and extension to navigation activity for people under 75 with long term conditions;
5. Development of the Needs Assessment Service Coordination function into Care Management delivered in the clusters for people aged over 75 with complex needs and in the District support and development unit for people with non complex needs;
6. Introduction of InterRAI to support comprehensive assessment for older people;
7. Consolidation of triage and coordination for District Nursing, Short Term Home Based Support and non complex long term home based support<sup>15</sup>; and

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<sup>15</sup> Requirement for this function will be particularly dependant on the Midlands BSMC Business Case

8. Establishment of restorative home support services and refocus home based support onto people with urgent and complex needs as opposed to those with low level cleaning needs only.

## Appendix I: Disability Support Service Utilisation

### A1.1 Context:

This analysis has been undertaken to inform Project Splice. Three years of utilisation data from 2006 to 2009 are examined to identify underlying trends that may need to be addressed as part of the Project Splice work.

### A1.2 Approach

Data were provided based on claims information for home support claims by month from Jan 06 to June 09. This data was cut to Jul 06 to June 09 as the first 6 months of data were incomplete.

Carer Support and residential care data were provided for Jul 06 to June 09. 2006/7 residential care utilisation data were also available to allow an age standardised comparison of utilisation based on region of domicile. These data are based on claiming information and includes all partly or completely subsidised residents but does not include full private payers.

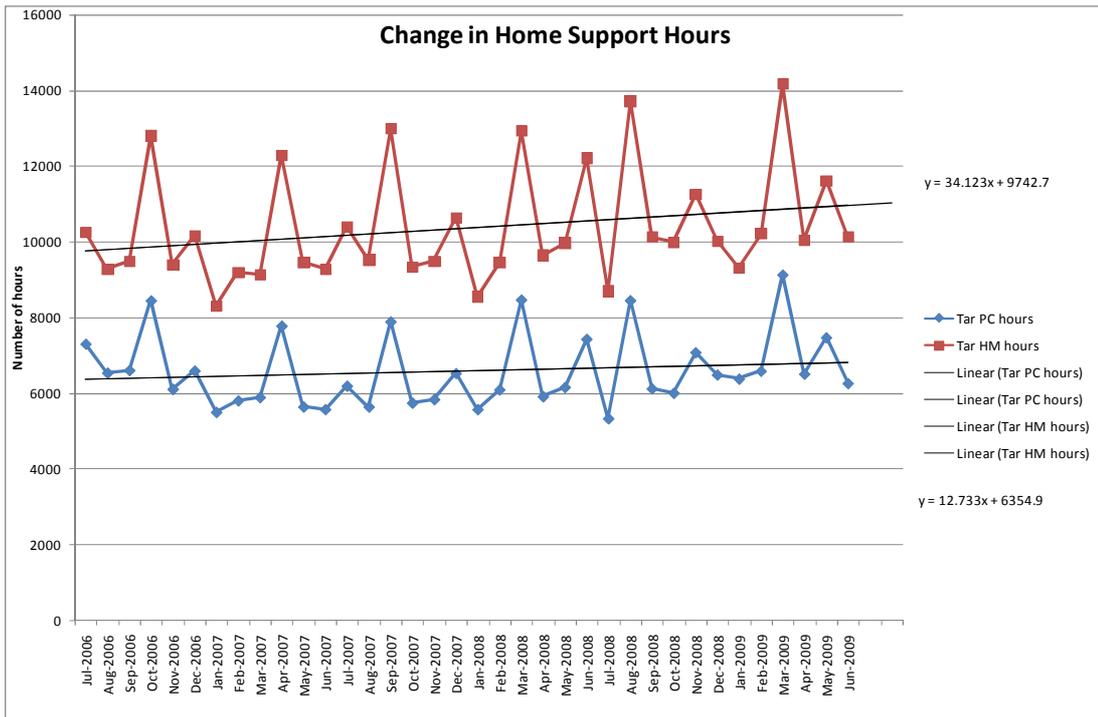
Patterns of utilisation were examined as follows:

1. Change in total home support hours for household management (HM) and personal care (PC) over the three years;
2. Change in home support client numbers for HM and PC;
3. Change in average hours per client per week for HM and PC;
4. Steps 1-3 repeated for Māori only;
5. Comparison with other DHB home support utilisation;
6. Change in carer support utilisation for Māori and other;
7. Change in residential care utilisation by service level (awaiting data issues to be sorted);  
and
8. Age standardised comparative residential care utilisation.

### A1.3 Home Based Support Services

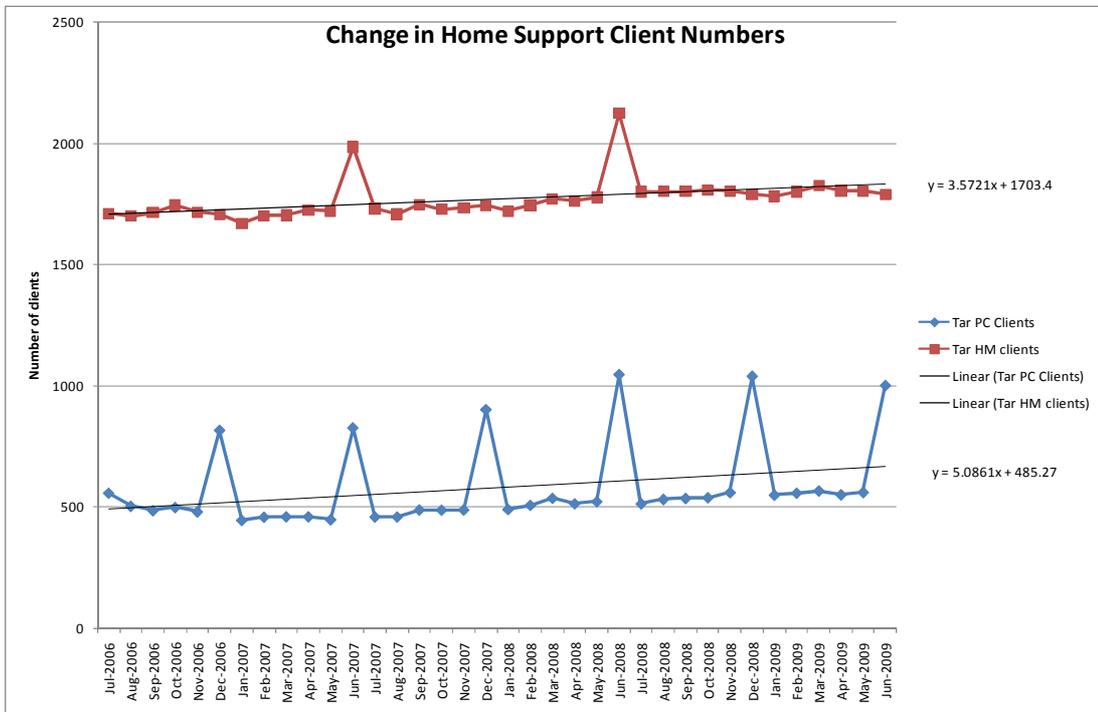
The home support data sourced were based on claim end date and therefore is subject to the number of fortnights that fall within a month. This produces a pattern of peaks and troughs within the graphed data but does not affect the overall trend analysis.

### A1.3.1 Home support hours total



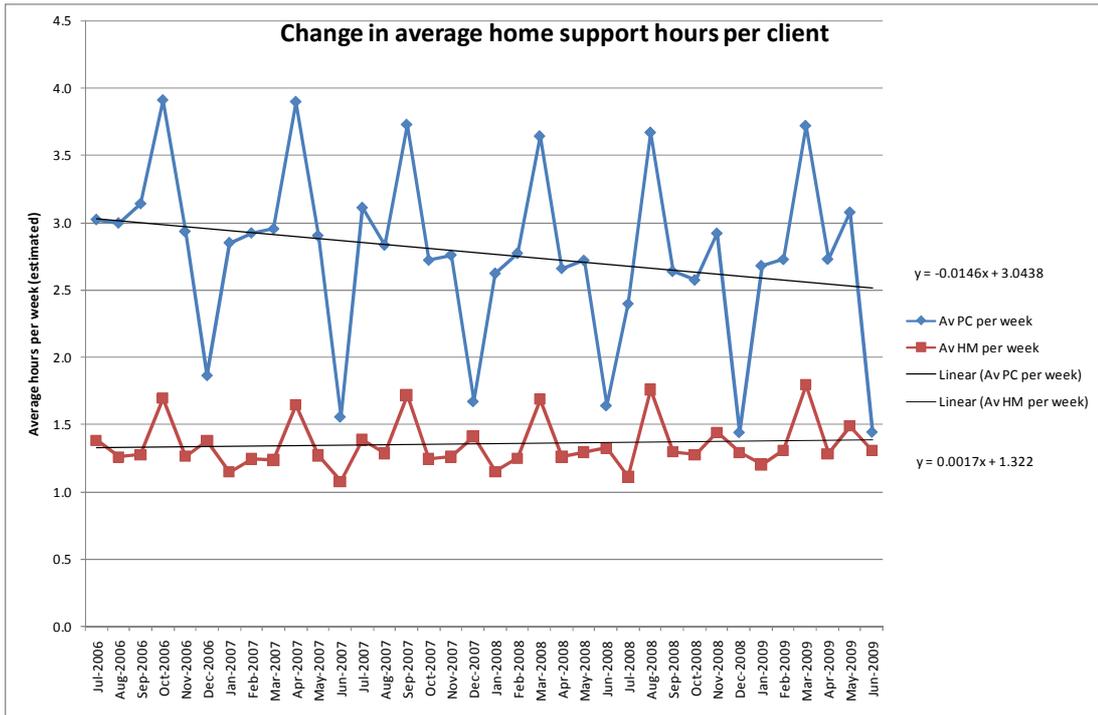
Overall household management and personal care hours are increasing. Personal care hours are increasing at a lower rate than household management. This is an unexpected finding.

### A1.3.2 Home support client numbers



House hold management and personal care client numbers are increasing. This is an expected pattern associated with an ageing population.

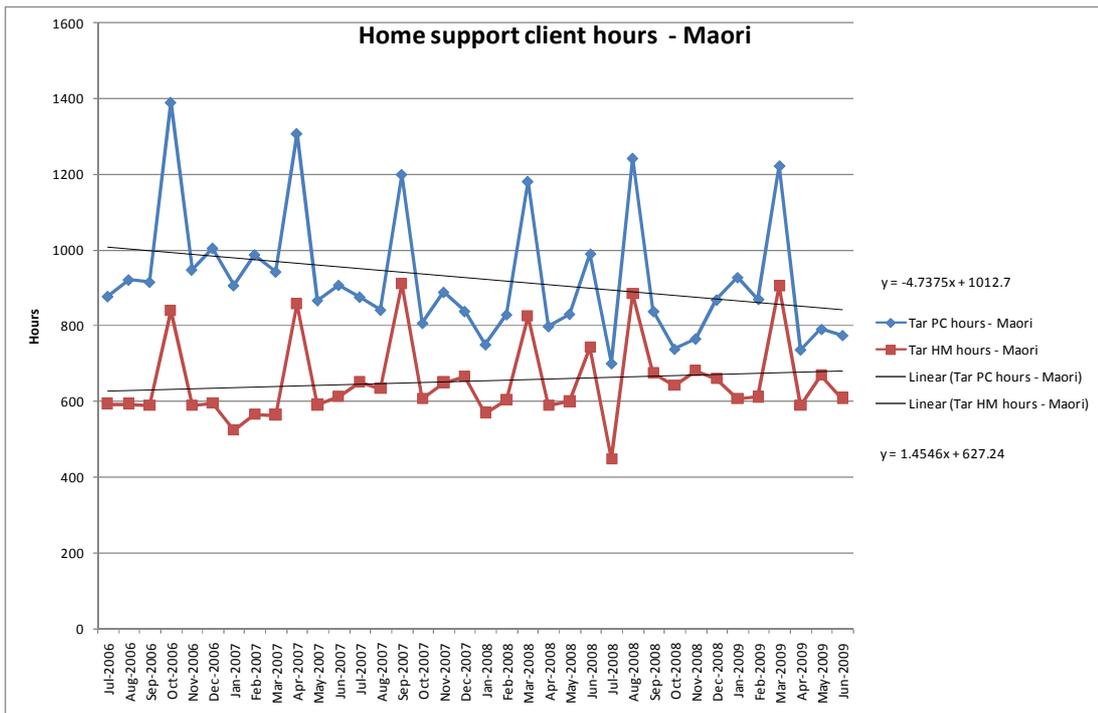
### A1.3.3 Average home support hours per week



Average household management hours are relatively consistent showing only a small growth over time. Average personal care hours are reducing significantly.

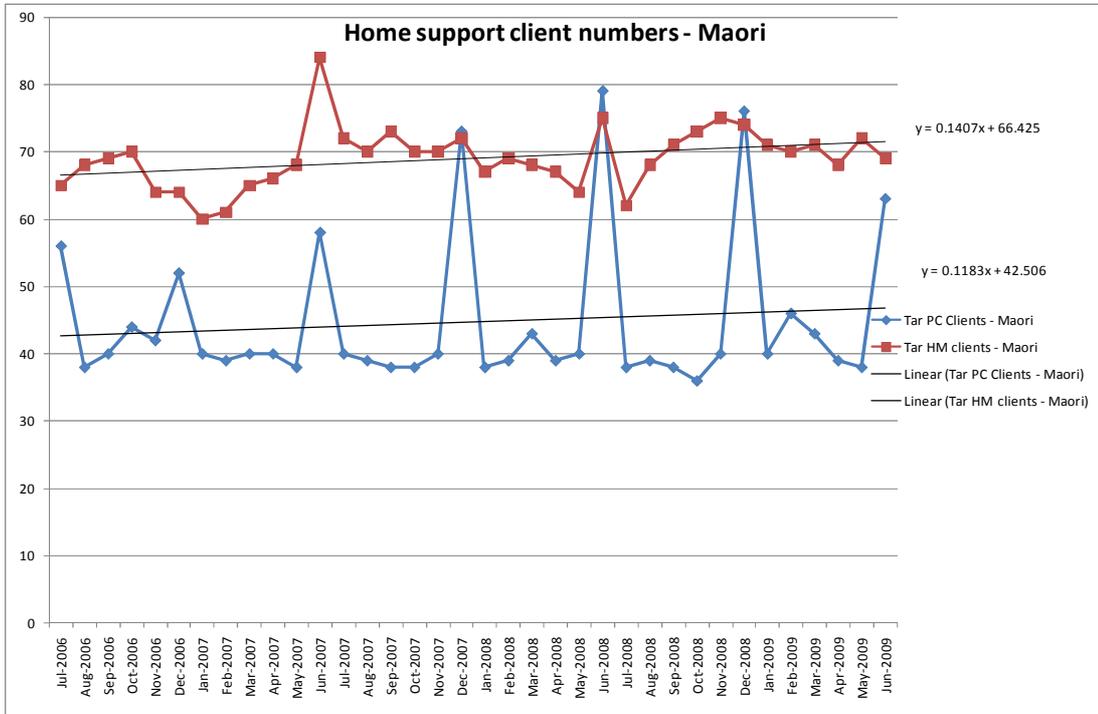
Overall the patterns demonstrated are as expected for household management but personal care patterns are unusual. Client numbers are increasing as would be expected but average utilisation is reducing resulting in a lower than expected increase in hours of service.

### A1.3.4 Home support hours for Māori



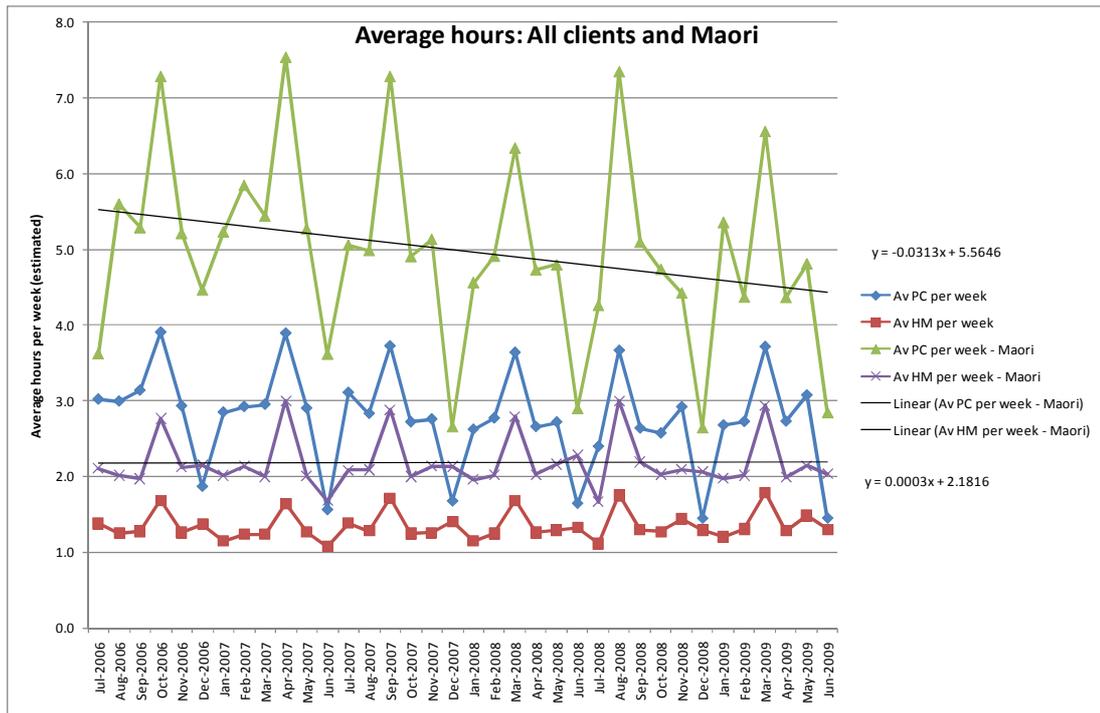
There is a significant reduction in personal care hours utilised by Māori and no corresponding change in household management hours. This clearly suggests a significant reduction in allocations of personal care to Māori clients

### A1.3.5 Home support clients - Māori



Household management and personal care client numbers are growing consistently as would be expected.

### A1.3.6 Home support average hours per client for Māori and All Clients



There is a very significant drop off in average utilisation of personal care by Māori clients. Average hours per client per week for Māori are consistent with levels that would be expected in other DHBs. They are however substantially higher than the allocations for non Māori. The gap is however closing as average utilisation for Māori is dropping faster than non Māori.

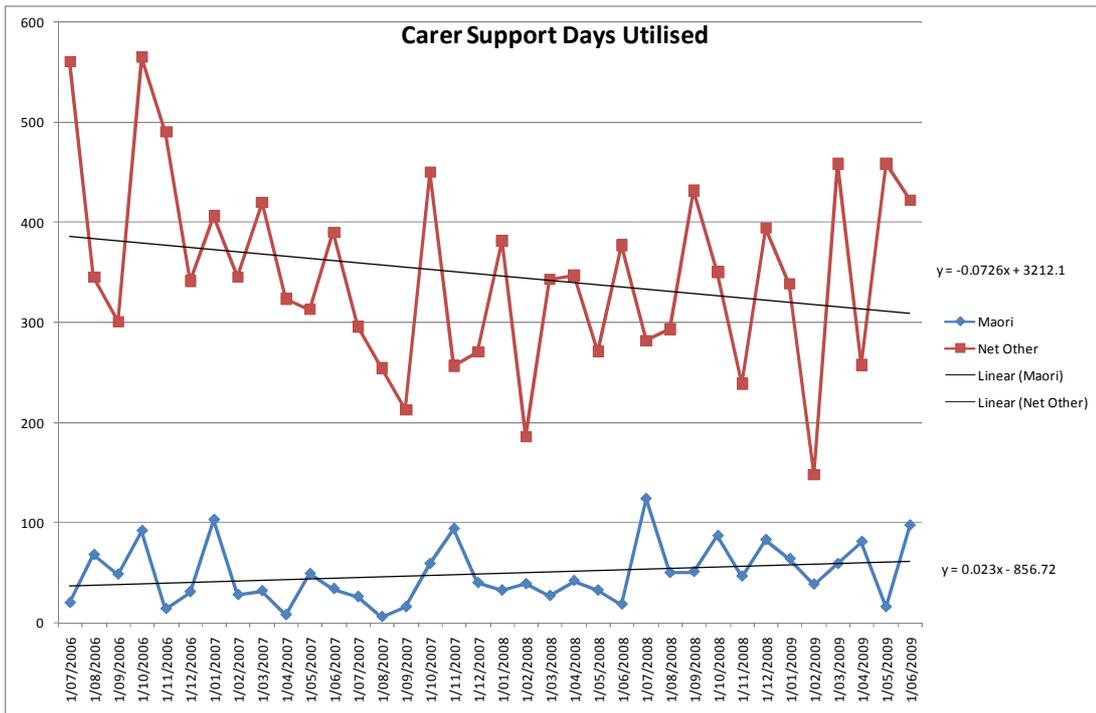
### A1.3.7 Comparison to other areas

In comparison to work that has been undertaken for other DHBs, Taranaki DHB shows a high number of household management clients and hours per capita standardised by either 65 or 85 plus populations. The average utilisation per client is however toward the lower end of comparisons

The number of personal care clients is also toward the higher end of comparisons but the number of personal care hours is significantly lower. This reflects a significantly lower average utilisation per client. Typically average personal care hours are around five hours per client per week. Average hours in Taranaki are only 2.6 per client per week and are declining as demonstrated earlier.

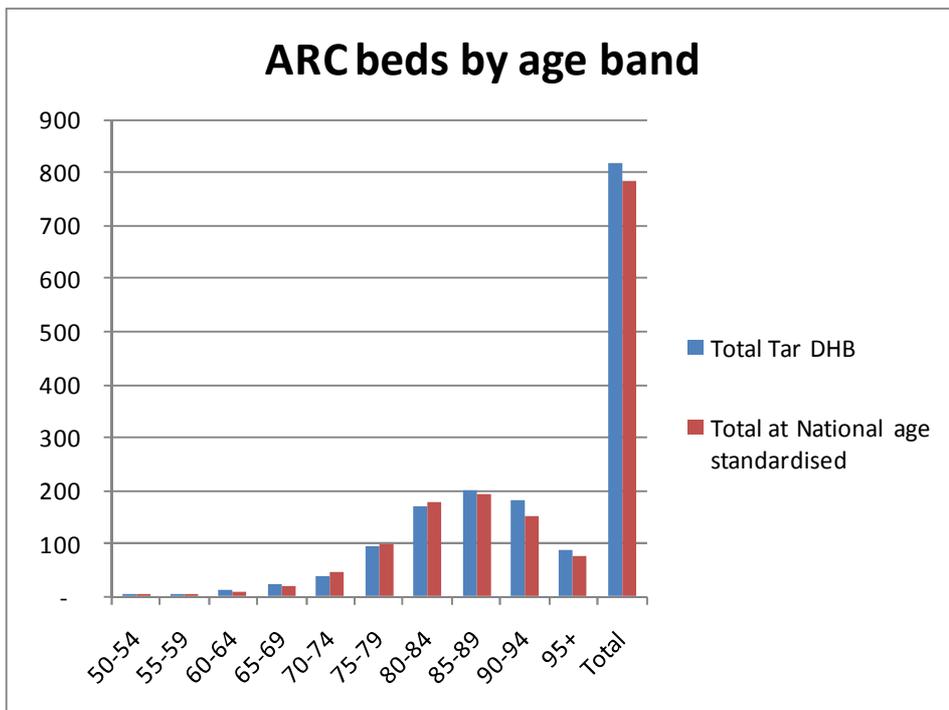
This picture suggests that there has been a level of access to home based support that is consistent with national trends however this has been provided to a wider base of people and those with more complex needs have received less support. These trends are almost certainly driven as a result of allocation behaviour by needs assessors. Availability of home based support is at consistent levels with other parts of the country and is not an issue in current employment conditions

### A1.3.8 Carer Support

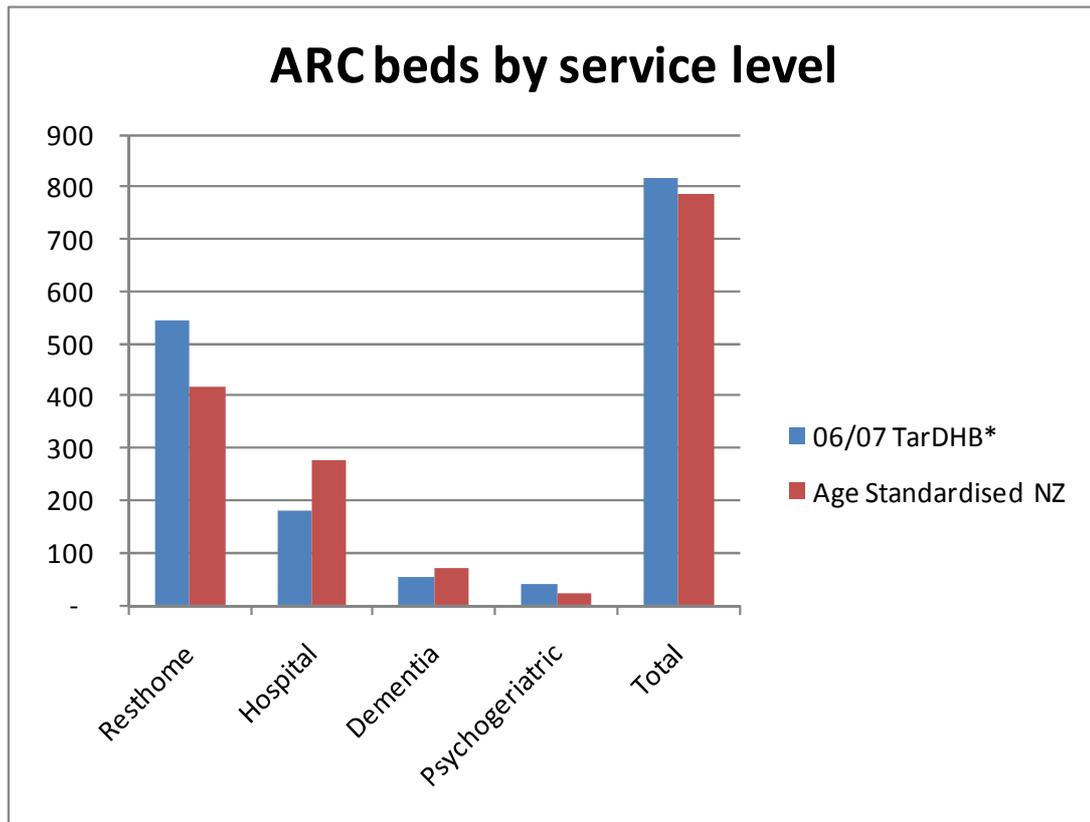


Carer support utilisation is not substantial and there are significant variations in the data so any analysis of patterns needs to be treated with caution. There may be a trend toward reduced utilisation for non Māori.

### A1.4 Aged Residential Care



In total Taranaki has a slightly higher utilisation of residential aged care and this is occurring in the older age bands.



There is little difference in dementia and psycho geriatric bed utilisation however there is significant variance in rest home and hospital bed utilisation. Even though the data ARE based on region of domicile and allows for the possibility of people receiving service in other DHB areas the lower hospital utilisation most likely reflects low local bed availability. The higher rest home utilisation may be compensatory but it may also reflect in part the low average utilisation of personal care services.

Variance in resthome bed numbers age standardised is 129 beds however other service levels are lower than the national average. The net difference across all service levels is 33 beds per annum. At an estimated DHB contribution of \$65.38 per bed day for resthome level beds, the cost of the net additional provision is \$790,664. If resthome was considered in isolation the additional cost of 129 beds is over \$3million.

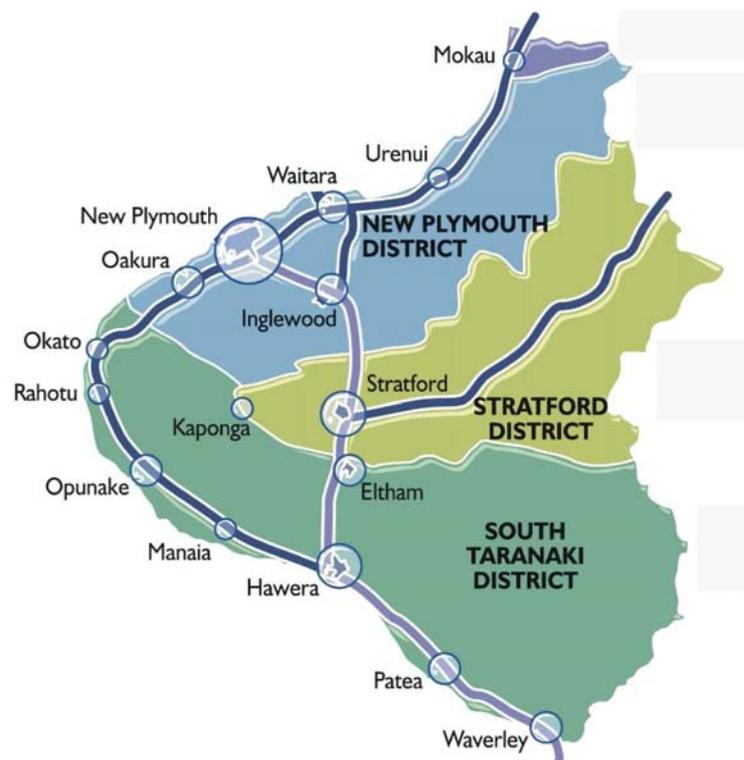
## Appendix II: Health Needs Analysis

Information presented is extracted from the 2007 Taranaki DHB Health Needs Analysis (Full version available from TDHB Website)

### *Population Overview*

Taranaki DHB's area of responsibility covers 7,273 square kilometres on the mid west coast of the North Island and is distinguished by Mt. Taranaki in the centre of the region. Taranaki includes three territorial local authority districts; South Taranaki, Stratford, and New Plymouth. Taranaki DHB also provides services to the Mokau area of the Waikato region.

There are a few densely populated centres such as New Plymouth City in North Taranaki, Stratford in Central Taranaki, and Hawera in South Taranaki. The rest of the population is scattered in and around small rural centres.



### **Diversity**

An initial analysis of 2006 census figures indicate that 104,274 people live in the Taranaki DHB region, an increase of 1230 individuals (1.2%) when compared to the 2001 figures.

Compared to the New Zealand average, the Taranaki population has a much smaller population of Pacific (1.3%) and Asian people (2.1%) and a higher proportion of European (74.1%).

The population of Māori people living in Taranaki (15.2%) is similar to the rest of the country.

According to the 2001 Census there are a total of 597 Māori and 14,052 non-Māori aged 65+ years in the Taranaki region. Similar to the New Zealand average, there are more females than males for both Māori and non-Māori.

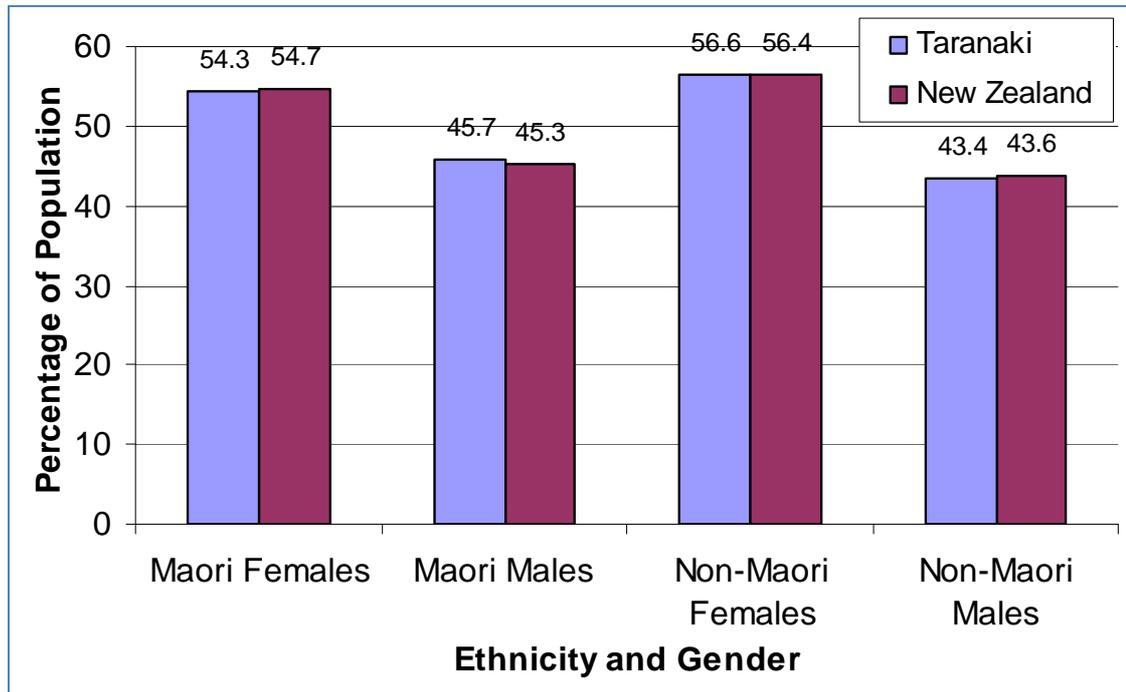


Figure 6: Older people aged 65+ years in Taranaki and New Zealand, 2001 (Source: Statistics New Zealand)

### Age Structure

2001 Data indicates that there are relatively lower proportions of Taranaki people in the 15 to 34 year age group (24.4%) compared to the New Zealand average (27.6%). However the proportion of people over the age of 65 years (14.2%) is greater than the national average (12.1%).

### Projected Changes to our Population

The population of Taranaki is predicted to decrease slowly over the next five years and then more rapidly until 2021. By 2021, the Taranaki population is predicted to reduce by 8.4%. However the population of New Zealand is predicted to continue to grow and to increase by 17.2% over the same period.

Although the overall population is projected to decline, Māori and to a lesser extent Pacific people, are projected to increase (Fig 5b).

The number of people over the age of 45 years is predicted to increase in Taranaki from 2001 to 2021, particularly those over the age of 65 years.

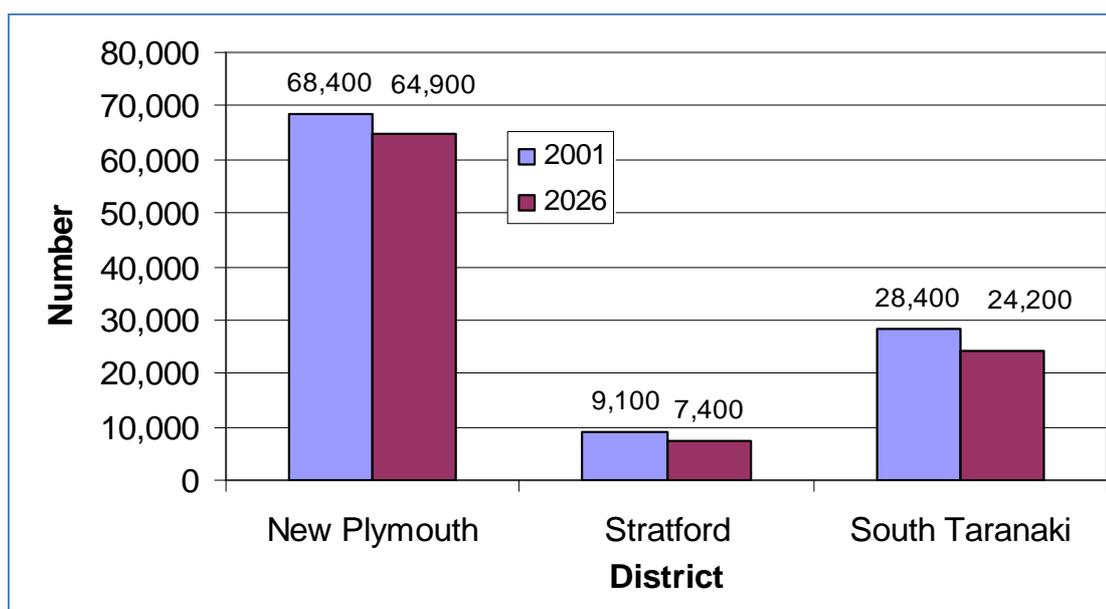


Figure 7: Projected Resident Population Change 2001-2026 by Taranaki District Source: Statistics New Zealand

Area	Projected Population		Change 2001-2026	
	2001	2026	Number	Percent
Taranaki Region	105,700	96,400	-9,400	-9
New Plymouth District	68,400	64,900	-3,600	-5
Stratford District	9,100	7,400	-1,700	-18
South Taranaki District	28,400	24,200	-4,200	-15
New Zealand	3,880,500	4,730,000	849,500	22

### Older People

The over 65 population in Taranaki is growing faster than the rest of New Zealand. While many older people are fit and healthy, this age group are more likely to have a disability and suffer from a chronic illness than any other age group. Most people acutely hospitalised with a chronic illness are aged between 65 and 74 years.

As people get older they often need some assistance or support to continue living independently. This means that older people need access to good information, flexible and accessible services, and are able to make their own lifestyle and health choices to maintain quality of life in their home environment.

Older people may experience different patterns of mental illness which can be exacerbated by loneliness, being frail and being ill. It is important to enable older people to continue to be part of family, whānau and community life. There is now a focus on locating more services in the community.

The Māori population has a younger age structure than the non-Māori population, with a lower proportion over 65 years. Māori people live on average eight years less than the rest of the population and experience age related health and disability issues at a younger age. However, over the next 10 years the number of Māori over 65 years is projected to increase by 60 percent. To meet this projected growth, Māori provider capacity will need to be strengthened to provide a full range of culturally appropriate health services for older Māori.

### **Disability Services**

Taranaki DHB has responsibility for older people with disabilities (over 65). It is important to remember that disability affects people of all ages and from all groups in Taranaki. The Ministry of Health is responsible for funding and service provision for people under 65 years of age. The DHB will work closely with other agencies to offer the right support to people with disabilities in line with the national direction.

### **Our strategic aims for older people**

- More older people are healthy and living longer in their own homes
- More older people are able to participate in family, whānau and community life
- Fewer older people are hospitalised
- Hospital and community based services are co-ordinated and appropriate to the needs of older people

### **Mortality**

Avoidable mortality is counts deaths “from diseases for which effective public health and medical interventions are available”<sup>16</sup>.

Avoidable mortality rates among Māori aged 65-74 years were significantly higher than their non-Māori counterparts in Taranaki (and New Zealand overall). Māori females had over three times the rate of non-Māori females and Māori males had over twice the rate of non-Māori males. Rates were similar in Taranaki to the New Zealand rates.

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<sup>16</sup> Our Health, Our Future - Hauora Pakari, Koiora Roa - The Health of New Zealanders 1999

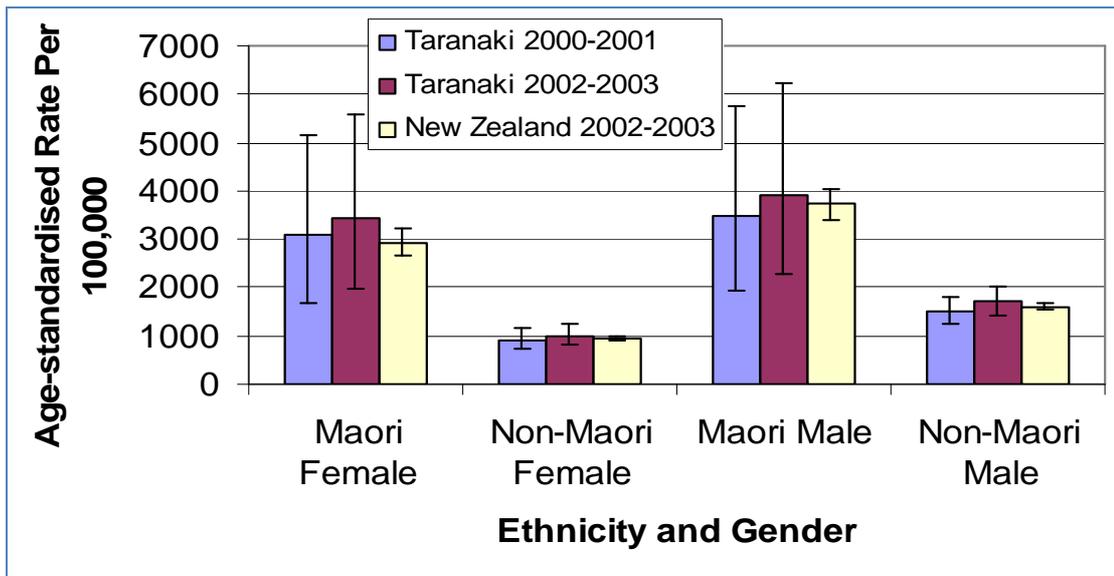


Figure 8: Avoidable Mortality, 65-74 Years (Source: New Zealand Health Information Service)

Both Māori females and males aged 65+ years had significantly higher rates of all cardiovascular disease mortality than their non-Māori counterparts in 2002-2003 in Taranaki. Mortality rates for all cardiovascular disease were higher among Māori and non-Māori females in Taranaki than among their counterparts in New Zealand, however this difference was only statistically significant for non-Māori females.

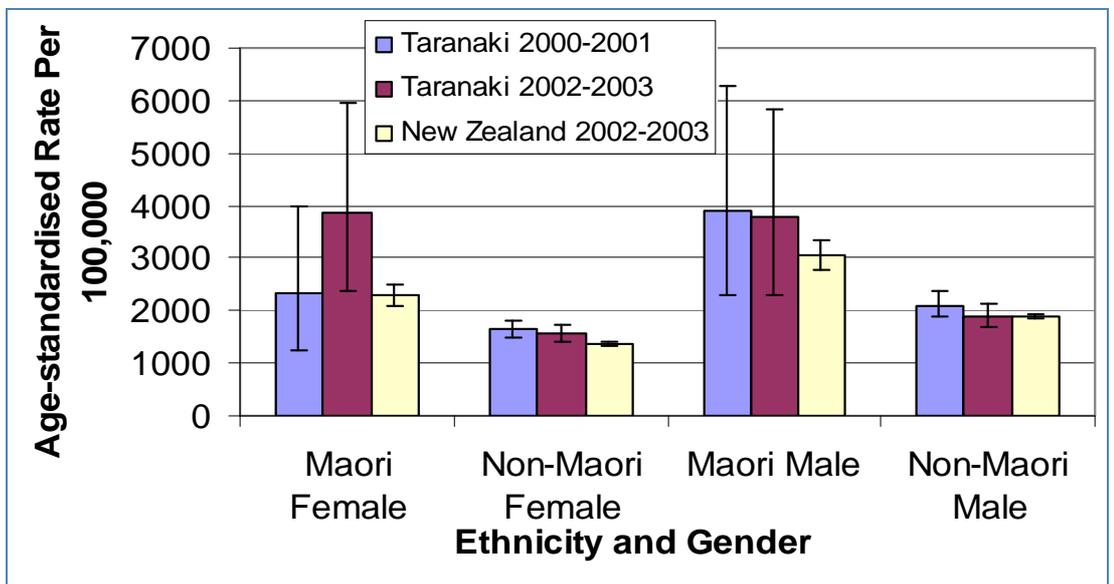


Figure 9: All Cardiovascular Disease Mortality, 65+ Years (Source: New Zealand Health Information Service)

Ischaemic heart disease mortality rates were significantly higher for Māori males, and significantly higher for Māori females, than their non-Māori counterparts in 2002-2003 in Taranaki. Males had higher rates than females, although these differences were only significant for non-Māori in Taranaki.

Overall, the mortality rates of ischaemic heart disease in Taranaki were higher than in New Zealand, although the difference was only statistically significant for non-Māori females.

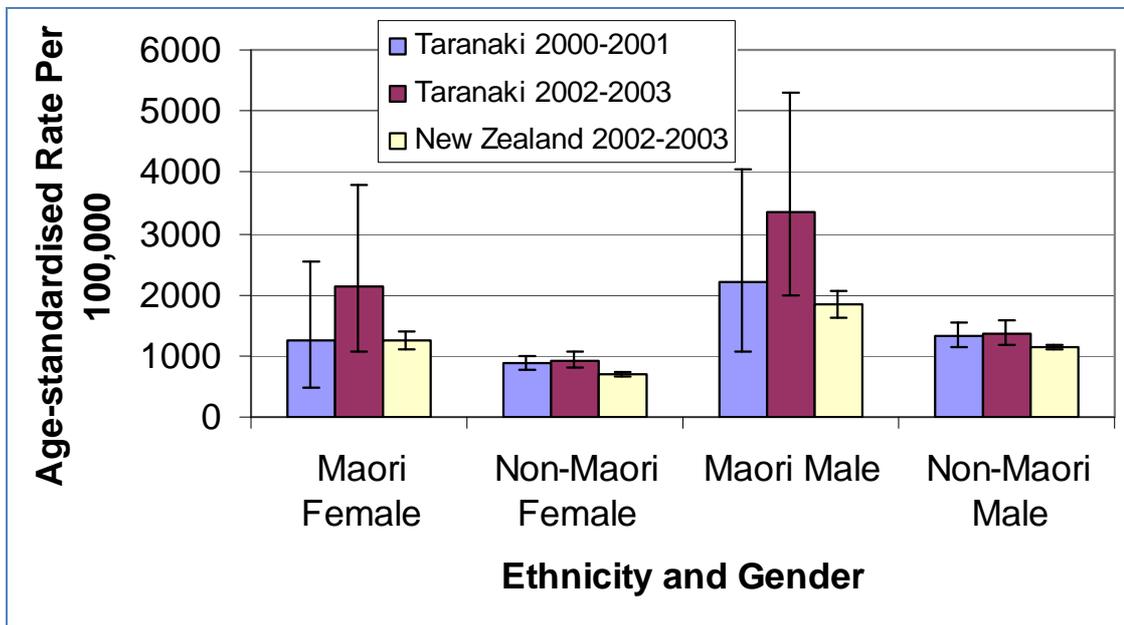
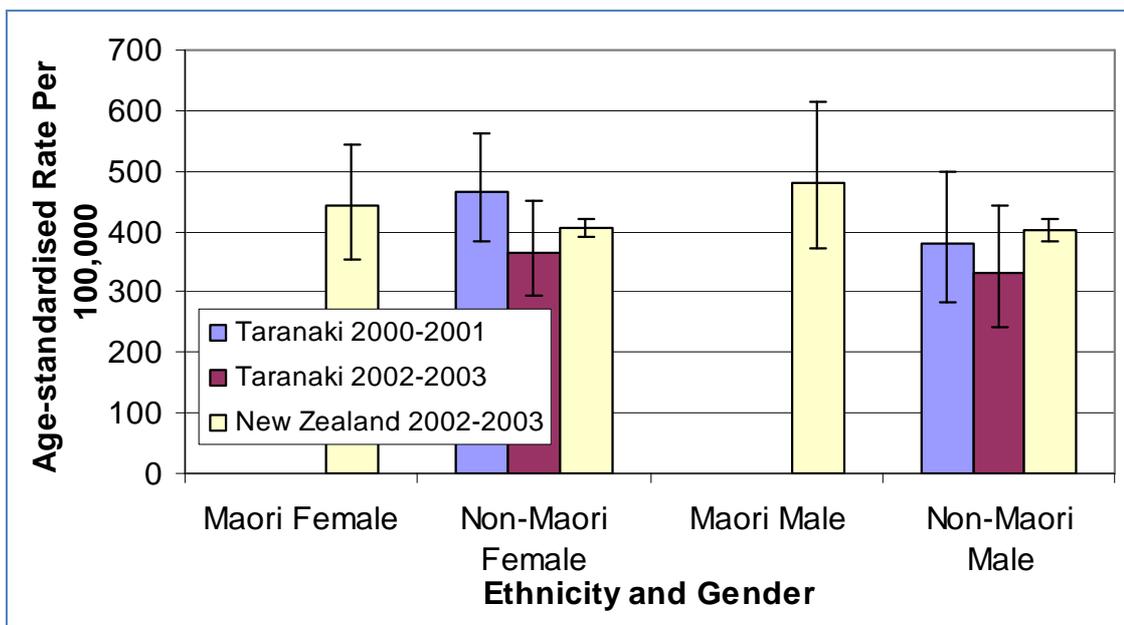


Figure 10: Ischaemic Heart Disease Mortality, 65+ Years (Source: New Zealand Health Information Service)

There was no noticeable difference in stroke mortality rates within Taranaki or between Taranaki and New Zealand based on available data.



### Hospitalisation

Avoidable hospitalisation estimation is used to measure the occurrence of a severe illness that theoretically could have been avoided by either:

- Ambulatory sensitive hospitalisation (ASH) – hospitalisations that could have been avoided by primary care interventions such as early detection and treatment, or immunisation; or
- Preventable hospitalisation (PH) – hospitalisations that could have been avoided by health promotion strategies such as reducing smoking rates.

Both Māori and non-Māori aged 65-74 years in Taranaki had higher rates of ambulatory sensitive hospitalisation than their counterparts in New Zealand. However these differences were only statistically significant for Māori females in 2003/04 and non-Māori males. Māori had significantly higher rates of ambulatory sensitive hospitalisation than their non-Māori counterparts in Taranaki. The rate for Māori females was more than double of that for non-Māori females during 2003-2004.

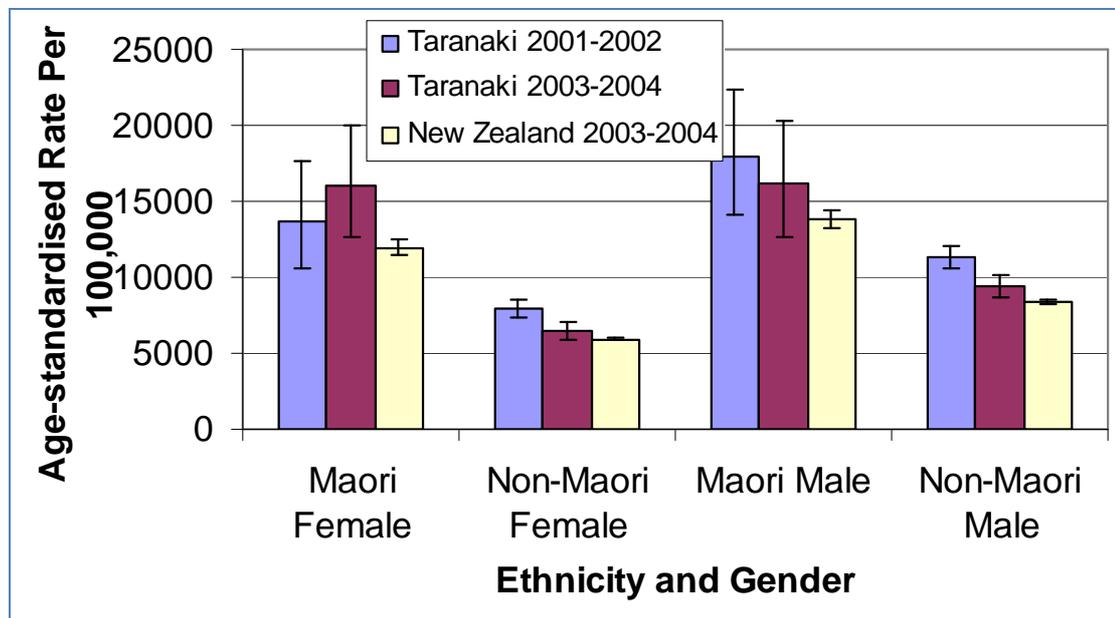
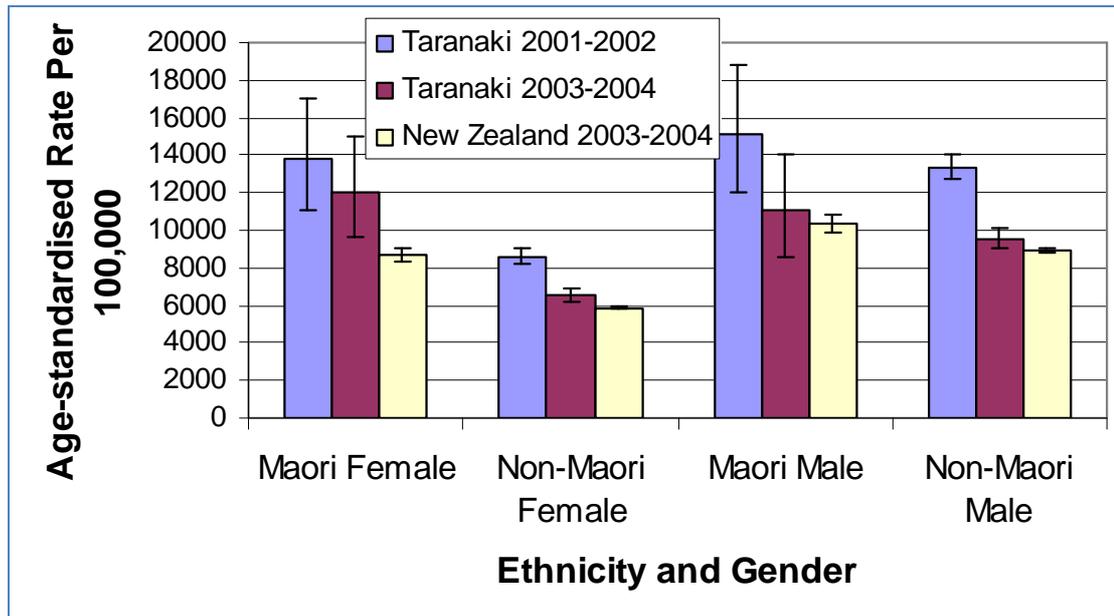


Figure 11: Ambulatory Sensitive Hospitalisation, people aged 65-74 years (Source: New Zealand Health Information Service)

At ages 65+ years, the rates of all cardiovascular disease hospitalisation for Māori females were significantly higher than for non-Māori females in Taranaki. During 2003-2004, the rate among Māori females was almost twice the rate of their non-Māori counterpart. The rates for non-Māori males were significantly higher than non-Māori females.

Compared to their counterparts in New Zealand, Māori females and non-Māori of both sexes in Taranaki had significantly higher rates of all cardiovascular disease hospitalisation.



**Figure 12: All Cardiovascular Disease Hospitalisation, 65+ Years (Source: New Zealand Health Information Service)**

Māori males aged 65+ years had a significantly lower rate of ischaemic heart disease hospitalisation than non-Māori males in 2003-2004 in Taranaki. The reverse was true for Māori females, but this difference was not significant. Non-Māori males had significantly higher rates than non-Māori females.

With the exception of Māori males in 2003-04, the rates of ischaemic heart disease hospitalisation in Taranaki were higher than in New Zealand. However these differences were only statistically significant for non-Māori.

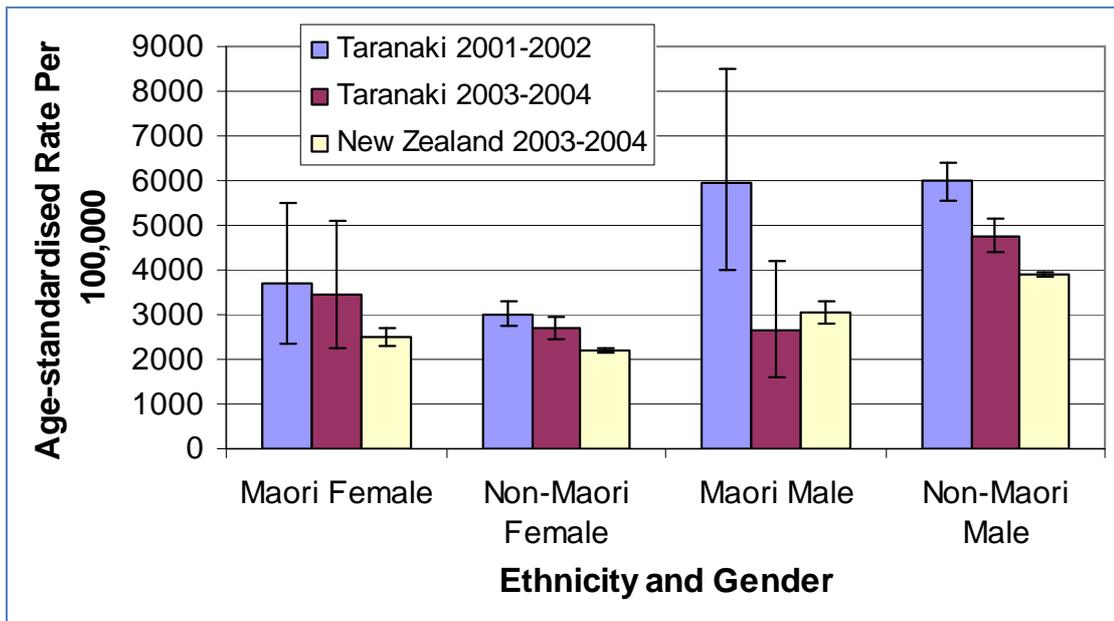


Figure 13: Ischaemic Heart Disease Hospitalisation, 65+ Years (Source: New Zealand Health Information Service)

Stroke hospitalisation rates were higher among Māori aged 65+ years than non-Māori in 2003-2004 in Taranaki. However, this difference was not statistically significant.

Compared to their counterparts in New Zealand, non-Māori males in Taranaki had a significantly lower rate of stroke hospitalisation.

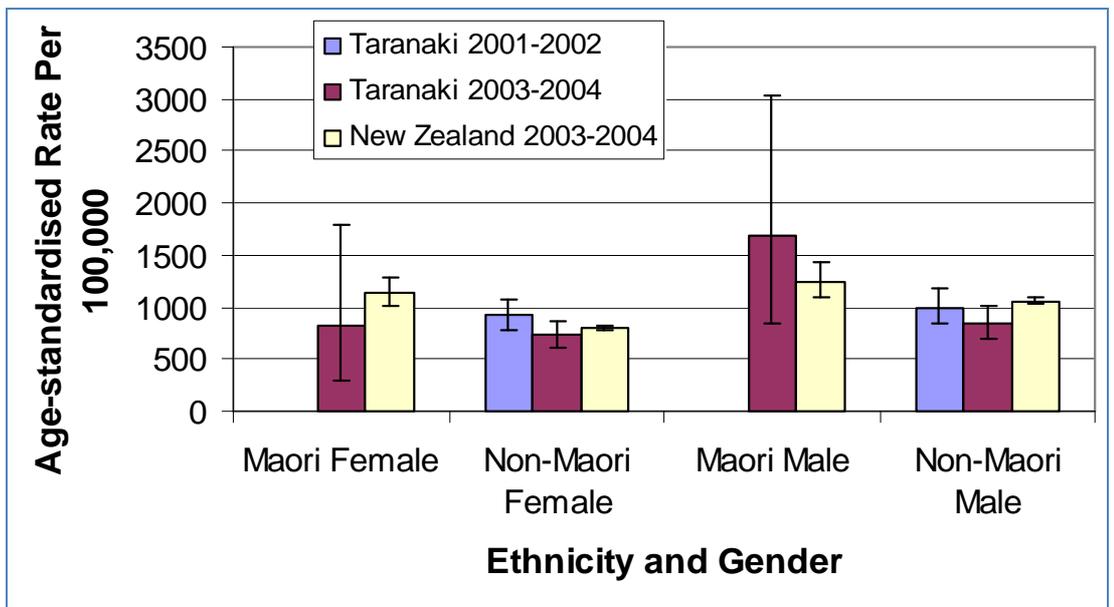


Figure 14: Stroke Hospitalisation, 65+ Years (Source: New Zealand Health Information Service)

## *Cardiovascular Disease*

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### **Reduce the incidence and impact of Cardiovascular Disease**

Cardiovascular disease (CVD) is the leading cause of death in New Zealand and in Taranaki. It is also the leading cause of potential years of life lost by people dying early.<sup>17</sup>

Of the cardiovascular diseases, ischaemic heart disease is the major cause of death, followed by stroke, which is the greatest cause of disability in older people. The numbers of people in Taranaki who have cardiovascular disease is growing faster than the New Zealand average.

Cardiovascular disease is the leading cause of death for Māori people and Māori have higher rates of the disease than the general population.

Up to three quarters of all cardiovascular disease may be preventable, simply by doing things like not smoking, maintaining a healthy weight range, exercising regularly and having a healthy diet. Also important is controlling blood pressure and cholesterol levels. While prevention is a long term task, short term gains can be made in identifying and treating people at high risk, such as those with established coronary heart disease.

### **Our strategic aims for Cardiovascular Disease**

- Fewer people are developing cardiovascular disease due to healthier lifestyles
- Reduced rates of cardiovascular disease, in Māori
- Effective screening programmes
- Early detection, slowed rate of progression, and reduced incidence of avoidable complications of cardiovascular disease, due to the use of appropriate screening
- The quality of life for those with cardiovascular disease has improved due to more co-ordinated care and effective self management

### **Health Indicators**

There was no significant difference in the self-reported heart disease prevalence between Māori and non-Māori in Taranaki and between Taranaki and New Zealand.

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<sup>17</sup> In Taranaki "Years of Life Lost" before 75 years per 10000 population appear to be increasing since 1997, particularly for males, whereas NZ overall has seen a reduction.

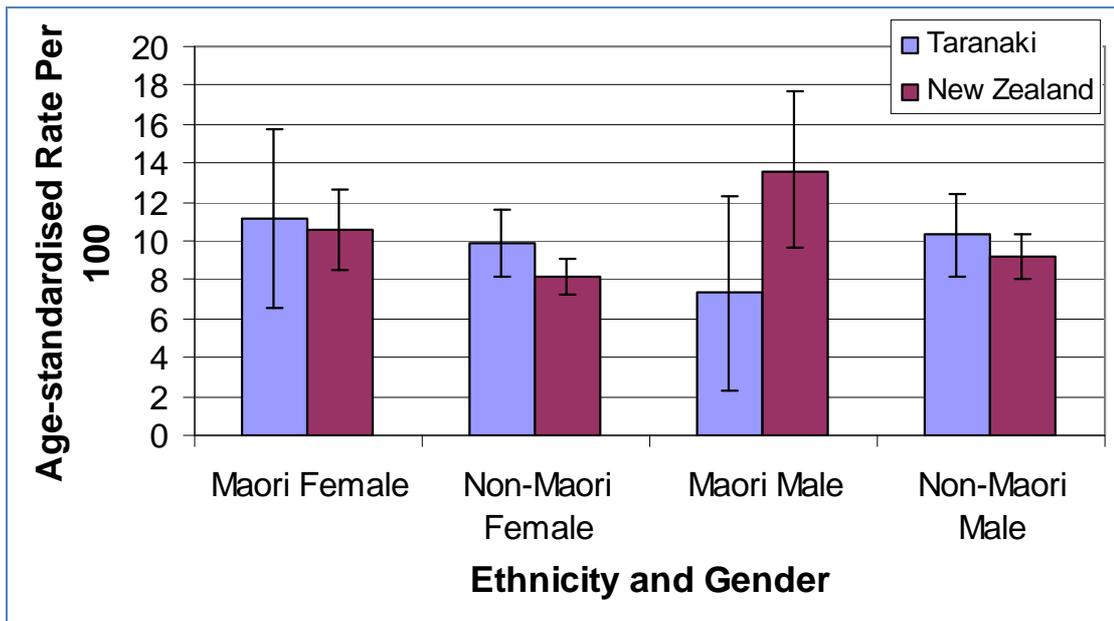


Figure 15: Heart Disease Prevalence, 15+ Years, 2003 – 04 (Source: New Zealand Health Information Service)

Māori of both sexes had significantly higher rates of all cardiovascular disease hospitalisation than their non-Māori counterparts in Taranaki. Except for Māori females these rates seem to have reduced significantly from 2000/01 to 2002/03 in Taranaki.

The hospitalisation rates among Māori females and non-Māori of both sexes in Taranaki were significantly higher than among their counterparts in New Zealand.

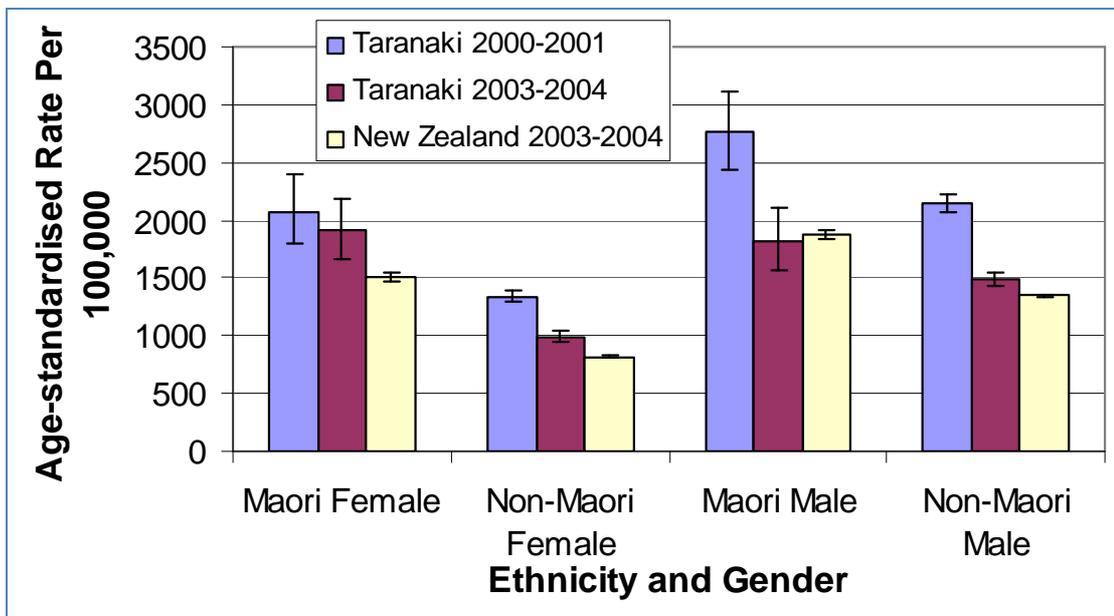


Figure 16: All Cardiovascular Disease Hospitalisation (Source: New Zealand Health Information Service)

All cardiovascular disease mortality rates for Māori were significantly higher than their non-Māori counterparts in 2002-2003 in Taranaki, at double the rates.

All females in Taranaki had non-significantly higher rates of all cardiovascular disease mortality than their counterparts in New Zealand.

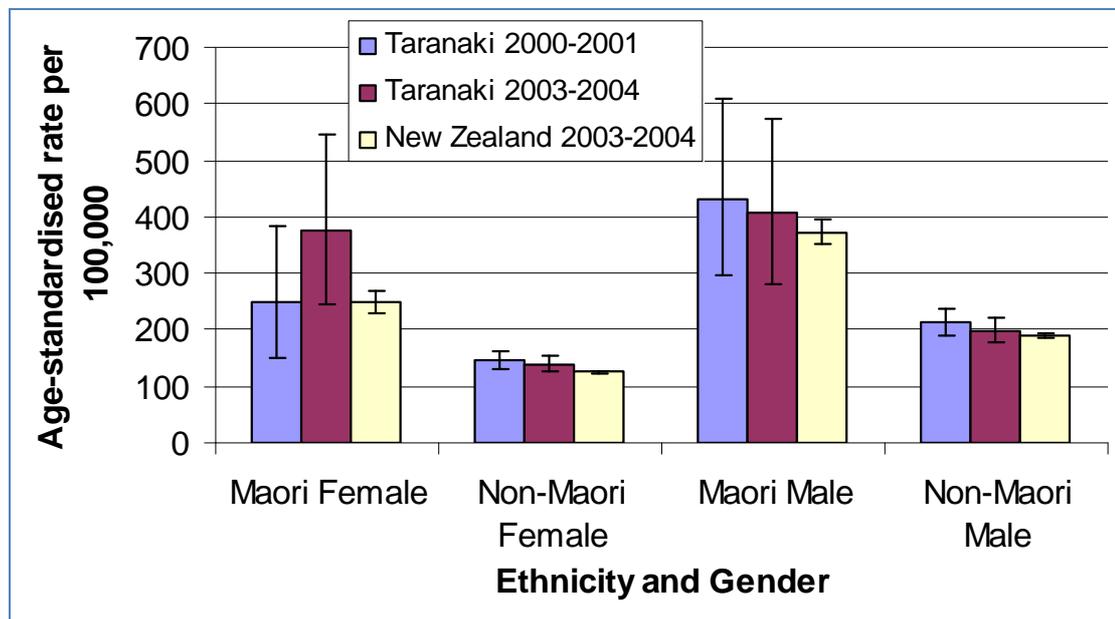


Figure 17: All Cardiovascular Disease Mortality (Source: New Zealand Health Information Service)

In Taranaki, the rate of ischaemic heart disease hospitalisation for Māori females was significantly higher than non-Māori females in 2003-2004. However, the rate for Māori males was non-significantly lower than for non-Māori males.

With the exception of Māori males, the ischaemic heart disease hospitalisation rates in Taranaki were significantly higher than in New Zealand.

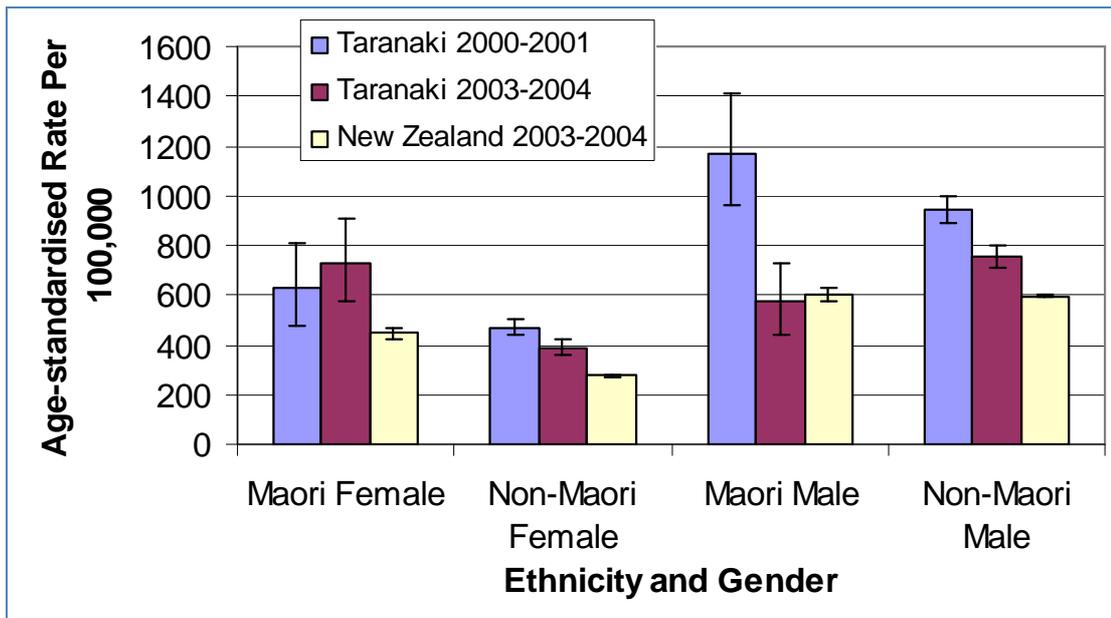


Figure 18: Ischaemic Heart Disease Hospitalisation (Source: New Zealand Health Information Service)

The rates of ischaemic heart disease mortality were significantly higher among Māori than non-Māori in 2003-2004 in Taranaki. The rates for males were higher than females, although these differences were not statistically significant for Māori in Taranaki.

Non-Māori of both sexes and the Māori total in Taranaki had significantly higher rates of ischaemic heart disease mortality than their counterparts in New Zealand.

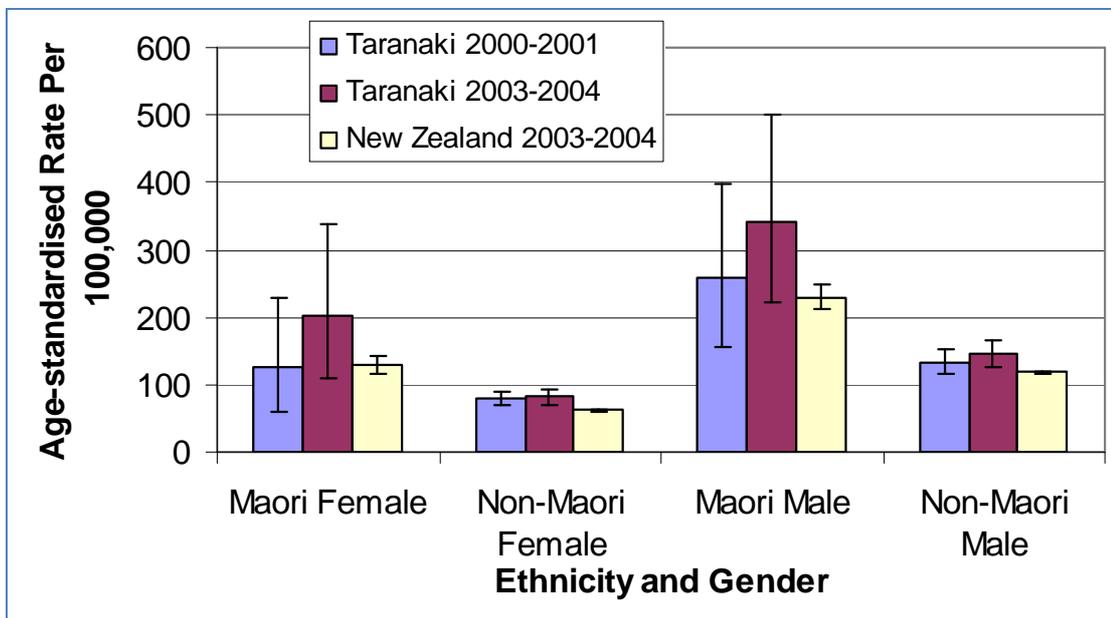


Figure 19: Ischaemic Heart Disease Mortality (Source: New Zealand Health Information Service)

The stroke hospitalisation rate was significantly higher for Māori males than their non-Māori counterparts in 2003-2004 in Taranaki.

There was a significantly lower rate of stroke hospitalisation among non-Māori males in Taranaki than those in New Zealand.

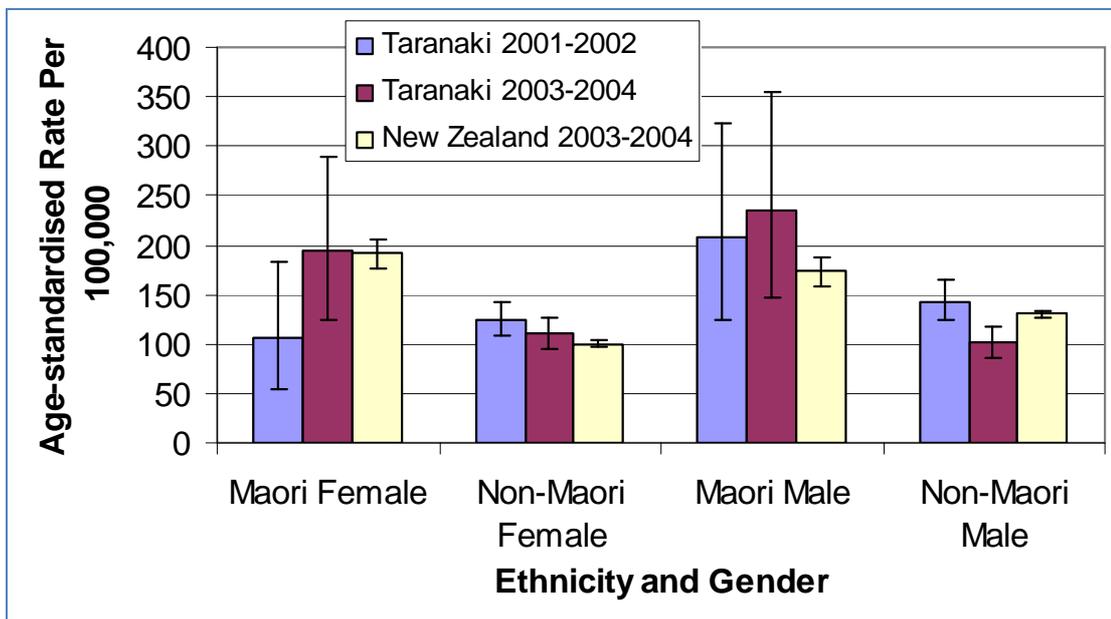


Figure 20: Stroke Hospitalisation (Source: New Zealand Health Information Service)

The rate of stroke mortality among Māori was similar to non-Māori in 2002-2003 in Taranaki.

The total stroke mortality rate for non-Māori in Taranaki was significantly lower than their counterparts in New Zealand.

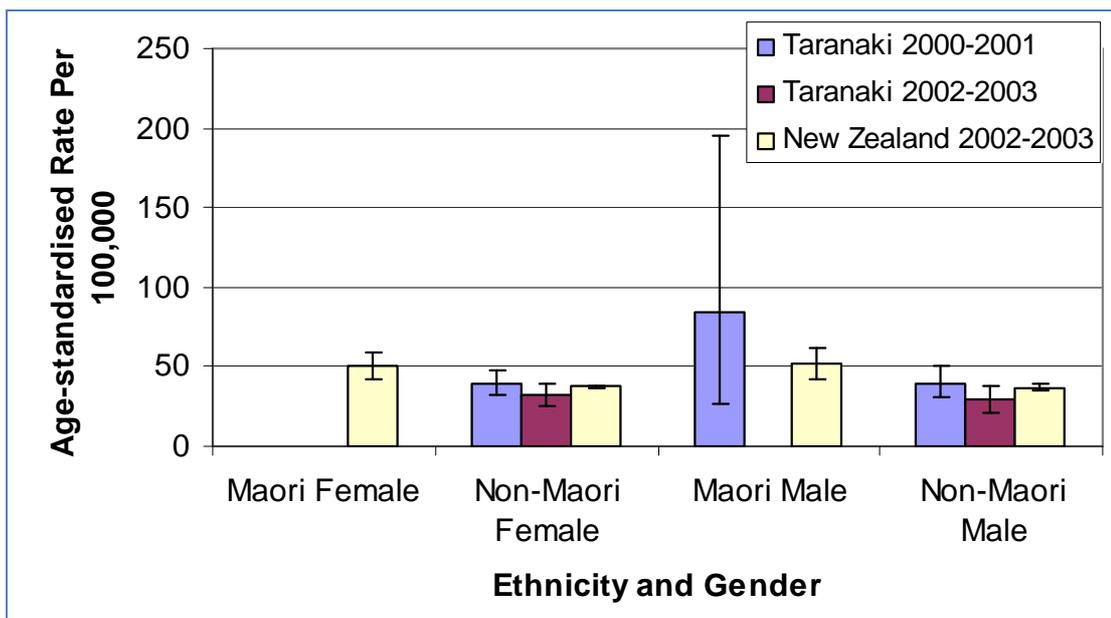


Figure 21: Stroke Mortality (Source: New Zealand Health Information Service)

## *Respiratory Disease*

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### **Reduce the incidence and impact of respiratory diseases**

Respiratory diseases, in particularly asthma and Chronic Obstructive Pulmonary Disease (COPD), are a significant burden of disease and cause of death for people within Taranaki. Asthma is particularly significant for children and Māori, and accounts for high numbers of admissions to hospital in Taranaki. COPD (which includes emphysema and chronic bronchitis) has a strong impact on older people.

Cigarette smoking is the most important risk factor that can cause these diseases, and is something that we can change in our communities. Other risk factors for respiratory disease include obesity, environmental pollutants and poor housing, which are also factors we can influence and change.

More self management and local care for respiratory disease can also reduce hospital admissions and the severity of the disease for individuals.

### **Our Strategic Aims For Respiratory Disease**

- Less people are developing respiratory disease, especially those diseases whose main risk factor is smoking
- We have increased early detection and reduced the inequality gap
- Fewer people are dying of respiratory diseases due to effective treatment
- A co-ordinated approach to respiratory disease is well established covering prevention, screening, early detection, diagnosis, treatment
- Rehabilitation and palliative care

The self-reported asthma prevalence was similar between Māori and non-Māori in Taranaki and between Taranaki and New Zealand.

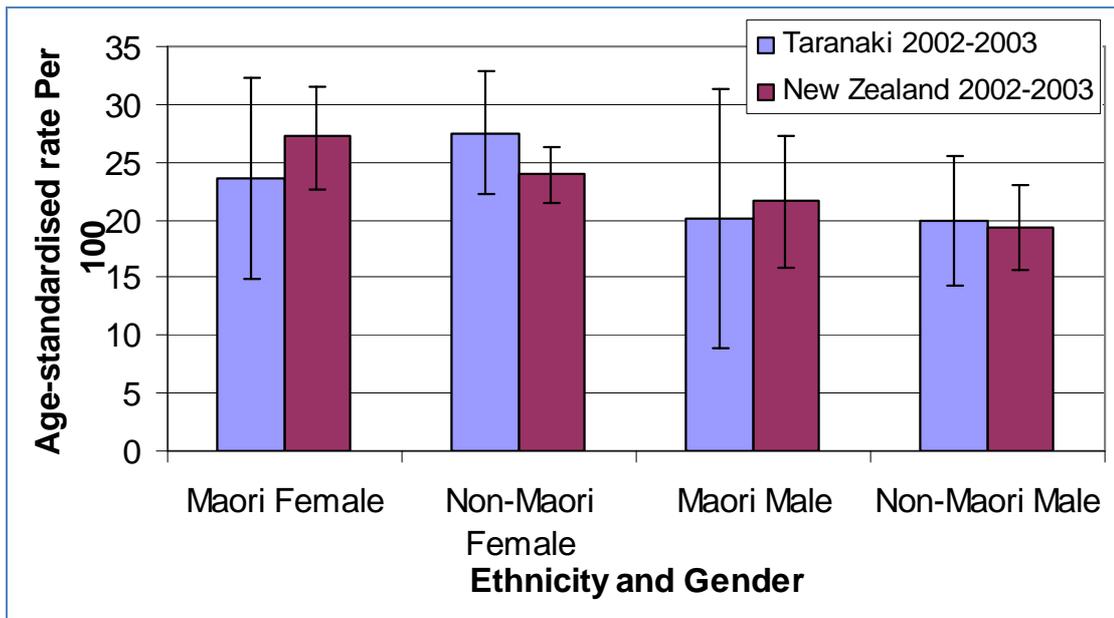


Figure 22: Asthma Prevalence, 15-45 Years (Source: New Zealand Health Information Service)

The self-reported prevalence's of chronic obstructive pulmonary disease (COPD) were similar between Māori and non-Māori in Taranaki. There was no significant difference in the rates between Taranaki and New Zealand.

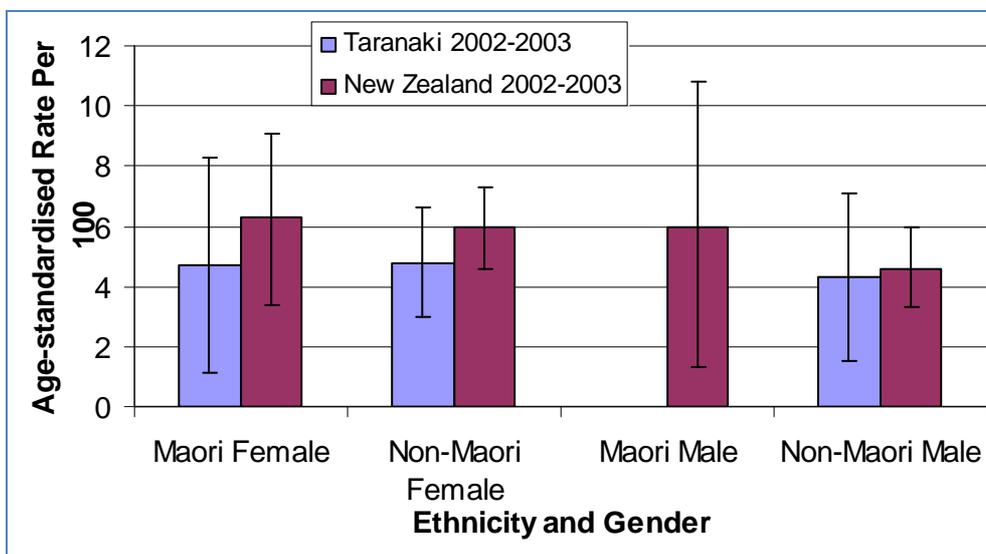


Figure 23: Chronic Obstructive Pulmonary Disease (COPD) Prevalence, 45+ Years (Source: New Zealand Health Information Service)

Māori had significantly higher rates of COPD hospitalisation than non-Māori in Taranaki. In 2003-2004, the rate for Māori females was 3.5 times higher and for Māori males 2 times higher than non-Māori.

The COPD hospitalisation rate was significantly higher for non-Māori males, and marginally significantly higher for non-Māori females, in Taranaki than in New Zealand.

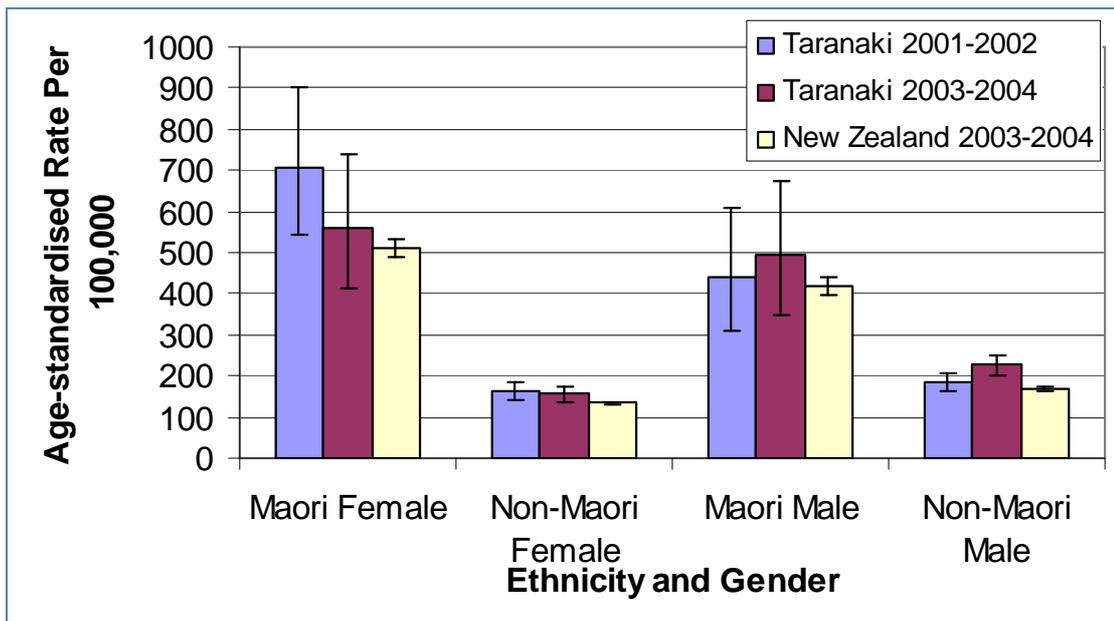


Figure 24: Chronic Obstructive Pulmonary Disease (COPD) Hospitalisation (Source: New Zealand Health Information Service)

In 2002-2003 Māori had higher rates of COPD mortality than non-Māori in Taranaki, although this difference was not statistically significant for Māori males. The rate for Māori females was more than 4 times higher than non-Māori females in Taranaki.

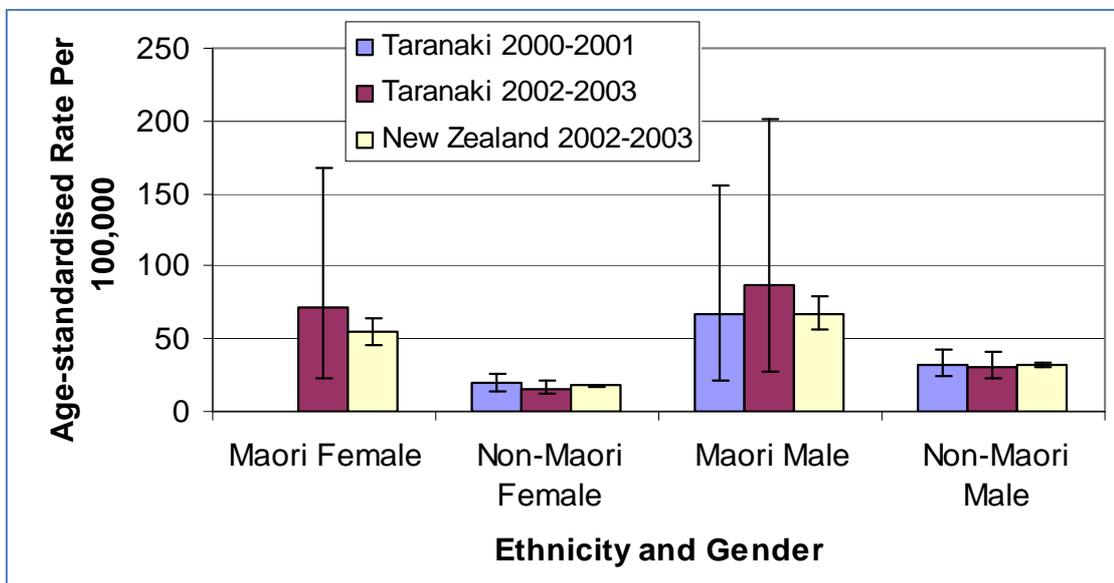


Figure 25: Chronic Obstructive Pulmonary Disease (COPD) Mortality (Source: New Zealand Health Information Service)

**Diabetes**

**Reduce the incidence and impact of diabetes**

Diabetes is estimated to cause at least 1,200 deaths in New Zealand every year. Diabetes complications (such as heart disease, stroke, blindness, kidney failure, and limb amputations) increase the burden of the disease experienced by people from middle age, especially in Māori and Pacific communities.

Obesity, poor nutrition and smoking are key risk factors, particularly for Type II (non-insulin dependent) Diabetes. However, we can do something about the risk factors that contribute to this illness, and if we detect diabetes early and manage the condition, then people's health can be significantly better.

Among Māori, diabetes is estimated to cause almost 20 percent of all deaths and years of life lost. This is second only to the negative impacts of tobacco.

### What Are Our Strategic Aims for Diabetes

- Fewer people are developing Type II diabetes, which is associated with lifestyle factors
- Early detection of diabetes has increased due to greater awareness of risk factors and the use of screening tools
- Fewer people require treatment and admission to hospital for complications related to diabetes due to earlier and better self management
- A co-ordinated approach to diabetes is well established that covers prevention, screening, early detection, diagnosis, treatment, rehabilitation and palliative care

Māori had higher self-reported prevalence's of diabetes than non-Māori in Taranaki, although these differences were not statistically significant. The rate for Māori males was higher than Māori females. Again this difference was not significant.

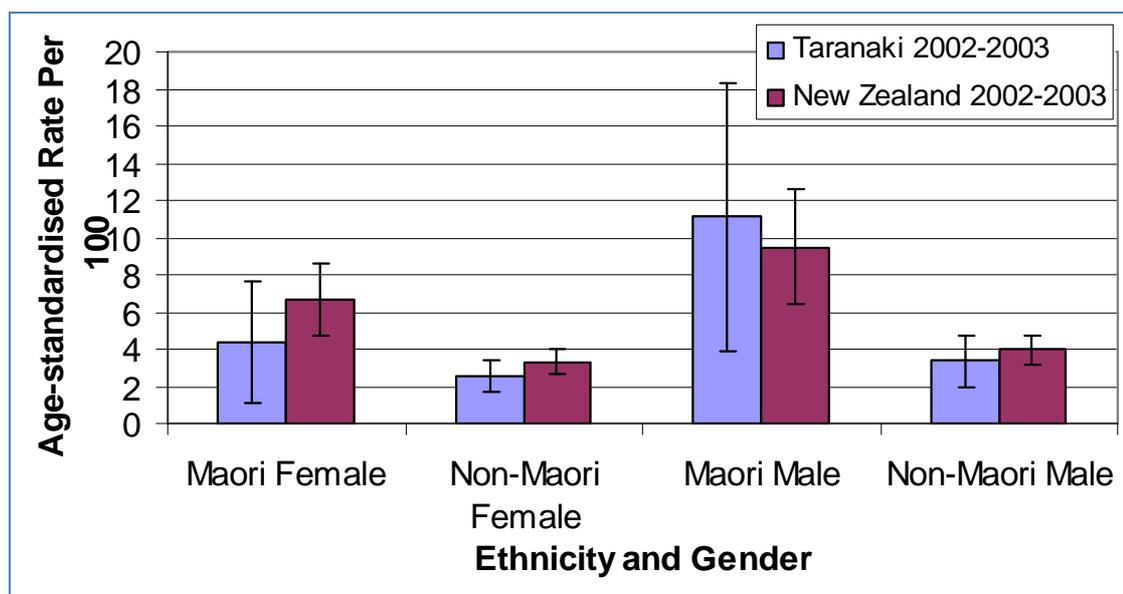


Figure 26: Diabetes Prevalence, 15+ Years (Source: New Zealand Health Information Service)

Māori diabetes hospitalisation rates were 3 times significantly higher than non-Māori in 2003-2004 in Taranaki.

Both Māori and non-Māori females in Taranaki had significantly higher rates of diabetes hospitalisation than their counterparts in New Zealand.

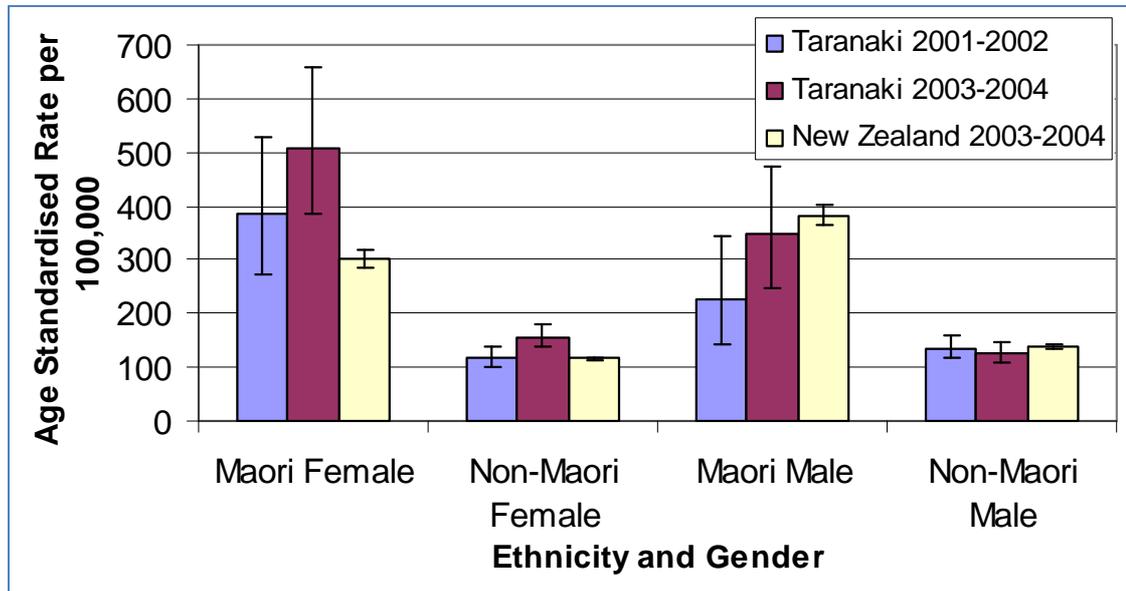


Figure 27: Diabetes Hospitalisation (Source: New Zealand Health Information Service)

Among Māori females, the rate of renal failure in people with diabetes was 11 times higher and among Māori males, the rate was 15 times higher than among their non-Māori counterparts in Taranaki.

Except for non-Māori males, the rates of renal failure complication in Taranaki were higher than in New Zealand, although these differences were only statistically significant for Māori and non-Māori females.

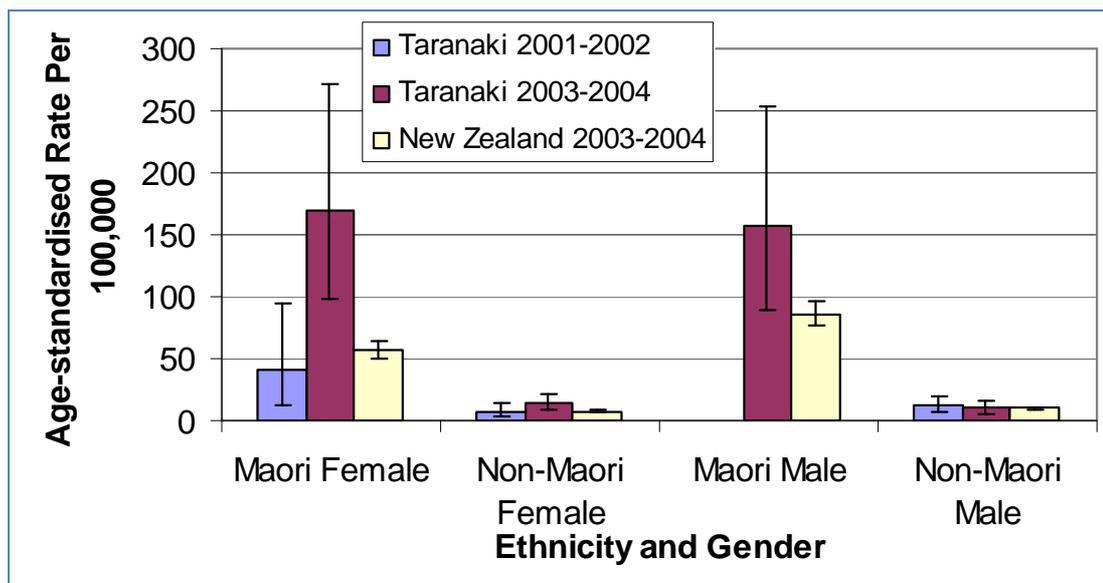


Figure 28: Diabetes Complications – Renal Failure with Concurrent Diabetes (Source: New Zealand Health Information Service)

Fewer than five Māori had lower limb amputation with concurrent diabetes in both periods in Taranaki.

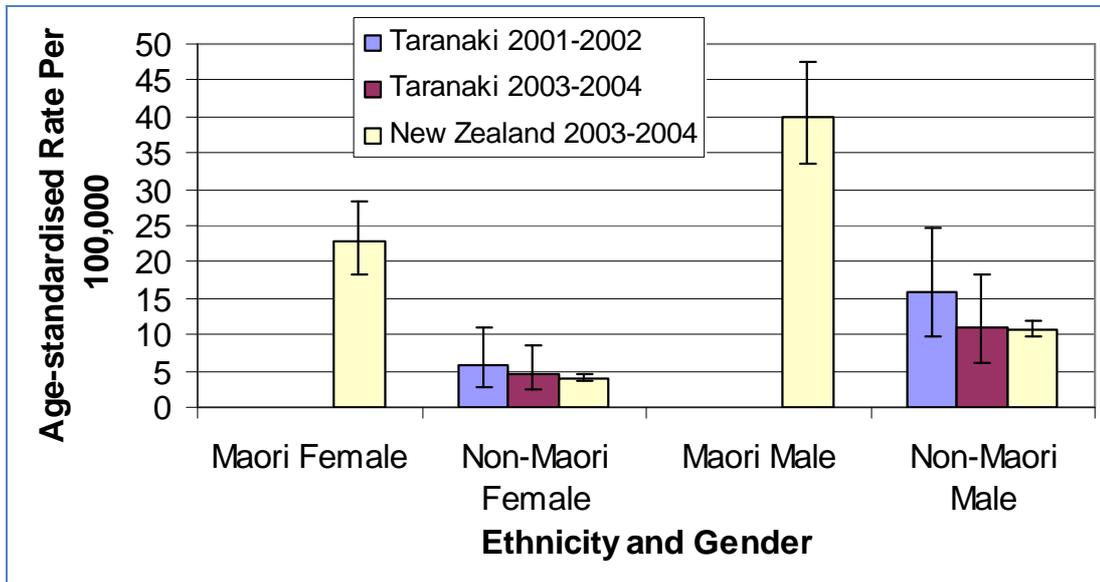


Figure 29: Diabetes Complications – Lower Limb Amputation with Concurrent Diabetes (Source: New Zealand Health Information Service)

## Appendix III: Individuals and organisations interviewed and consulted during review

- Kathy Curd, Te Atiawa, Te Atiawa Offices, 22 Gill Street, New Plymouth
- Warren Nicholls, Ngati Ruanui and disease-state management/outreach nurses, Ngati Ruanui Offices, 78-90 Argyll Street, Hawera
- Erana Coutts, Karangaora Incorporated, Karangaora Offices, 36 Maratahu Street, Westown, New Plymouth
- Christine Nicholas and Patsy Bodger, Piki Te Ora Nursing Services, iki Te Ora Offices, 36 Maratahu Street, Westown, New Plymouth
- Pam Ritai, Manaaki Oranga, Manaaki Oranga Offices, 36 Maratahu Street, Westown, New Plymouth
- Carleen Broughton, Te Hauora Pou Heretanga; Mihi Kahu, Ruamano Trust and Karl Broughton, Mahia Mai Taranaki DHB Corporate Meeting Room 3, TDHB
- Rosemary Ireland, Jenny Kissick, Liz Angus
- Jo Appleyard and Shirley-Anne Managh – Urenui Health group
- Maureen Spurway and Cathy Vickers
- Anne Madison, Cameron Grant – Fargie
- Dr David Sampson
- Mary Bird – Allied Health Co-ordinator, Gillian Gonthier – Dietician, Jacqui Herrett – Occupational Therapist, Caroline Blume – Speech Language Therapist, Vicky Lee – Advisory Physiotherapist
- Dr Di Stokes and Dr Lorraine Taylor
- Glendyr Field and Maxine Hooper – Tainui Rest Home, Karen Scott – Molly Ryan Lifecare Ltd
- Carla Wynd and Roxanne White – Maida Vale Rest Home
- Steve Finnigan, Diane Jones and Pauline Cruickshank, Inglewood Medical Centre
- Liz Goldie, Ray Lind, Todd Baker, Anton Venter - Healthcare NZ, Martin Withers – Access Home Health, Carleen Broughton - Te Hauora Pou Heretaunga , Alistair Stevenson – Omahanui Rest Home, Ondine Claridge – Presbyterian Support.
- Chris Manukonga –Manager @ Friends Plus
- Gail Riccitelli (Psychiatrist)
- Maree Marchant (Social Worker Co-ordinator/Advisor) and Carla Perry (Social Worker)
- Steve Perry (Senior Financial Analyst)
- Sue Berry (Clinical Nurse Manager District Nursing) and Geraldine Jensen (Clinical Nurse Manager, Hawera Hosp)
- Kerry-Ann Adlam (Director of Nursing)
- Simon Browes
- Joy Farley
- Tony McLean with Judy Bilderbeck (Access Ability)
- TDHB District Nurses and Home Support Team
- Pauline Cruickshank, Jane Hawkins-Jones, Anaru Wilkie

## Appendix IV Provisional Financials

### Provisional Costings for TDHB Project Splice Implementation

Area	FTE Cost	Overhead	#FTE	Cost
<b>Care Managers</b>				
Clinical Staff	60,000	21,038	8	648,304
<b>Referral Triage and non complex management</b>				
Clinical Staff	60,000	21,038	1.5	121,557
Administration	36,000	12,983	2	97,966
				219,523
<b>Current NASC Costs</b>				
As per contract				621,705
<b>Net Investment in care management</b>				246,122

#### Home based support

Package or bulk funding at reflecting current rates  
 Change funding model to enable providers to deliver restorative care  
 Shift mix to more developed packages for people with complex needs

#### Mobile nursing and short term home based support

Coordination unchanged existing staffing home support unit and DN coordination  
 Short term home based support continued subcontracted delivery  
 Mobile nursing initial staffing same level as current district nursing  
 Adjust as appropriate over time to mix of people who can attend clinic vs non mobile  
 Evolve to include under 75 LTC navigation function

#### Practice / Clinic based nursing

Initial staffing same level as current  
 Adjust as appropriate over time to mix of people who can attend clinic vs non mobile  
 General practice staffing mix may change overtime to include more nursing  
 Enhanced care management for under 75 LTCs as funding becomes available from HSPF

#### Allied Health

Reorganisation of current staff  
 Note that the recent review has benchmarked against DHBs with a low Community presence  
 Additional investment to be considered as part of detailed implementation planning

#### District Support and Development Unit

Assume staffed from existing staff roles  
 Quality oversight function to be reviewed as part of implementation consultation

#### One off transition external costs

Project management	50,000
Consultation process	10,000
Detailed financials	6,000
HR change process	25,000
Role definition for nursing roles	3,000
Training for Care managers	20,000
Establishment of integrated coordination unit	15,000
DSD establishment	10,000
Quality oversight process	15,000
Restorative home support transition	30,000
	184,000



## References

1. World Health Organization, *Preventing chronic diseases: A vital investment*, in *World Health Organisation*. 2006: Geneva.
2. World Health Organization. *Important target groups*. 2005 [cited 2005 June, 10th]; Available from: [www.who.int/oral\\_health/action/groups/en/index1.html](http://www.who.int/oral_health/action/groups/en/index1.html).
3. Benzeval M, Judge K, and Whitehead M, *Tackling inequalities in health: an agenda for action*. 1995, King's Fund: London.
4. Power C, Matthews S, and Manor O, *Inequalities in self-rated health in the 1958 birth cohort: Lifetime social circumstances or social mobility?* *British Medical Journal of Australia*, 1996. **313**: p. 449-53.
5. Ajwani, S., Blakely, T., & Robson, B., *Decades of disparity: ethnic mortality trends in New Zealand 1980-1999*. 2003, Ministry of Health and University of Otago: Wellington.
6. Ministry of Health, *A portrait of health: key results from the 2002/03 New Zealand Health Survey*. 2004, Ministry of Health: Wellington.
7. Ministry of Health, *Health of older people in New Zealand: A statistical reference*. 2002a, Ministry of Health: Wellington.
8. Bortz, W.M., *Redefining Human Aging*. *Journal of the American Geriatric Society*, 1989. **37**: p. 1092-1096.
9. Bortz, W.M., 2nd, *A conceptual framework of frailty: a review*. *J Gerontol A Biol Sci Med Sci*, 2002. **57**(5): p. M283-8.
10. Boyd, C.M., et al., *Frailty, hospitalization, and progression of disability in a cohort of disabled older women*. *Am J Med*, 2005. **118**(11): p. 1225-31.
11. Campbell, A.J., & Buchner, D.M., *Unstable disability and the fluctuations of frailty*. *Age & Ageing*, 1997. **26**(4): p. 315-8.
12. Covinsky, K.E., et al., *The last 2 years of life: functional trajectories of frail older people*. *Journal of the American Geriatrics Society*, 2003. **51**(4): p. 492-8.
13. Fries, J.F., *Frailty, heart disease, and stroke: the Compression of Morbidity paradigm*. *Am J Prev Med*, 2005. **29**(5 Suppl 1): p. 164-8.
14. Ministry of Health, *Health of Older People in New Zealand: A Statistical Reference*. 2002, The Ministry of Health: Wellington, New Zealand.
15. National Advisory Committee on Health and Disability, *Meeting the needs of people with chronic conditions*. 2006, Ministry of Health: Wellington.
16. National Health Committee, *People with chronic conditions*. 2005, Health Pac: Wellington.
17. Ministry of Health, *Health of Older People Strategy: Health Sector Action to 2010 to Support Positive Ageing*. 2002b, Ministry of Health: Wellington.
18. Dalziel, L., *The New Zealand Positive Ageing Strategy*. 2001, The Ministry of Health: Wellington.
19. Ministry of Health, *Guideline for specialist health services for older people*. 2004, Wellington, New Zealand: Ministry of Health.
20. New Zealand Guidelines Group, *Assessment processes for older people*. 2003, New Zealand Guidelines Group.
21. King, A., *The Primary Health Care Strategy*. 2001: Ministry of Health.
22. Parsons, M., Anderson, C, Senior, H, Chen, X, Kerse, N, Brown, P, Jacobs, S, Jorgensen, D, & Kilpatrick, J,, *ASPIRE (Assessment of Services Promoting Independence and Recovery in Elders)*. 2006, The University of Auckland: Auckland.
23. Parsons, M., et al., *Disability Support Services in New Zealand: Part 1, Service Provider Survey*. 2004, Ministry of Health: Wellington.
24. Brandt, T., et al., *Disability Support Services in New Zealand: Part II, Provider Survey*. 2004, Ministry of Health: Wellington.

25. Parsons, M., et al., *Disability Support Services in New Zealand: The Workforce Survey*. 2004, Ministry of Health: Wellington.
26. Ministry of Health, *Ageing New Zealand and Health and Disability Services 2001-2021: Background information-International responses to ageing populations*. 2004, Ministry of Health: Wellington.
27. Moore, G. and J. Showstack, *Primary care medicine in crisis: toward reconstruction and renewal*. *Annals of Internal Medicine*, 2003. **138**(3): p. 230-2.
28. Herzlinger, R.E., *The managerial revolution in the U.S. health care sector: lessons from the U.S. economy*. *Health Care Management Review*, 1998. **23**(3): p. 19-29.
29. United Nations *Demographic Indicators 1950-2050 (data diskette, 1998 revision), medium estimate*. 1998.
30. Stevenson, J., *Comprehensive Assessment of Older People*, in *Kings Fund Rehabilitation Program. Developing Rehabilitation Opportunities for Older People Briefing Paper 2*. 1999, Kings Fund: London.
31. Iliffe, S., et al., *Assessment of elderly people in general practice. 4. Depression, functional ability and contact with services*. *British Journal of General Practice*, 1993. **43**(374): p. 371-4.
32. Department of Health and Family Services, *National Framework for Comprehensive Assessment in the HACC Program*. 1998, Canberra: Commonwealth Department of Health and Family Services.
33. Burns, R., et al., *Interdisciplinary geriatric primary care evaluation and management: two-year outcomes*. *Journal of the American Geriatrics Society*, 2000. **48**(1): p. 8-13.
34. Aminzadeh, F., *Adherence to recommendations of community-based comprehensive geriatric assessment programmes*. *Age & Ageing*, 2000. **29**(5): p. 401-7.
35. Rubenstein, L., et al., *Impacts of geriatric evaluation and management programs on defined outcomes: overview of the evidence*. *Journal of the American Geriatrics Society*, 1991. **39**: p. 85-165.
36. Stuck, et al., *Home visits to prevent nursing home admission and functional decline in elderly people: systematic review and meta-regression analysis*. *JAMA*, 2002. **287**(8): p. 1022-8.
37. The New Zealand Guidelines Group, *Assessment Processes for Older People*. 2003, The New Zealand Guidelines Group: Wellington.
38. Parsons, M., et al., *The Tauranga Older Person Assessment Trial (TOPCAT)*, M.o. Health, Editor. 2007: Wellington.
39. Bos, J.T., et al., *Variations in quality of Home Care between sites across Europe, as measured by Home Care Quality Indicators*. *Aging-Clinical & Experimental Research*, 2007. **19**(4): p. 323-9.
40. Carpenter, G.I., *Accuracy, validity and reliability in assessment and in evaluation of services for older people: the role of the interRAI MDS assessment system*. *Age Ageing*, 2006. **35**(4): p. 327-9.
41. Carpenter, I., *Standardised assessment in the community*, in *Community care, secondary health care and care management*, D. Challis, Darton, R., & Stewart, K., Editor. 1998, Ashgate Publishing Ltd: Canterbury. p. 89-116.
42. Thomas, P., *Experiences of two preventive clinics for the elderly*. *BMJ*, 1968. **2**: p. 357-360.
43. Williamson, J., I. Stokoe, and S. Gray, *Old people at home: their unreported needs*. *Lancet*, 1964. **1**: p. 1117-20.
44. Hendriksen, C., E. Lund, and E. Stromgard, *Consequences of assessment and intervention among elderly people: a three year randomised controlled trial*. *British Medical Journal*, 1984. **289**: p. 1522-4.
45. Stuck, A., J. Beck, and M. Egger, *Preventing disability in elderly people (editorial)*. *Lancet*, 2004. **364**: p. 1641-2.

46. Elkan, R., et al., *Effectiveness of home based support for older people: systematic review and meta-analysis Commentary: When, where, and why do preventive home visits*. BMJ, 2001. **323**(7315): p. 719-.
47. Stuck, A., et al., *Home visits to prevent nursing home admission and functional decline in elderly people: systematic review and meta-regression analysis*. JAMA, 2002. **287**: p. 1022-1028.
48. Hedrick, S., T.D. Koepsell, and T. Inui, *Meta-Analysis of Home-Care Effects on Mortality and Nursing-Home Placement*. Medical Care., 1989. **27**: p. 1015-1026.
49. van Haastregt, J.C.M., et al., *Effects of preventive home visits to elderly people living in the community: systematic review*. BMJ, 2000. **320**(7237): p. 754-758.
50. Fletcher, A.E., *Multidimensional assessment of elderly people in the community*. British Medical Bulletin, 1998. **54**: p. 945-960.
51. Department of Health and Aged Care, *The Australian Coordinated Care Trials: Final Technical National Evaluation Report of the First Round of Trials*. 2001, Commonwealth Department of Health and Aged Care: Canberra.
52. Byles, J., et al., *Randomised controlled trial of health assessments for older Australian veterans and war widows*. Medical Journal of Australia., 2004. **181**: p. 186-190.
53. Fletcher, A., et al., *Population-based multidimensional assessment of older people in UK general practice: a cluster-randomised factorial trial*. Lancet, 2004. **364**: p. 1667-1677.
54. Landi, F., Tua, E., Onder, G., Carrara, B., Sgadari, A., Rinaldi, C., Gambassi, G., Lattanzio, F., & Bernabi, R., *Minimum data set for home care: a valid instrument to assess frail older people living in the community*. Med Care, 2000. **38**(12): p. 1184-1190.
55. Landi, F., et al., *Impact of integrated home care services on hospital use*. J Am Geriatr Soc, 1999. **47**(12): p. 1430-4.
56. Landi, F., et al., *A new model of integrated home care for the elderly: impact on hospital use*. J Clin Epidemiol, 2001. **54**(9): p. 968-70.
57. Onder, G., et al., *Case management and risk of nursing home admission for older adults in home care: results of the AgeD in HOme Care Study*. J Am Geriatr Soc, 2007. **55**(3): p. 439-44.
58. Battersby, M., Lowcay, B., McPherson, J., Ask, A., March, R., Miller, E. *Identifying and recommending assessment instruments for the Coordinated Care Trials*. 2001 [cited 2003 03/10/2003].